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2013 Nonresidential Downstream Custom ESPI Lighting Impact Evaluation Report

Prepared for
California Public Utilities Commission

Itron, Inc.
1111 Broadway, Suite 1800
Oakland, CA 94607

(510) 844-2800

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Introduction

This report documents the activities undertaken by the Nonresidential Downstream Custom Lighting Impact Evaluation of the 2013 investor-owned utilities' (IOU) energy efficiency programs. The overall goal of this study is to address the needs for ex post evaluation for custom measures as outlined in the Efficiency Savings and Performance Incentive (ESPI) decision[1].

This report presents the findings and results from this evaluation, which includes a presentation of the goals and objectives of the evaluation, the researchable issues, data sources used, the approach for sampling, the methods to determine gross and net impacts, and the resulting ex post net and gross energy and demand impacts.

1.1 Goals and Objectives

As mentioned, the overall goal of this evaluation is to address the needs for ex post evaluation for custom measures as outlined in the ESPI decision. As discussed in Appendix 2 of the decision, "for custom projects, 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."

1.2 Overview of Measures to be Studied

This study is a component of the larger Nonresidential Downstream Impact Evaluation Work Order. The objectives for this study are very focused in meeting the needs for ex post evaluation for custom measures as outlined in the Efficiency Savings and Performance Incentive (ESPI) decision. For this evaluation, all nonresidential lighting measures that are considered to be custom (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 2013, energy savings from nonresidential downstream custom lighting measures represented 11% of the overall ex ante gross kWh savings portfolio for the Program Administrators' (PA)

[1] D.13.09.023, Decision Adopting Efficiency Savings and Performance Incentive Mechanism.

energy efficiency programs, and 8% of overall ex ante gross kW savings. The following table summarizes the total savings claim by PA and statewide for 2013. 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).[2]

Table 1-1: Summary of 2013 Nonresidential Downstream Lighting Gross Ex Ante Savings

	Total Savings		Savings as a % of Portfolio	
IOU/PA	**GWh**	**MW**	**kWh**	**kW**
PG&E	111.3	14.1	13%	8%
SCE	84.2	11.7	9%	7%
SDG&E	10.0	1.4	6%	5%
Statewide	**205.5**	**27.2**	**11%**	**8%**

1.3 Evaluation Approach and Research Objectives

Based on the study goal, the primary research issues for this evaluation center around determining net and gross *ex-post* impacts. For this evaluation, a gross realization rate (GRR) approach was employed, where site-specific gross ex-post impacts were estimated for a sample of participants. These site-specific gross ex-post impacts were then compared to the ex-ante impact 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. 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 custom measures under the 2010-12 Nonresidential Downstream Lighting Impact Evaluation[3].

A separate net-to-gross (NTG) analysis was then performed using a self-report analysis based on participant phone survey data. This analysis resulted in a set of net-to-gross ratios (NTGRs) by PA that were then applied to the population's gross savings values in order to estimate net savings.

In order to implement this approach in meeting the overall study goal, a number of research objectives were required, as follows.

[2] 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.

[3] http://www.energydataweb.com/cpuc/deliverableView.aspx?did=1155&uid=0&tid=0&cid=

- Confirm installations (verification). This included on-site verification of measure installation to confirm the installations reported by the PAs.

- Estimate baseline (both pre-retrofit and code/ISP based) and replacement (post-retrofit) equipment wattages, operating hours, and use shapes to support the estimate of energy savings values and 8760 impact load shapes.

- 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.

- Based on the above, estimate first year and lifetime gross and net ex post impacts (kWh, kW).

- Based on the ex post savings values, develop gross and net realization rates (GRRs and NRRs) that can be applied to the entire nonresidential downstream custom lighting population 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 2 discusses the data sources that were utilized to estimate each of the individual parameters that comprise the impact load shapes.
- Section 3 discusses the sample design and resulting data used in the evaluation.
- Section 4 provides a high level discussion of the overall impact evaluation approach, for estimating net and gross savings.
- Section 5 presents the final study results, including the gross and net realization rates and total population level ex-post energy savings values.
- 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.

2

Data Sources

This section outlines key primary and secondary sources of information utilized in this evaluation. Section 4, Evaluation Methodology, also discusses how the approaches and methodologies utilized these data sources.

2.1 Key Data Sources

2.1.1 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. Participant applications were requested for all sites that were evaluated, and key information from the applications were entered into the evaluation database.

2.1.2 On-Site Audits

On-site visits collected data to support a number of parameters used in the impact algorithm. Verification data were collected to support installation rates. Equipment manufacturer and model numbers were collected in order to perform lookups that provide information on the wattage of installed and replaced equipment to support the estimate of pre- and post-retrofit wattages. Furthermore, for some on sites, spot watt measurements were taken to estimate post-installation wattage. Self-report data was also gathered on the wattage of pre-existing equipment when actual equipment replaced was not on site and project applications did not document pre-wattages, to help support the estimate of pre-retrofit wattages. Finally, self-report data was gathered on lighting equipment usage schedules to aid in the development of pre- and post-retrofit load shapes.

2.1.3 Participant Phone Survey

A phone survey was conducted to recruit customers for the on-site visit, as well as collect data useful for the net-to-gross (NTG) analysis and various other components of the evaluation. One other key use of the phone survey data was to identify if customer installations were early replacement (ER) or replacement on burnout (ROB), or verify the ER claim provided in the customer's application documentation.

2.1.4 Commercial Market Share Tracking Study Data

The Commercial Market Share Tracking study provided information on lighting equipment installations that occurred outside of the CPUC programs. This information was utilized to develop industry standard practices for lighting retrofits.

3

Sample Design and Data Collection

There were two primary data collection activities, which were on-site and participant phone surveys. Both sample designs are discussed below.

3.1 On-Site Sample Design and Data Collection

As mentioned above, the on-site visits collected data to support a number of the impact parameters including the installation rates, pre and post wattages and pre and post operating hours. The overall objective of the sample design was to develop net first-year and lifecycle realization rates at a reasonable level of relative precision, while considering the budget allocated for this activity. This objective is based on the fact that the ESPI incentive mechanism is based on net lifecycle savings. Separate realization rates were developed by PA. Because PG&E and SCE have a significantly larger savings claims, more resources were dedicated to evaluating net lifecycle savings for those PAs.

To improve the statistical precision of the PA-specific realization rates, the sample was further stratified by project size (very large, large, medium and small), with a large percentage of the projects being evaluated on the very largest projects. Therefore, the sample was stratified into 12 segments (3 PAs x 4 Size Strata) in order to develop population level estimates of net lifecycle for each of the three PAs. The precision objectives were set at measuring the net lifecycle savings at a relative precision of approximately 30% for each PA at the 90% confidence level (90/30). At the statewide level, the targeted relative precision was approximately 90/20.

To meet these levels of targeted precision, a sample size of 58 projects evaluated was estimated (22 for PG&E, 21 for SCE and 15 for SDG&E). These sample sizes were based on estimates of coefficients of variation (COV) developed from the 2010-12 nonresidential downstream lighting impact evaluation. For the large and medium sized projects, a COV of approximately 0.85 was found, and a slightly higher COV of 1.0 was found for the smaller projects.

Table 3-1 presents the sample design along with the actual number of projects that were sampled. A total of 46 projects were sampled, that represented 11% of the total ex ante savings claimed for the population (and over a quarter of the combined large and very large segment's savings). The target was achieved for PG&E and nearly achieved for SCE, but for SDG&E the achieved sample was significantly below the target. SCE and PG&E's participant populations both

exceeded 1,000, whereas the participant population for SDG&E was only 166, which created some limitations. The low response rate for SDG&E was not due to refusals to conduct the survey, in fact not a single participant refused. The issue was being able to reach the contact person. There did not appear to be any issues with the quality of the contact information either, as there were no numbers out of service. Every SDG&E point that did not result in a completed survey was contacted a minimum of eight times.

Table 3-1: Sample Design and Achieved Data Collection for On-site Sample

Program Administrator	Project Size	Project Size (MWh)	Population # of Projects	Ex Ante Savings	Target Sample Size	Achieved Projects Sampled	Achieved Ex Ante Savings Sampled
PG&E	Very Large	>1,000	6	13,126,031	4	3	7,754,388
	Large	250-1,000	84	29,792,232	6	7	2,465,158
	Medium	50-250	399	38,577,533	6	4	499,619
	Small	<50	1,789	29,717,006	6	7	108,682
PG&E Total			**2,326**	**111,212,802**	**22**	**21**	**10,827,845**
SCE	Very Large	>1,600	1	3,017,144	3	1	3,017,144
	Large	250-1,600	67	36,248,092	6	10	5,028,792
	Medium	50-250	260	30,512,100	6	2	343,084
	Small	<50	889	14,443,326	6	6	92,508
SCE Total			**1,217**	**84,220,662**	**21**	**19**	**8,481,528**
SDG&E	Very Large	>500	4	2,893,425	3	2	1,144,390
	Large	200-500	8	2,606,878	4	3	1,034,612
	Medium	50-200	19	1,836,101	4		
	Small	<50	135	2,641,209	4	1	30,617
SDG&E Total			**166**	**9,977,613**	**15**	**6**	**2,209,618**
Statewide	Very Large		11	19,036,600	10	6	11,915,921
	Large		159	68,647,202	16	20	8,528,562
	Medium		678	70,925,734	16	6	842,702
	Small		2,813	46,801,540	16	14	231,806
Statewide Total			**3,709**	**205,411,076**	**58**	**46**	**21,518,991**

3.2 Participant Phone Survey Sample Design and Data Collection

One of the key objectives of the phone survey was to develop NTGRs for each PA. This analysis was done based solely on the participant phone survey responses. The NTGR survey battery was administered as part of the recruitment for the onsite audits. Therefore, the same stratification scheme was used for sampling the telephone surveys (PA and project size). The precision objective for the phone surveys was to estimate the NTGRs at a relative precision of approximately 10% for each PA at the 90% confidence level. This is based on a COV estimate of 0.3 obtained from the 2010-12 Nonresidential Downstream Lighting Impact Evaluation.

We relied on assistance from the PAs and their account representatives to recruit customers for the phone survey and onsites. However, for the smaller sites that do not have an account representative, recruitment was done solely through the phone survey. For these smaller customers we expected to get a recruitment rate in the neighborhood of 50%. Therefore, we expected to have more participants contacted for surveys as for onsites for the <50,000 kWh project size stratum.

Separate NTGRs were estimated for each PA based on the results of the phone survey. Not all participants in the onsite sample, however, were recruited through the phone survey. Therefore, a small number of participants that were visited onsite did not have the NTGR survey battery conducted and were not a part of this analysis. Conversely, some participants agreed to the phone survey, but refused the onsite visit, so those participants were used in the NTGR analysis, but not the gross analysis.

Table 3-2 presents the sample design along with the actual number of projects that were sampled by PA. Also shown are the number of NTGR surveys completed that corresponded to participants that also had an onsite conducted versus those that did not. A total of 77 projects were surveyed. As with the onsite sample, the targets were nearly achieved for PG&E and SCE, but for SDG&E the achieved sample was significantly below the target.

Table 3-2: Sample Design and Achieved Data Collection for Phone Sample

Program Administrator	Target Sample Size	Achieved from Onsite Sample	Achieved from Survey Only (no Onsite)	Total Achieved Projects Sampled
PG&E	28	21	14	35
SCE	27	19	19	38
SDG&E	19	3	1	4
Statewide	**74**	**43**	**34**	**77**

4

Evaluation Methodology

This section provides an overview of the methods that were used to estimate the gross and net savings values and corresponding realization rates. Appendix C provides a detailed description of the approach used to estimate each individual parameter in the gross savings algorithm.

4.1 Overview of Gross Impact Evaluation Approach

For this evaluation a gross realization rate (GRR) approach was utilized, where site-specific gross ex-post impacts were estimated for a sample of participants. These site-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, which was then applied to the entire population of participants to create a population estimate of ex-post gross savings.

The general approach that was used to estimate site-specific ex-post gross savings values is based on developing hourly impacts to create an impact load profile. From this profile, impacts were then aggregated to develop an annual ex-post gross kWh savings value, or averaged over a set of specific hours to develop an ex-post gross kW savings value. The general algorithm applied to estimate energy savings for a specific hour is:

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

Where,

Measure_Qty = the quantity of measures found to have been installed and operable based on an on-site visit.

Baseline_Wattage = the wattage associated with the measures that were replaced or with measures 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).

Post_Wattage = the wattage associated with the measures that were installed.

Percent_On_Pre = the percentage of time the baseline equipment was on during a specific hour i, which was obtained from adjusted self-reported operating hours gathered on site or monitored HOUs if applicable.

Percent_On_Post = the percentage of time the installed equipment was on during a specific hour i, which was obtained from adjusted self-reported operating hours gathered on site. The Percent_On_Pre and Percent_On_Post were assumed to be equal for all measures, except occupancy sensors.

One final parameter that was utilized to estimate annual energy and demand impacts was 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 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.

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.

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 projects 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 and HID measures, but not for CFLs, LEDs and occupancy sensors. Because CFLs and LEDs 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.

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 RUL.

4.2 Overview of Net-to-Gross Analysis

For the 2013 program, the approach for estimating net-to-gross ratios (NTGRs) was based on the same approach utilized for the 2010-12 Nonresidential Downstream Lighting Impact Evaluation, which relied solely on participant phone survey data. The NTGR methodology utilized for the 2010-12 Nonresidential Downstream Lighting Impact Evaluation was based on the large non-residential free ridership approach developed by the Net-to-Gross Ratio (NTGR) Working Group and documented in Appendix C of that report, Methodological Framework for Using the Self-Report Approach to Estimating Net-to-Gross Ratios for Non-residential Customers. The NTGR is 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. The participant phone survey was the basis for the inputs to each score.

- **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 example 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 score. If two or more scores were missing, results were discarded from the calculation.

5

Results

This section presents the final results for the 2013 Nonresidential Downstream Custom Lighting Impact Evaluation. Presented are the gross and net realization rates for first year and lifecycle kW and kWh savings, as well as the statewide nonresidential downstream custom lighting ex-post population-level savings for first year and lifecycle kW and kWh.

5.1 Gross First Year Realization Rates

Once all the individual parameter estimates were developed for each participant in the on-site sample, and the customer was classified as either ROB/NR/NC or ER, the equation presented in Section 5 was applied to develop project-specific estimates of gross energy savings.

Gross realization rates were then estimated for kWh and kW savings by looking at the ratio of the aggregate evaluated gross savings to the aggregate ex-ante gross savings. Specifically, the Gross Realization Rate (GRR) for PA segment 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,

> $Gross\_Ex\_Post\_Impact_{i,j}$ is the site-specific gross ex-post impact estimate for customer i, in the on-site sample, who is in PA segment j.
>
> $Gross\_Ex\_Ante\_Impact_{i,j}$ is the site-specific gross ex-ante impact estimate for customer i, in the on-site sample, who is in PA segment j.[4]

Table 5-1 and Table 5-2 present the kWh and kW first year gross realization rates along with the corresponding ex ante and ex post first year gross kW and kWh savings for the overall

[4] It is important to note the the realization rates are based on the unadjusted ex ante impacts provided in the tracking system, which were not adjusted by the 0.9 realization rate. Had the adjusted ex ante savings values been used, the resulting realization rates would have increased by a factor of one divided by 0.9 (or 11%).

nonresidential custom lighting population, by PA and statewide. The sample sizes and corresponding relative precisions are also shown.

Table 5-1: Population Level First Year Gross kWh Realization Rates and Sample Relative Precisions by PA

Program Administrator	Sample Size	Ex Ante Gross MWh Savings	Ex Post Gross MWh Savings	GRR kWh	Sample Relative Precision
PG&E	21	111,213	88,588	80%	14%
SCE	19	84,221	64,441	77%	36%
SDG&E	6	9,978	6,404	64%	29%
Statewide	**46**	**205,411**	**159,433**	**78%**	**16%**

Table 5-2: Population Level First Year Gross kW Realization Rates and Sample Relative Precisions by PA

Program Administrator	Sample Size	Ex Ante Gross MW Savings	Ex Post Gross MW Savings	GRR kW	Sample Relative Precision
PG&E	21	14.1	12.1	85%	24%
SCE	19	11.7	7.8	67%	62%
SDG&E	6	1.4	1.1	76%	31%
Statewide	**46**	**27.2**	**21.0**	**77%**	**29%**

The objective of this study was to develop GRRs that could be used to estimate IOU level savings across all nonresidential custom lighting measures that are statistically significant. As discussed in Appendix C, the GRR incorporates several variables, including installation rates, operating hours, coincidence factors, installed/replaced wattages and industry standard wattages. Likewise, many measures have a dual baseline, which affect the lifecycle savings associated with it. The differences in GRRs across program administrators are predicated on differences among these variables. For example, in PG&E and SCE there were several citywide streetlight and outdoor canopy retrofits where the ex-post operating hours and installation rates were comparable to the ex-ante claim. Similarly, a significant number of large retail establishments were represented in those samples. These are typically building segments that are on EMS systems, so the ex-ante operating hour estimates are much more in line with ex-post estimates. In contrast, ex-post operating hours for the SDG&E sample were less than ex-ante assumptions due to differences in applications and building types which are not as reliably estimated with self-report estimates which the ex ante are based on.

Despite, differences across PAs, the ex-post kWh saving values produced GRRs with relative precision that ranged from 14% to 36% at the overall PA level at 90% confidence. At the statewide level, the GRR had a relative precision of 16%, compared to the target of 90/20.

5.2 Lifecycle Gross Realization Rates

Because many measures have a dual baseline, the gross realization rates associated with the first year savings will differ from the gross realization rates associated with lifecycle savings. To estimate lifecycle savings, annual gross savings were estimated for each year through the measure's EUL and aggregated. No net present valuation was made, just a straight aggregation. For measures classified as ROB, the lifecycle savings will equal the first year savings times the EUL. For measures classified as ER, the lifecycle savings will equal the annual RUL period savings times the RUL plus the annual post-RUL savings times the EUL minus the RUL:

*ROB Lifecycle savings = EUL * First Year Savings*

*ER Lifecycle savings = RUL * RUL Period Savings + (EUL-RUL) * Post-RUL Savings*

Gross lifecycle realization rates were then estimated by looking at the ratio of the evaluated gross lifecycle savings to the ex-ante gross lifecycle savings. Table 5-3 and Table 5-4 present the kWh and kW lifecycle gross realization rates along with the corresponding ex ante and ex post lifecycle gross kW and kWh savings for the overall nonresidential custom lighting population, by PA and statewide. The sample sizes and corresponding relative precisions are also shown.

Table 5-3: Population Level Lifecycle Gross kWh Realization Rates and Sample Relative Precisions by PA

Program Administrator	Sample Size	Lifecycle Ex Ante Gross MWh Savings	Lifecycle Ex Post Gross MWh Savings	Lifecycle GRR kWh	Sample Relative Precision
PG&E	21	1,310,073	812,610	62%	18%
SCE	19	1,065,057	585,231	55%	43%
SDG&E	6	135,046	67,790	50%	32%
Statewide	**46**	**2,510,175**	**1,465,631**	**58%**	**20%**

Table 5-4: Population Level Lifecycle Gross kW Realization Rates and Sample Relative Precisions by PA

Program Administrator	Sample Size	Lifecycle Ex Ante Gross MW Savings	Lifecycle Ex Post Gross MW Savings	Lifecycle GRR kW	Sample Relative Precision
PG&E	21	163.8	116.2	71%	31%
SCE	19	146.1	72.8	50%	70%
SDG&E	6	19.4	13.5	70%	44%
Statewide	**46**	**329.3**	**202.5**	**61%**	**35%**

The ex-post kWh saving values produced lifecycle GRRs with relative precision that ranged from 18% to 43% at the overall PA level at 90% confidence. At the statewide level, the GRR had a relative precision of 20%, right at the target of 90/20.

5.3 Net First Year Realization Rates

The gross realization rates presented above were based on the on-site sample, however NTGRs were developed for the larger participant phone survey sample. Net realization rates (NRR) were calculated by PA as the product of the segment's NTGR and GRR:

$$NRR_j = NTGR_j \times GRR_j$$

Where,

NRR_j is the segment-specific NRR for PA segment j

$NTGR_j$ is the segment-specific NTGR for PA segment j, based on the phone survey sample.

GRR_j is the segment-specific GRR for PA segment j, based on the onsite sample.

Table 5-5 presents the ex ante and ex post NTGR values weighted by ex post kWh and kW savings, by PA and statewide, along with relative precisions. Overall, at the statewide level, the ex-post NTGRs are about 20% less than the ex-ante values.

Table 5-5: Comparison of Ex-ante and Ex-post NTGRs by PA with Relative Precisions, Weighted by kWh and kW Savings

Program Administrator	Sample Size	kWh Weighted Results			kW Weighted Results		
		Ex Ante NTGR	Ex Post NTGR	RP	Ex Ante NTGR	Ex Post NTGR	RP
PG&E	35	0.65	0.50	9%	0.65	0.50	9%
SCE	38	0.73	0.57	6%	0.70	0.60	5%
SDG&E	4	0.64	0.57	22%	0.62	0.54	24%
Statewide	**77**	**0.68**	**0.53**	**5%**	**0.67**	**0.54**	**5%**

It is important to note that the sample size for SDG&E was only four points due to difficulties in reaching the participants over the phone as discussed above. Although this sample size is relatively small, the evaluation team is applying these results to estimate the ex post net savings values. This decision was based on the fact that the result is not only statistically significant at the 90% confidence level, but has a relative precision of 22% for kWh weighted results. Also, the SDG&E NTGR value compares well to SCE and PG&E, and for kW weighted results the NTGR is equal to the statewide value, and slightly above the statewide value for kWh weighted results. Finally, the SDG&E value compares well to the NTGRs developed in the 2010-12 evaluation which were also 0.57 weighted by kWh and .56 compared to .54 weighted by kW for custom projects.

Table 5-6 and Table 5-7 present the kWh and kW first year net realization rates along with the corresponding ex ante and ex post first year net kW and kWh savings for the overall nonresidential custom lighting population, by PA and statewide. The sample sizes and corresponding relative precisions are also shown.

Table 5-6: Population Level First Year Net kWh Realization Rates and Sample Relative Precisions by PA

Program Administrator	Sample Size	Ex Ante Net MWh Savings	Ex Post Net MWh Savings	NRR kWh	Sample Relative Precision
PG&E	21	71,718	44,550	62%	16%
SCE	19	60,764	36,762	61%	37%
SDG&E	6	6,370	3,651	57%	37%
Statewide	**46**	**138,851**	**84,964**	**61%**	**17%**

Table 5-7: Population Level First Year Net kW Realization Rates and Sample Relative Precisions by PA

Program Administrator	Sample Size	Ex Ante Net MW Savings	Ex Post Net MW Savings	NRR kW	Sample Relative Precision
PG&E	21	9.1	6.0	65%	25%
SCE	19	8.2	4.7	57%	62%
SDG&E	6	0.9	0.6	63%	39%
Statewide	**46**	**18.3**	**11.2**	**61%**	**30%**

The NRRs differ from the GRRs due to differences between the ex-post and ex-ante NTGRs. For the most part, the ex-post NTGRs are less than the ex-ante NTGRs, which explains why the NRRs are lower than the GRRs. As mentioned above, at the statewide and IOU levels, the ex-post NTGRs are about 20% less than the ex-ante values.

5.4 Lifecycle Net Realization Rates

Net lifecycle realization rates were estimated in a similar way as gross lifecycle realization rates, by looking at the ratio of the evaluated ex-post net lifecycle savings to the ex-ante net lifecycle savings. The approach is identical to that for the gross lifecycle realization rates, but using net savings instead of gross.

Table 5-8 and Table 5-9 present the kWh and kW lifecycle net realization rates along with the corresponding ex ante and ex post lifecycle net kW and kWh savings for the overall nonresidential custom lighting population, by PA and statewide. The sample sizes and corresponding relative precisions are also shown.

Table 5-8: Population Level Lifecycle Net kWh Realization Rates and Sample Relative Precisions by PA

Program Administrator	Sample Size	Lifecycle Ex Ante Net MWh Savings	Lifecycle Ex Post Net MWh Savings	Lifecycle NRR kWh	Sample Relative Precision
PG&E	21	857,574	408,655	48%	20%
SCE	19	766,180	333,861	44%	43%
SDG&E	6	86,726	38,651	45%	39%
Statewide	**46**	**1,710,479**	**781,167**	**46%**	**21%**

Table 5-9: Population Level Lifecycle Net kW Realization Rates and Sample Relative Precisions by PA

Program Administrator	Sample Size	Lifecycle Ex Ante Net MW Savings	Lifecycle Ex Post Net MW Savings	Lifecycle NRR kW	Sample Relative Precision
PG&E	21	108.4	57.6	53%	32%
SCE	19	103.0	43.5	42%	70%
SDG&E	6	12.7	7.3	57%	50%
Statewide	**46**	**224.2**	**108.4**	**48%**	**35%**

The objective of this study was to develop lifecycle NRRs that could be used to estimate IOU level savings across all nonresidential custom lighting measures that are statistically significant. The ex-post kWh saving values produced lifecycle NRRs with relative precision that ranged from 20% to 43% at the overall PA level at 90% confidence. At the statewide level, the lifecycle kWh NRR had a relative precision of 21%, compared to the target of 90/20.

It is important to note that the sample size for SDG&E's realization rates was only six points due to difficulties in reaching the participants over the phone as discussed above. Although this sample size is relatively small, the evaluation team is applying these results to estimate the ex post net savings values. This decision was based on the fact that the result is not only statistically significant at the 90% confidence level, but has reasonable relative precision values for all realization rates. Also, the SDG&E realization rates generally compare well to statewide averages. The most important values are the kWh and kW weighted net lifecycle realization rates, as these values are used to determine the ESPI incentive. The SDG&E lifecycle NRRs compare very well to the statewide averages. For kWh weighted results the SDG&E lifecycle NRR is 45% compared to 46% statewide. For kW the SDG&E lifecycle NRR is 57% compared to 48% for statewide.

Appendix A

Nonresidential Downstream Impact Evaluation Phone Survey

Participant Survey for CPUC
2013-2014 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

Thank & Terminate PBLOCK NO_ONE	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 oganization 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)

Intro3(99)	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

PERSON:s

According to our records, your organization participated in <%UTILITY>'s <%PROGRAM> program by installing energy saving equipment around ... <%DEEM_PAID_DATE1> <%CUST_PAID_DATE>
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

DISPLAY

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/eevalidation**

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]

1	Yes	Bus_Name
2	No	CORRECT
88	Refused	COMMENT
99	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?

%CORRECT	Corrected Address	COMPARE

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

1	Similar	Bus_Name
2	Totally Different	COMMENT2

COMMENT2	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?

1	Yes	INCENT
2	No	Bus_Correct
88	Refused	COMMENT
99	Don't Know	COMMENT

BUS_CORRECT What is the correct name for your organization?

&BUS_CORRECT	Corrected Business	INCENT

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

77	RECORD RESPONSE	A1gg
88	REFUSED	FM050
99	DON'T KNOW	FM050

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

A1gg What incentive amount did your organization receive from the program towards your energy efficient equipment installation?

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

FM050l 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	C5
99	Don't know	C5

C5 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]

7777	Year	CC12a
6666	Never Remodeled	CC12a
8888	Refused	CC11a
9999	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.]

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

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

7777	Year	BC090
8888	Refused	CC12b
9999	Don't know	CC12b

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

CC12b Would you say it was…

1	After 2010	BC090
2	Between 2006 and 2010	BC090
3	Between 2000 and 2005	BC090
4	In the 1990s	BC090
5	In the 1980s	BC090
6	In the 1970s	BC090

7	In the 1960s or	BC090
8	Before 1960	BC090
88	Don't know	BC090
99	Refused	BC090

ADDITIONAL FACILITY CHARACTERISTICS

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

1	Increase in square footage	BC100
2	Decrease in square footage	BC110
3	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

V1 Did you use a contractor/vendor to install any of the the energy efficient measures that were purchased through the program?

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

If V1 = 1 then ask; else skip to AP9

V2 How did you come into contact with the contractor/vendor?

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

V2a In relation to this project, did the vendor/contractor approach you about your energy efficient equipment retrofit/installation?

1	Yes	V2b
2	No	V3
88	Refused	V3
99	Don't Know	V3

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

V2b 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?

1	0-10 response	V3
88	Refused	V3
99	Don't Know	V3

V3 Did the contractor/vendor tell you about or recommend the program?

1	Yes	V4
2	No	AP9
88	Refused	AP9
99	Don't Know	AP9

Ask if V3 = 1; else skip to AP9

V4 Prior to coming into contact with the contractor/vendor, did your organization have plans to replace/install this equipment?

1	Yes	V4a
2	No	V4a
88	Refused	V4a
99	Don't Know	V4a

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?

1	0-10 response	V4b

88	Refused	V4b
99	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

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?

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.

AP9 How did you FIRST learn about <%UTILITY>'s program? [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? [DO NOT READ LIST, ACCEPT MULTIPLES]

AP9a

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?
!___Do you have a cell phone number for him/her?\,

N33

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)

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

PROGRAM LIGHTING EQUIPMENT

Ask if LIGHTING = 1; else skip to NEXT BATTERY

Comment	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

LI99 Our records indicate that your organization installed CUSTOM LIGHTING EQUIPMENT through the program. It is described as <%CUSTOM_MEASURE>. Is this correct?

1	Yes	LI100
2	No	DISPLAY
88	Refused	DISPLAY
99	Don't know	DISPLAY

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

DISPLAY	We can not continue this study unless we can speak to someone at your organization that is familiar with the lighting equipment that was installed through the program.	A3A

Ask if LI99 = 1; else skip to A3A.

LI100 What types of fixtures, ballasts, or light controls were installed as part of this lighting installation? <$2>

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)

LI101A ($1) Approximately how many <$2> were installed through the program?

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…

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

LI101C ($4) Were any of the program provided <$2> placed/installed at another facility? If so, what percentage would you estimate?

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

LI101D ($5) What type of lighting equipment was removed and replaced when you installed <$2> through the program?

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

LI101E ($6) Were the HID lamps you removed High Pressure Sodium, Metal Halide, Mercury Vapor or Incandescent?

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

LI101F ($7) Approximately how old was the lighting that was removed and replaced with <$2>? Would you say...

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>

LI101G ($8) How would you describe the removed equipment's condition? Would you say they were in…

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>

LI101H ($9) Approximately what percentage of the lighting equipment that was removed and replaced was broken or not working prior to installing <$2>?

%	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

LI90 Of the CFLs you received through the program,what percentage do you estimate were placed into storage for later use?

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

Ask if LI100 = 19

LI901 Of the LEDs you received through the program,what percentage do you estimate were placed into storage for later use?

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

Ask only if LI100 = 20

LI902 Of the LED Reflector Lamps you received through the program,what percentage do you estimate were placed into storage for later use?

77	Open Record	CUST_INSTALL_DATE_NU

101	Refused	CUST_INSTALL_DATE_NU
102	Don't know	CUST_INSTALL_DATE_NU

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?

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

DISPLAY

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>.
IF CUST_INSTALL_DATE_NU = 2 OR (UNRECORDED = CUST_INSTALL_DATE AND UNRECORDED <> CUST_PAID_DATE);

CUST_INSTALL_ YEAR

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

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

CUST_INSTALL_ MONTH

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

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

A3[A-C]

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 fixutre or simply reduce the number of fixtures]

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

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

A3[A-C]_QTY

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?

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

A3[A-C]_OTH

IF A3_QTY IN (88, 99)
Would you say that the number of <%LT_MEAS_x> (MxDELAMP = 0) installed/delamped are…

1	less than 10 units	DEEMED_INSTALL_DATE_NU
2	11 - 50 units	DEEMED_INSTALL_DATE_NU
3	50 - 100 units	DEEMED_INSTALL_DATE_NU
4	More than 100 units	DEEMED_INSTALL_DATE_NU

88	Refused	DEEMED_INSTALL_DATE_NU
99	Don't know	DEEMED_INSTALL_DATE_NU

IF ^UNRECORDED(DEEM_INSTALL_DATEx)

DEEM_INSTALL_DATEx_NU Our records indicate that your organization <(MxDELAMP = 0)/installed/delamped> ...<%LT_MEAS_x> on <%DEEM_INSTALL_DATEx>. _____Is this correct?

1	Yes	LI18
2	No	DEEM_INSTALL_YEAR
88	Refused	DEEM_INSTALL_YEAR
99	Don't know	DEEM_INSTALL_YEAR

IF UNRECORDED(DEEM_INSTALL_DATEx) & ^UNRECORDED(DEEM_PAID_DATEx)

DISPLAY According to our records, your organization received a rebate for the (MxDELAMP = 0) installation/delamping> of ...<%LT_MEAS_x>... on <%DEEM_PAID_DATEx>.

IF DEEM_INSTALL_DATEx_NU in (2,88,99) | (UNRECORDED(DEEM_INSTALL_DATEx) & ^UNRECORDED(DEEM_PAID_DATEx))

DEEM_INSTALL_YEARx In what year did you (MxDELAMP = 0) install/delamp <%LT_MEAS_x>? (PROBE FOR BEST GUESS)

1	2013	DEEM_INSTALL_MONTHx
2	2014	DEEM_INSTALL_MONTHx
88	Refused	LI18
99	Don't know	LI18

IF DEEM_INSTALL_YEARx in (1-3)

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

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]

LI18[A-C] Of the CFLs you received through the program, what percentage do you estimate were placed into storage for later use?

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

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

LI181[A-C] Of the LEDs you received through the program,what percentage do you estimate were placed into storage for later use?

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

ASK ONLY IF LEDRLx = 1

LI182[A-C] Of the LED Reflector Lamps you received through the program,what percentage do you estimate were placed into storage for later use?

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

LI19[A-C] Were any of the program provided <%LT_MEAS_x> (MxDELAMP = 0) installed/delamped at another facility? If so, what percentage would you estimate?

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

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

LI20[A-C] What type of lighting was removed and replaced when you installed <%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]

LI21[A-C] Were the HID lamps you removed High Pressure Sodium, Metal Halide, Mercury Vapor or Incandescent?

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

LI22[A-C] Approximately how old was the equipment that were removed and replaced? Would you say…

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

LI23[A-C] How would you describe the removed equipment's condition? Would you say they were in…

1	Poor condition	LI24
2	Fair condition	LI24
3	Good condition	LI24
88	Refused	LI24
99	Don't know	LI24

LI24[A-C] Approximately what percentage of the lighting equipment that was removed and replaced was broken or not working prior to installing <%LT_MEAS_x>?

%	Percent	NTGCHECK1
101	Refused	NTGCHECK1
102	Don't know	NTGCHECK1

NTGCHECK1

GO TO NTGBATTERY IF NTGDEEMED =1; ELSE RESTART LOOP IF NEEDED FOR <%LT_MEAS_x> WHERE x = 2, 3

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

ASK IF LIGHTING=1

LI30 Considering all of the lighting changes we just discussed, approximately what percentage of the facility's lighting was affected by those changes?

%	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

HB1 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]

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 to light? This would qualify as HIGH BAY lighting.

HB2

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
What kind of High Bay Lighting is it?

HB2a

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

DEL1

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);

DEL1a 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 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 partciular. 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 accomodate less bulbs (reduce # of bulbs).

DEL2 Have you had Removal only Delamping done within your facility since January 2012?

1	Yes	DEL2a
2	No	DEL3
88	Refused	DEL3
99	Don't know	DEL3

If DEL2 = 1 then ask; else skip to DEL3

DEL2a What percent of the original fixtures within the delamped area were removed?

77	Record percentage	DEL3
101	Refused	DEL3
102	Don't know	DEL3

DEL3 Have you had Remove and Replace delamping done within your facility since 2012? Remove and replace occurs when the fixutres themselves are removed and replaced with new fixtures containing less bulbs.

1	Yes	DEL3a
2	No	DEL4

88	Refused	DEL4
99	Don't know	DEL4

If DEL3 = 1 then ask; else skip to DEL4

DEL3a What type of fixtures were removed?

77	Open Record	DEL3b
88	Refused	DEL3b
99	Don't know	DEL3b

DEL3b What type of fixtures were installed?

77	Open Record	DEL3c
88	Refused	DEL3c
99	Don't know	DEL3c

DEL3c How many lamps per fixture were present prior to the delamping retrofit?[PROBE FOR BEST GUESS IF DON'T KNOW]

1	1	DEL3d
2	2	DEL3d
3	3	DEL3d
4	4	DEL3d
5	5	DEL3d
6	6	DEL3d
7	7	DEL3d
8	8	DEL3d
88	Refused	DEL3d
99	Don't know	DEL3d

DEL3d How many lamps per fixture are present now, after the delamping retrofit? [PROBE FOR BEST GUESS IF DON'T KNOW]

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

DEL3E Approximately how old were the fixtures that were removed and replaced as a result of this Remove and Replace delamping? Would you say…

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

DEL3F 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…

1	Poor condition	LI24
2	Fair condition, or	LI24
3	Good condition	LI24
88	Refused	LI24
99	Don't know	LI24

DEL3G Approximately what percentage of the fixtures that were removed and replaced were broken or not working prior to the Remove and Replace delamping?

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

DEL4 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 accomodate less bulbs (reduce # of lamps).

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

If DEL4 = 1 then ask; else skip to DEL5

DEL4a How many lamps per fixture were present prior to the delamping retrofit?[PROBE FOR BEST GUESS IF DON'T KNOW]

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

DEL4b How many lamps per fixture are present now, after the delamping retrofit? [PROBE FOR BEST GUESS IF DON'T KNOW]

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

DEL5 Is the amount of lighting better, worse, or the same than before your delamping job?

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

DEL11 Did you install additional lighting equipment to increase the amount of lighting in the delamped area(s)?

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

GAS EQUIPMENT

Ask if CC3a(2|3) (respondent said organization has gas heating) or GAS=1; else skip to NEXT BATTERY

DISPLAY In this next section we will be discussing the GAS EQUIPMENT present at your facility.

G1 Which of the following natural gas equipment is present at your facility?...

1	Water Heater	G25
2	Gas Furnace	G25
3	Gas Boiler	G25
4	Gas Stove	G25
5	Gas Clothes Dryer	G25
66	No natural gas	Refrigeration
77	Other (specify)	G25
88	Refused	G25
99	Don't know	G25

G25 Does your organization have any plans to install any high efficiency gas equipment within the next 12 months?

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

REFRIGERATION EQUIPMENT

Ask R9 through CD4 if REFRIGERATION = 1; else skip to NEXT BATTERY

READ IF ^UNRECORDED(RF_MEAS_x) where x = 1, 2, 3….

DISPLAY In this section of the survey we would like to ask you about the refrigeration equipment changes you made as part of your participation in <%UTILITY>'s program.

R9_x According to our records, your organization installed <%RF_QTY_x> ... <%RF_UNITS_x>...<%RF_MEAS_x> through the <%UTILITY> program, is this correct?

1	Correct as stated	R5b_x
2	Refrigeration equipment installed but not as described	R9X_x
3	No refrigeration equipment installed through the program	Next Measure/Greenhouse
88	Refused	Greenhouse
99	Don't know	Greenhouse

ASK IF IF R9_x(2)

R9X_x Approximately how many units of ...<%RF_MEAS_x>... were installed under the Program?

77	Record #	Calc
88	Refused	R5b_x
99	Don't know	R5b_x

Calc If <%ClaimInstal_RF_x>/<%RFx_QTY_x> <75% then ask RF9Y_x; else if <%ClaimInstal_RF_x>/<%RFx_QTY_x> > 125% ask RF9Z_x; else skip to R5b_x

ASK R9Y IF R9X_x <> 88888 & R9X_x <> 99999; R9X_x << RFxUNDER

R9Y_x Perhaps you could help us to understand the difference between our records and what has been installed…Do you have any suggestions as to why our numbers differ? Were any of these <%RF_MEAS_x> put into storage, perhaps installed at another facility, or never received? It is okay if you don't know why there is a difference, but if you had any ideas of why our counts don't match, it would really help us to evaluate the program's record keeping?

1	Have no idea why numbers differ	R5b_x
2	Did not install all of the refrigeration equipment, Put some in storage	R5b_x
3	Installed at another facility	R5b_x
4	Did not receive all of the <%RF_MEAS_x>	R5b_x
77	Other	R5b_x
88	Refused	R5b_x
99	Don't know	R5b_x

ASK R9Z_x IF R9X_x >> RFxOVER

R9Z_x Perhaps you can help us to understand the difference between our records and what has been installed....Do you have any suggestions as to why our numbers differ? Did your facility participate multiple times in the program since 2013 and maybe we don't have these other records? Did you install additional equipment outside of the program that you are including in these numbers? It is okay if you don't know why there is a difference, but if you had any ideas of why our counts don't match, it would really help us to evaluate the program's record keeping?

1	Have no idea why numbers differ	R5b_x
2	Multiple participation	R5b_x
3	Installed equipment outside of the program	R5b_x
77	Other	R5b_x
88	Refused	R5b_x
99	Don't know	R5b_x

R5b_x **ASK IF R9_x(1|2);**
What type of refrigeration equipment was removed and replaced when you installed <%RF_MEAS_x>?

1	Old Strip curtains	R5c_x
2	Older Main door cooler/freezer door gaskets	R5c_x
3	Older Anti-sweat heat controllers	R5c_x
4	Same Equipment, just newer	R5c_x
5	Older Display cases without doors	R5c_x
66	NONE - Not a replacement	R5c_x
77	Other (Specify)	R5c_x
88	Refused	R5c_x
99	Don't know	R5c_x

R5c_x **ASK IF IF R5b_x(1||65|77)**
How would you describe the condition of refrigeration equipment that was removed and replaced? Was it…

1	Inoperable (broken)	R5d_x
2	Poor condition	R5d_x
3	Fair condition	R5d_x
4	Good condition	R5d_x
88	Refused	R5d_x
99	Don’t know	R5d_x

R5d_x Approximately how old was the refrigeration equipment that was removed and replaced by the refrigeration equipment we just discussed? Would you say…

1	Less than 5 years old	R9d1_x
2	Between 5 and 10 years old	R9d1_x
3	10 to 20 years old	R9d1_x
4	more than 20 years old	R9d1_x
88	Refused	R9d1_x
99	Don't know	R9d1_x

ASK IF ^UNRECORDED(RF_INSTDTx); ELSE GO TO DISPLAY

R9d1_x Our records indicate that your company installed the refrigeration equipment in <%RF_INSTDTx> through the <%PROGRAM> program, is this correct?

1	Yes	NTGCHECK3
2	No	DISPLAY; RF9f1_x
88	Refused	DISPLAY; RF9f1_x
99	Don't know	DISPLAY; RF9f1_x

ASK IF ^UNRECORDED(RF_CHKDTx) & UNRECORDED(RF_INSTDTx)

DISPLAY Our records indicate that your company received a rebate for the refrigeration equipment installed through the program in <%RF_CHKDTx>.

ASK IF (^UNRECORDED(RF_CHKDTx) & UNRECORDED(RF_INSTDTx)) | R9D1_x(2)

RF9f1_x In what year did you install <%RF_MEAS_x>? (PROBE FOR BEST GUESS) Was it in….

1	2013	R9f2
2	2014	R9f2
88	Refused	NTGCHECK3
99	Don't know	NTGCHECK3

ASK IF RF9F1_x(1||2)

RF9f2_x And what month? {If they can not recall month, try to get the season.}

1	January	NTGCHECK3
2	February	NTGCHECK3
3	March	NTGCHECK3
4	April	NTGCHECK3
5	May	NTGCHECK3
6	June	NTGCHECK3
7	July	NTGCHECK3
8	August	NTGCHECK3
9	September	NTGCHECK3
10	October	NTGCHECK3
11	November	NTGCHECK3
12	December	NTGCHECK3
13	Fall	NTGCHECK3
14	Winter	NTGCHECK3
15	Spring	NTGCHECK3
16	Summer	NTGCHECK3
88	Refused	NTGCHECK3
99	Don't know	NTGCHECK3

NTGCHECK3 **IF NTGREFRIG == 1 PERFORM NTG BATTERY; ELSE CONTINUE….**

END REFRIGERATION MEASURE LOOP; GO TO R9_x if ^UNRECORDED(RF_MEAS_x) WHERE x = 2, 3; ELSE CONTINUE WITH SURVEY

IF CASES = 1 ASK CD2 THROUGH CD4 ; ELSE SKIP TO NEXT BATTERY

CD2 What is the length across the front (linear feet) of your display case? An approximation would be fine.

77	Record length of case and number of cases	CD3
88	Refused	CD3
99	Don't know	CD3

CD3 Does your new display case have efficient lighting (T-8 or LED lighting) installed?

1	Yes	CD4
2	No	CD4
88	Refused	CD4
99	Don't know	CD4

CD4 Does your new display case have a variable speed fan motor installed?

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

GREENHOUSE HEAT CURTAINS

Ask if CONTROLS = 1 and FM050 in 4 (Agricultural - farms/greenhouses), 8 (Education), or 12 (Industrial); else skip to NEXT BATTERY

GG1 Does your facility have any greenhouses?

1	Yes	GG1a
2	No	Cooling
88	Refused	Cooling
99	Don't know	Cooling

Ask if GG1=1; else skip to NEXT BATTERY

GG1a How many square feet of greenhouses do you have at your facility?

66	We do not have any greenhouses	Cooling
77	Square feet	GG1b
88	Refused	GG1a1
99	Don’t know	GG1a1

Ask if GG1a IN (88, 99)

GG1a1 Can you identify the appropriate size range from the following list?

1	< 1,500 sq ft	Cooling
2	1,500 - 5,000 sq ft	Cooling
3	5,000 - 10,000 sq ft	Cooling
4	10,000 – 25,000 sq ft	Cooling
5	25,000 – 50,000 sq ft	Cooling
6	50,000 – 75,000 sq ft	Cooling
7	75,000 – 100,000 sq ft	Cooling
8	> 100,000 sq ft	Cooling
88	Refused	Cooling
99	Don't know	Cooling

COOLING EQUIPMENT

Now we would like to discuss your cooling equipment.

CL1 What type of equipment is used to cool this facility? (allow multiples)

1	No A/C	PipeInsulation
2	Split system (two components; compressor is separate from the supply air fan, air conditioner, or heat pump)	CL2
3	Packaged systems (one component; rooftop units)	CL2
4	Package Terminal A/C or Heat Pump (e.g., Hotel/Motel units)	CL2
5	Evaporative coolers (swamp coolers)	CL2
6	Water Chiller (Central plant)	CL2
7	Individual A/C or Heat Pump Units (e.g., Unitary Equipment, Central A/C with multiple units, single unit for small business) NOTE: ASK IF SPLIT OR PACKAGED SYSTEM	CL2
8	Window/Wall Units	CL2
77	Other (Specify)	CL2
88	Refused	CL2
99	Don't Know	CL2

Ask if CL1<>1; else skip to NEXT BATTERY

CL2 How would you describe the condition of the primary cooling equipment currently in use at your facility? Would you say the cooling equipment is in ...

1	In poor condition	CL3
2	In fair condition	CL3
3	Good condition	CL3
88	Refused	CL3
99	Don't know	CL3

CL3 How old is this cooling equipment currently in use at your facility? Would you say…

1	Less than 5 years old	CL4
2	Between 5 and 10 years old	CL4
3	10 to 20 years old	CL4
4	more than 20 years old	CL4
88	Refused	CL4
99	Don't know	CL4

CL4 What is the primary fuel used by this cooling equipment?

1	Electricity	CL35
2	Natural Gas	CL35
3	Both Electricity and Gas	CL35
77	Other (PLEASE SPECIFY)	CL35
88	Refused	CL35
99	Don't Know	CL35

CL35 Does your company have any plans to install high efficiency cooling equipment within the next 12 months?

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

PIPE INSULATION

DISPLAY

ASK IF PIPE = 1; else skip to NEXT BATTERY
In the next section we'll be discussing the pipe insulation present at your facility.

ASK IF ^UNRECORDED(PI_INSTDT); ELSE GO TO DISPLAY/PI1a

PI1 We'd like to confirm that new pipe insulation was installed at your facility on approximately <%PI_INSTDT>. Is this correct?

1	Yes	PI3
2	No	DISPLAY; PI1a
88	Refused	DISPLAY; PI1a
99	Don't know	DISPLAY; PI1a

ASK IF ^UNRECORDED(PI_CHKDT) & UNRECORDED(PI_INSTDT)

DISPLAY Our records indicate that your company received a rebate for the pipe insulation installed through the program in <%PI_CHKDT>.

ASK IF (^UNRECORDED(PI_CHKDT) & UNRECORDED(PI_INSTDT)) | PI1(2)

PI1a In what year did you install the pipe insulation?

1	2013	PI1b
2	2014	PI1b
88	Refused	PI3
99	Don't know	PI3

ASK IF PI1A(1||2)

PI1b And what month? {If they can not recall month, try to get the season.}

1	January	PI3
2	February	PI3
3	March	PI3
4	April	PI3
5	May	PI3
6	June	PI3
7	July	PI3
8	August	PI3
9	September	PI3
10	October	PI3
11	November	PI3
12	December	PI3
13	Fall	PI3
14	Winter	PI3
15	Spring	PI3
16	Summer	PI3
88	Refused	PI3
99	Don't know	PI3

PI3 Our records indicate that <%PI_QTY> feet of pipe insulation was installed at your facility. Is this about right?

1	Yes	PI7
2	No	PI3a
88	Refused	PI3a
99	Don’t know	PI3a

ASK IF PI3(2||99)

PI13a How many total linear feet of pipe insulation is present at your facility? Your best estimate is okay.

66	No pipe insulation	Sprinklers_Ag
77	Total linear feet of pipe insulation	PI7
88	Refused	P13aa
99	Don't know	P13aa

ASK IF PI3a = 88,99

P13aa Can you estimate what percent of the pipes present at your facility were insulated through the program?

1	Total linear feet of pipe insulation:	PI7
2	Percentage of pipe insulation replaced:	PI7
101	Refused	PI7
102	Don't know	PI7

ASK IF PI3a <> 66;

PI7 Was the pipe insulation installed on new pipes or was it a retrofit of older pipes or both?

1	ONLY NEW	PI7b
2	ONLY OLDER	PI7b
3	BOTH NEW AND OLDER	P17a
88	Refused	PI8
99	Don't know	PI8

ASK IF PI7 = 3; else skip

PI7a What percentage of the pipe insulation was installed on new pipes?

Record	(record percentage)	PI7b
77	Other	PI7b
101	Refused	PI7b
102	Don't know	PI7b

ASK IF PI7(2|3);

PI7b How many years old were the pipes receiving the pipe insulation?

Record	(record in # of years)	PI8
77	Other	PI8
88	Refused	PI8
99	Don't know	PI8

PI8 Was insulation already present on the pipes before the insulation was installed through the program?

1	Yes	P21
2	No	P25
77	Other	P25
88	Refused	P25
99	Don’t know	P25

ASK IF PI8(1);

P21 Was the existing insulation removed and replaced, or was additional insulation added to existing insulation?

1	old insulation removed and replaced	P23
2	Additional insulation added over old insulation	P23
3	Both	P23
88	Refused	P23

99	Don't know	P23

What condition was your old pipe insulation in at the time of the replacement?

P23

1	Good	P25
2	Fair	P25
3	Poor	P25
4	Not a replacement	P25
88	Refused	P25
99	Don't know	P25

ASK ALL

P25 Are boilers present at your facility?

1	Yes	P27
2	No	P33
77	Other [Record Verbatim]	P33
88	Refused	P33
99	Don't know	P33

ASK IF PI25(1)

Have the boilers been repaired or replaced since you installed the pipe insulation through the program?

P27

1	Yes	P29
2	No	P33
77	Other [Record Verbatim]	P33
88	Refused	P33
99	Don't know	P33

ASK IF PI27(1)

P29 How long ago in months was the most recent boiler repair or replacement?

#	Record DATE or # of months ago	P33
77	Other [Record Verbatim]	P33
88	Refused	P33
99	Don't know	P33

ASK IF PI3A<>66666

P33 Whose idea was it to install new pipe insulation?

1	Me or someone at my facility	P35
2	Contractor	P35
3	Utility company contact	P35
4	Manufacturer	P35
77	Other (specify)	P35
88	Refused	P35
99	Don't know	P35

P35 What percentage of the pipe insulation cost would you estimate the program rebate covered?

1	Rebate covered all of the cost	P37
2	Rebate covered most of the cost	P37
3	Rebate covered less than half of the cost	P37
4	Other	P37
88	Refused	P37
99	Don't know	P37

P37 How effective was the new pipe insulation in reducing your natural gas bill? Would you say there were…

1	Considerable gas savings	P39
2	Some gas savings	P39
3	No noticeable savings	P39
88	Refused	P39
99	Don't know	P39

P39 Have you noticed any problems with the pipe insulation since the installation?

1	Yes	P40
2	No	NTGCHECK4
88	Refused	NTGCHECK4
99	Don't know	NTGCHECK4

ASK IF P39(1)

P40 What problems have you noticed since the pipe insulation was installed?

77	RECORD RESPONSE	NTGCHECK4
88	Refused	NTGCHECK4
99	Don't know	NTGCHECK4

NTGCHECK4 GO TO NTG BATTERY IF NTGPIPES = 1; ELSE CONTINUE

AGRICULTURAL SPRINKLERS

ASK IF SPRINKLERS = 1; ELSE SKIP TO NEXT BATTERY

DISPLAY Now, I would like to ask you about the low-pressure sprinkler nozzles you installed on your irrigation system as part of your participation in <%UTILITY>'s program.

ASK IF AG_QTY > 0

AG1 Our records indicate that <%AG_QTY> low-pressure sprinkler nozzles were installed on either portable or permanent irrigation systems. Is this correct?

1	Yes, correct	AG40
2	Yes, but a different quantity	AG200

3	Did not install	Computer_Power_Mgmt
88	Refused	Computer_Power_Mgmt
99	Don't know	AG40

ASK IF AG1(2) | AG_QTY = 0

AG200 How many low-pressure sprinkler nozzles were installed through the program?

77	Record	AG40
88	Refused	AG40
99	Don't know	AG40

ASK IF ^AG1(3);
ASK IF ^UNRECORDED(AG_INSTDT); ELSE GO TO DISPLAY/AG41

AG40 Our records indicate that you installed the low-pressure sprinkler nozzles around <%AG_INSTDTx> through the <%PROGRAM> program, is this correct?

1	Yes	AG5
2	No	DISPLAY; AG41
88	Refused	DISPLAY; AG41
99	Don't know	DISPLAY; AG41

ASK IF ^UNRECORDED(AG_CHKDT) & UNRECORDED(AG_INSTDT)

DISPLAY Our records indicate that your company received a rebate for the low-flow sprinkler nozzles installed through the program in <%AG_CHKDT>.

ASK IF (^UNRECORDED(AG_CHKDT) & UNRECORDED(AG_INSTDT)) | AG40(2);

AG41 In what year did you install low-flow sprinkler nozzles? (PROBE FOR BEST GUESS) Was it in….

1	2013	AG42
2	2014	AG42
88	Refused	AG42
99	Don't know	AG42

ASK IF AG41(1||2)

AG42 And what month? {If they can not recall month, try to get the season.}

1	January	AG5
2	February	AG5
3	March	AG5
4	April	AG5
5	May	AG5
6	June	AG5
7	July	AG5

8	August	AG5
9	September	AG5
10	October	AG5
11	November	AG5
12	December	AG5
13	Fall	AG5
14	Winter	AG5
15	Spring	AG5
16	Summer	AG5
88	Refused	AG5
99	Don't know	AG5

ASK IF AG1(1 | 99);

AG2 On what type of irrigation systems are the low-pressure sprinkler nozzles installed? Portable, permanent, or some combination of the two?

1	Portable irrigation system	AG5
2	Permanent irrigation system	AG5
3	Both portable and permanent irrigation systems	AG3
66	Neither	Computer_Power_Mgmt
88	Refused	Computer_Power_Mgmt
99	Don't know	Computer_Power_Mgmt

READ IF AG2 = 3; ELSE SKIP TO AG5

AG3 Since you have low-pressure sprinkler nozzles installed on both portable and permanent irrigation systems, I'd like for you to tell me what share is installed on each type of irrigation system. Adding up to 100 percent, what share is installed on each type of irrigation system? What percent is installed on PORTABLE irrigation systems?

77	Record percentage	AG4
101	Refused	AG4
102	Don't know	AG4

ASK IF AG3 < 100;

AG4 Of all the low-pressure sprinkler nozzles you have installed, what percent is installed on permanent irrigation systems?

77	Record percentage	CHECKSUM
101	Refused	CHECKSUM
102	Don't know	CHECKSUM

CHECKSUM **IF AG3 < 101 AND (AG3 + AG4 ^ = 100) REDO AG3 AND AG4; ELSE AG3a**

IF AG3 = 102 ASK AG3a;

AG3a Can you estimate the percentage installed on portable irrigation systems. Is it….

1	1 to 10 percent	AG4a
2	11 to 20 percent	AG4a
3	21 to 30 percent	AG4a
4	31 to 40 percent	AG4a
5	41 to 50 percent	AG4a
6	51 to 60 percent	AG4a
7	61 to 70 percent	AG4a
8	71 to 80 percent	AG4a
9	81 to 90 percent	AG4a
10	91 to 100 percent	AG4a
101	Refused	AG4a
102	Don't know	AG4a

AG4a If you are not sure, can you estimate the percentage installed on permanent irrigation systems. Is it…

1	1 to 10 percent	CHECK_EST_SUM
2	11 to 20 percent	CHECK_EST_SUM
3	21 to 30 percent	CHECK_EST_SUM
4	31 to 40 percent	CHECK_EST_SUM
5	41 to 50 percent	CHECK_EST_SUM
6	51 to 60 percent	CHECK_EST_SUM
7	61 to 70 percent	CHECK_EST_SUM
8	71 to 80 percent	CHECK_EST_SUM
9	81 to 90 percent	CHECK_EST_SUM
10	91 to 100 percent	CHECK_EST_SUM
88	Refused	CHECK_EST_SUM
99	Don't know	CHECK_EST_SUM

CHECK_EST_SUM **PERFORM A CHECK SO THAT AG3+AG4 = 100% OR AG3a+AG4a=100%**

AG5 What type(s) of crops are grown in the areas irrigated with the installed low-pressure sprinkler nozzles? [ACCEPT MULTIPLES…]

1	Asparagus	AG5a
2	Tomatoes	AG5a
3	Almonds	AG5a
4	Grapes	AG5a
5	Apricots	AG5a
77	Other [RECORD] - list only one other crop	AG5a
88	Refused	AG5a
99	Don't know	AG5a

ASK IF AG5(77); ELSE SKIP TO AG5b

AG5a Is there another crop grown in theses irrigated areas?

66	No other crop	AG5_1
77	Other - list only one crop	AG5b
88	Refused	AG5_1
99	Don't know	AG5_1

ASK IF AG5a(77); ELSE SKIP TO AG5_1

AG5b Is there another crop grown in theses irrigated areas?

66	No other crop	AG5_1
77	Other - list only one crop	AG5_1
88	Refused	AG5_1
99	Don't know	AG5_1

ASK IF AG5(1); ELSE SKIP TO AG5_2

AG5_1 What is the growing season, in months, for ASPARAGUS? If you cannot, the season will do.

1	January	AG5_2
2	February	AG5_2
3	March	AG5_2
4	April	AG5_2
5	May	AG5_2
6	June	AG5_2
7	July	AG5_2
8	August	AG5_2
9	September	AG5_2
10	October	AG5_2
11	November	AG5_2
12	December	AG5_2
13	Fall	AG5_2
14	Winter	AG5_2
15	Spring	AG5_2
16	Summer	AG5_2
88	Refused	AG5_2
99	Don't know	AG5_2

ASK IF AG5(2); ELSE SKIP TO AG5_3

AG5_2 What is the growing season, in months, for TOMATOES? If you cannot, the season will do.

1	January	AG5_3
2	February	AG5_3
3	March	AG5_3
4	April	AG5_3
5	May	AG5_3
6	June	AG5_3
7	July	AG5_3

8	August	AG5_3
9	September	AG5_3
10	October	AG5_3
11	November	AG5_3
12	December	AG5_3
13	Fall	AG5_3
14	Winter	AG5_3
15	Spring	AG5_3
16	Summer	AG5_3
88	Refused	AG5_3
99	Don't know	AG5_3

ASK IF AG5(3); ELSE SKIP TO AG5_4

AG5_3 What is the growing season, in months, for ALMONDS? If you cannot, the season will do.

1	January	AG5_4
2	February	AG5_4
3	March	AG5_4
4	April	AG5_4
5	May	AG5_4
6	June	AG5_4
7	July	AG5_4
8	August	AG5_4
9	September	AG5_4
10	October	AG5_4
11	November	AG5_4
12	December	AG5_4
13	Fall	AG5_4
14	Winter	AG5_4
15	Spring	AG5_4
16	Summer	AG5_4
88	Refused	AG5_4
99	Don't know	AG5_4

ASK IF AG5(4); ELSE SKIP AG5_5

AG5_4 What is the growing season, in months, for GRAPES? If you cannot, the season will do.

1	January	AG5_5
2	February	AG5_5
3	March	AG5_5
4	April	AG5_5
5	May	AG5_5
6	June	AG5_5
7	July	AG5_5
8	August	AG5_5

9	September	AG5_5
10	October	AG5_5
11	November	AG5_5
12	December	AG5_5
13	Fall	AG5_5
14	Winter	AG5_5
15	Spring	AG5_5
16	Summer	AG5_5
88	Refused	AG5_5
99	Don't know	AG5_5

ASK IF AG5(5); ELSE SKIP AG5_77

AG5_5 What is the growing season, in months, for APRICOTS? If you cannot, the season will do.

1	January	AG5_77
2	February	AG5_77
3	March	AG5_77
4	April	AG5_77
5	May	AG5_77
6	June	AG5_77
7	July	AG5_77
8	August	AG5_77
9	September	AG5_77
10	October	AG5_77
11	November	AG5_77
12	December	AG5_77
13	Fall	AG5_77
14	Winter	AG5_77
15	Spring	AG5_77
16	Summer	AG5_77
88	Refused	AG5_77
99	Don't know	AG5_77

ASK IF AG5(77); ELSE SKIP TO AG5a_77

AG5_77 What is the growing season, in months, for <%AG5>? If you cannot, the season will do.

1	January	AG5a_77
2	February	AG5a_77
3	March	AG5a_77
4	April	AG5a_77
5	May	AG5a_77
6	June	AG5a_77
7	July	AG5a_77
8	August	AG5a_77
9	September	AG5a_77

10	October	AG5a_77
11	November	AG5a_77
12	December	AG5a_77
13	Fall	AG5a_77
14	Winter	AG5a_77
15	Spring	AG5a_77
16	Summer	AG5a_77
88	Refused	AG5a_77
99	Don't know	AG5a_77

ASK IF AG5a(77); ELSE SKIP TO AG5b_77

AG5a_77 What is the growing season, in months, for <%AG5a>? If you cannot, the season will do.

1	January	AG5b_77
2	February	AG5b_77
3	March	AG5b_77
4	April	AG5b_77
5	May	AG5b_77
6	June	AG5b_77
7	July	AG5b_77
8	August	AG5b_77
9	September	AG5b_77
10	October	AG5b_77
11	November	AG5b_77
12	December	AG5b_77
13	Fall	AG5b_77
14	Winter	AG5b_77
15	Spring	AG5b_77
16	Summer	AG5b_77
88	Refused	AG5b_77
99	Don't know	AG5b_77

ASK IF AG5b(77); ELSE SKIP TO AG6

AG5b_77 What is the growing season, in months, for <%AG5b>? If you cannot, the season will do.

1	January	AG6
2	February	AG6
3	March	AG6
4	April	AG6
5	May	AG6
6	June	AG6
7	July	AG6
8	August	AG6
9	September	AG6
10	October	AG6

11	November	AG6
12	December	AG6
13	Fall	AG6
14	Winter	AG6
15	Spring	AG6
16	Summer	AG6
88	Refused	AG6
99	Don't know	AG6

AG6 Are the fields with low-pressure sprinkler nozzles irrigated during non-growing seasons?

1	Yes	AG6a
2	No	AG7
88	Refused	AG7
99	Don't know	AG7

ASK IF AG6(1)

AG6a Can you provide the months during which those fields are irrigated?

1	January	AG7
2	February	AG7
3	March	AG7
4	April	AG7
5	May	AG7
6	June	AG7
7	July	AG7
8	August	AG7
9	September	AG7
10	October	AG7
11	November	AG7
12	December	AG7
13	Fall	AG7
14	Winter	AG7
15	Spring	AG7
16	Summer	AG7
88	Refused	AG7
99	Don't know	AG7

AG7 Can you estimate the size of the fields, in acres, irrigated with the low-pressure sprinkler nozzles?

77	Record number of acres	AG8
88	Refused	AG8
99	Don't know	AG7a

ASK IF AG7=99

AG7a If you are unable to give an exact number of acres, can you estimate a range of the size of the fields irrigated with low-pressure sprinkler nozzles. Is it…

1	1-25 acres	AG8
2	26-50 acres	AG8
3	51-100 acres	AG8
4	101-200 acres	AG8
5	201+ acres	AG8
88	Refused	AG8
99	Don't know	AG8

AG8 How many irrigation pumps were affected by the installation of low-pressure sprinkler nozzles?

1	1	AG9_1
2	2	AG9_1
3	3	AG9_1
4	4	AG9_1
5	5	AG9_1
6	More than 5 pumps	AG9_1
88	Refused	AG9_1
99	Don't know	AG9_1

ASK IF AG8(1||6); ELSE SKIP TO AG9_2

AG9_1 What is the rated horsepower of the 1st pump? Would you say it is....

1	Less than 15 hp	AG9_2
2	15-30 hp	AG9_2
3	35-55 hp	AG9_2
4	60 hp or greater	AG9_2
88	Refused	AG9_2
99	Don't know	AG9_2

ASK IF AG8(2||6); ELSE SKIP TO AG9_3

AG9_2 What is the rated horsepower of the 2nd pump? Would you say it is....

1	Less than 15 hp	AG9_3
2	15-30 hp	AG9_3
3	35-55 hp	AG9_3
4	60 hp or greater	AG9_3
88	Refused	AG9_3
99	Don't know	AG9_3

ASK IF AG8(3||6); ELSE SKIP TO AG9_4

AG9_3 What is the rated horsepower of the 3rd pump? Would you say it is....

1	Less than 15 hp	AG9_4
2	15-30 hp	AG9_4

3	35-55 hp	AG9_4
4	60 hp or greater	AG9_4
88	Refused	AG9_4
99	Don't know	AG9_4

ASK IF AG8(4||6); ELSE SKIP TO AG9_5

AG9_4 What is the rated horsepower of the 4th pump? Would you say it is....

1	Less than 15 hp	AG9_5
2	15-30 hp	AG9_5
3	35-55 hp	AG9_5
4	60 hp or greater	AG9_5
88	Refused	AG9_5
99	Don't know	AG9_5

ASK IF AG8(5||6); ELSE SKIP TO AG10

AG9_5 What is the rated horsepower of the 5th pump? Would you say it is....

1	Less than 15 hp	AG10
2	15-30 hp	AG10
3	35-55 hp	AG10
4	60 hp or greater	AG10
88	Refused	AG10
99	Don't know	AG10

AG10 Whose idea was it to install new the low-pressure sprinkler nozzles?

1	Me or someone at my facility	AG11
2	Contractor	P35
3	Utility company contact	P35
4	Manufacturer	P35
77	Other (specify)	P35
88	Refused	P35
99	Don’t know	P35

AG11 Have you noticed any problems with the low-pressure sprinkler nozzles since the installation?

1	Yes	AG12
2	No	NTGCHECK5
88	Refused	NTGCHECK5
99	Don't know	NTGCHECK5

ASK AG12 if AG11(1)

AG12 What problems have you noticed since the sprinkler nozzles were installed?

77	RECORD RESPONSE	NTGCHECK5
88	Refused	NTGCHECK5

99	Don't know	NTGCHECK5

NTGCHECK5 **GO TO NTG BATTERY IF NTGSPRINKLERS = 1; ELSE CONTINUE**

PC POWER MANAGEMENT SOFTWARE

ASK IF PCPOWER = 1; ELSE SKIP TO NEXT BATTERY

DISPLAY In the next section we'll be discussing the PC power management software present at your facility.

IF PC_QTY > 0; ELSE SKIP TO PC200

PC100 According to our records, your organization purchased <%PC_QTY> power management software licenses through the program, is this correct?

1	Yes, correct	PC1a
2	Yes, but different amount	PC200
3	Did not purchase any	NEXT BATTERY
88	Refused	PC200
99	Don't know	PC200

IF PC_QTY = 0 | PC100(2)

PC200 Approximately how many power management software licenses were purchased through the program?

77	Record amt	PC1a
88	Refused	PC1a
99	Don't know	PC1a

IF PC100 ^=3

ASK IF ^UNRECORDED(PC_CHKDT); ELSE SKIP TO PC1b

PC1a Our records indicate that your company received a rebate for the software licenses purchased through the program in <%PC_CHKDT>. Is this correct?

1	Yes	PI3
2	No	PC1b
88	Refused	PC1b
99	Don't know	PC1b

ASK IF PC1a(2||99) OR UNRECORDED(PC_CHKDT);

PC1b In what year did you purchase the software licenses through the program? Was it in…

1	2013	PC1c
2	2014	PC1c
88	Refused	PC1
99	Don't know	PC1

ASK IF PC1b(1||2);

PC1c And what month? {If they can not recall month, try to get the season.}

1	January	PI3
2	February	PI3
3	March	PI3
4	April	PI3
5	May	PI3
6	June	PI3
7	July	PI3
8	August	PI3
9	September	PI3
10	October	PI3
11	November	PI3
12	December	PI3
13	Fall	PI3
14	Winter	PI3
15	Spring	PI3
16	Summer	PI3
88	Refused	PI3
99	Don't know	PI3

PC1 How many desktop computers are present at this location? We are not counting LAPTOPS.....Your best estimate is fine. DO NOT READ....if they say don't know, then ask them if it is more or less than 50, then find another number within a range and try to get the estimate from that.

Record	Total number of computers	PC2
88	Refused	PC1A
99	Don't know	PC1A

PC2 How many desktop computers are controlled by the power management software at this location?

Record	Total number of computers	PC3
88	Refused	PC2A
99	Don't know	PC2A

ASK IF PC2 = 88,99

PC2A What percent of the desktop computers at this location are controlled by the software?

Record	Percentage of desktop computers controlled	PC3
88	Refused	PC3
99	Don't know	PC3

PC3 What is the predominant type of computer processor installed within your desktop computers? Is it….(READ LIST)

1	AMD Athlon	PC3a
2	Intel Pentium 3	PC3a
3	Intel Pentium 4	PC3a

77	Other [Record Verbatim]	PC3a
88	Refused	PC3a
99	Don't know	PC3a

PC3a What is the predominant type of monitor that is controlled by the software at this location? Is it... (READ LIST)

1	CRT	PC3b
2	LCD	PC3b
3	LED	PC3b
77	Other [Record Verbatim]	PC3b
88	Refused	PC3b
99	Don't know	PC3b

PC3b What is the predominant size (in inches) of the monitors that are controlled by the software at this location?

1	(record in # of inches)	PC4
77	Other [Record Verbatim]	PC4
88	Refused	PC4
99	Don't know	PC4

PC4 How often do you upgrade/replace your desktop computers/monitors at this location?

1	Number of years	PC5
77	Other [Record Verbatim]	PC5
88	Refused	PC5
99	Don't know	PC5

PC5 Is the central server that controls the installed network software located at this facility?

1	Yes	PC6
2	No	PC8
77	Other	PC8
88	Refused	PC8
99	Don't know	PC8

ASK IF PC5=1

PC6 Does this server control desktop computers aside from those located at this facility?

1	Yes	PC7
2	No	PC8
77	Other	PC8
88	Refused	PC8
99	Don't know	PC8

ASK IF PC6=1

PC7 How many desktop computers are controlled by the power management software at this other location(s)?

Record	Total number of computers	PC8
88	Refused	PC8
99	Don't know	PC8

PC8 Does the software monitor and provide reports on the usage of individual or groups of network computers?

1	Yes	PC9
2	No	PC9
77	Other [Record Verbatim]	PC9
88	Refused	PC9
99	Don't know	PC9

PC9 How effective was the desktop computer power management software at reducing your energy bill? Would you say you have achieved…

1	Considerable energy savings	PC10
2	Some energy savings	PC10
3	No noticeable savings	PC10
88	Refused	PC10
99	Don't know	PC10

PC10 Have you noticed any problems with the software performance since the installation?

1	Yes	PC10a
2	No	PC11
77	Other [Record Verbatim]	PC11
88	Refused	PC11
99	Don't know	PC11

ASK PC10a if PC10(1)

PC10a What problems have you noticed since the software was installed?

77	RECORD RESPONSE	PC11
88	Refused	PC11
99	Don't know	PC11

PC11 Whose idea was it to install the power management software?

1	Me or someone at my facility.	PC12
2	Contractor.	PC12
3	Utility company contact.	PC12
4	Manufacturer.	PC12
77	Other (specify)	PC12
88	Refused	PC12
99	Don't know	PC12

PC12 Did your facility have any guidelines or protocols in place for turning off equipment or putting equipment in sleep mode while not in use before the power management software was installed?

1	Yes	PC13
2	No	NTGCHECK6
77	Other [Record Verbatim]	PC13
88	Refused	NTGCHECK6
99	Don't know	NTGCHECK6

PC13 **ASK IF PC12=1**
What specific guidelines or protocols were in place before the software was installed?

1	[Record Verbatim]	NTGCHECK6
88	Refused	NTGCHECK6
99	Don't know	NTGCHECK6

NTGCHECK6 **Go to NTG BATTERY IF NTGPC = 1; ELSE CONTINUE WITH SPILLOVER BATTERY**

FINANCE QUESTIONS

DISPLAY I would like to ask you about funding this project. Funding could include external financing such as a company credit card, getting financing through a contractor or retailer, getting a bank loan or internal financing such as using retained earnings.

FIN1 Did you use internal or external funding for this project?

1	Internal funding	SURVEY_OP_HOURS
2	External funding	FIN2
3	Combination of internal and external funding	FIN2
88	Refused	SURVEY_OP_HOURS
99	Don't know	SURVEY_OP_HOURS

FIN2 **[ASK IF FIN1 = 2, 3]**
We are interested in known what type of external financing you used? Did you use….[READ THROUGH FULL LIST, RECORD 1=Yes, 2=No, 88=Refused, 99=Don't Know]

FIN2A	Contractor financing	Y, N, Ref, DK
FIN2B	Vendor financing [FOR INTERVIEWER: for example, taking a store loan from SEARS to buy an appliance]	Y, N, Ref, DK
FIN2C	Secured loan from bank [FOR INTERVIEWER: a loan using property or assets as collateral or lien on the business]	Y, N, Ref, DK
FIN2D	Unsecured loan from bank [FOR INTERVIEWER: a loan which does not require a collateral]	Y, N, Ref, DK
FIN2E	Line of credit	Y, N, Ref, DK

FIN2F	Equipment financing or leasing	Y, N, Ref, DK
FIN2G	Company credit card	Y, N, Ref, DK
FIN2H	Energy efficiency financing program (please specify)	Y, N, Ref, DK
FIN2HA	Please specify which EE financing program. [ASK IF FIN2H=1]	
FIN2I	&UTILITY sponsored on-bill financing	Y, N, Ref, DK
FIN2J	Property Assessed Clean Energy (PACE) Financing	Y, N, Ref, DK
FIN2K	Any other type of financing (please specify)	NONE, OPENEND

SPILLOVER BATTERY - LIGHTING

Comment

Thanks for discussing the new equipment that you installed through the program. Next I would like to discuss any equipment you might have installed OUTSIDE of the <%UTILITY> <%PROGRAM> program.

SP1

ASK ALL

SP1

Since receiving the PROGRAM INCENTIVE we just discussed, did you implement any additional energy efficiency equipment without any assistance from the ...<%UTILITY> program... either at this facility or at other locations?

1	Yes, only at this facility	SP2
2	Yes, only at other locations	SP2
3	Yes, at this facility and other locations	SP2
4	No	End
88	Refused	End
99	Don't know	End

If SP1(1||3); else skip out of spillover battery

SP2

What type of equipment did you install? Was the equipment related to lighting, air conditioning, heating, refrigeration, motors or something else? (SELECT ALL THAT APPLY AND RECORD ADDITIONAL INFO)

1	Lighting	SP2L
2	HVAC or Cooling equipment	OT5
3	Water Heating Equipment	OT5
4	Compressed Air Equipment	OT5
5	Food Service Equipment	OT5
6	Refrigeration Equipment	OT5
7	Gas Equipment	OT5
77	Other (SPECIFY)	OT5
88	Refused	OT5
99	Don't Know	OT5

Ask if SP2 = 1; else OT5

SP2L	What type of fixtures, ballasts, or lighting controls were installed as part of this lighting retrofit without any assistance from the utility program? [SELECT ALL THAT APPLY, AFTER EACH RESPONSE, PROMPT WITH,]	<$2>
1	High performance T8 fluorescent fixtures (1” diameter bulbs)	High
2	T8 fluorescent fixtures (1” diameter bulbs)	High
3	T10 fluorescent fixtures	Low
4	T12 Fixtures (1.5” diameter bulbs)	Low
5	HID (High Density Discharge) Fixtures, Compact	High
6	Screw-in Modular CFLs	High
7	Hardwire CFLs	High
8	Incandescent bulbs	None
9	Compact Fluorescent Exit Signs	High
10	LED Exit Signs	High
11	Halogen	Low
12	Installed Reflectors	High
13	Electronic Ballast	Low
14	Magnetic Ballast	Low
15	Time Clock Lighting Controls	High
16	Occupancy Sensors Lighting Controls	High
17	Bypass/Delay Timers Lighting Controls	High
18	Photocell Lighting Controls	High
19	Other Fluorescent	Low
20	Fat/Thick Tubes	Low
21	Skinny/Thin Tubes	High
22	T5 Fixtures (5/8” diameter)	High
23	Generic Screw-Based LEDs	High
77	Other (PLEASE SPECIFY)	Low
88	Refused	None
99	Don't Know	None

ASK IF SP2L = 5; ELSE SKIP TO MSP2a

LI17	Were the HID lamps you installed High Pressure Sodium, Metal Halide, Mercury Vapor or Incandescent?	
1	High pressure sodium	MSP2a
2	Metal Halide	MSP2a
3	Mercury Vapor	MSP2a
4	Incandescent	MSP2a
88	Refused	MSP2a
99	Don't know	MSP2a

BEGIN MACRO HIGH
PERFORM MACRO HIGH OR LOW FOR FIRST THREE MEASURES MENTIONED IN SP2L

Ask if SP1 in (1|3); else skip to MSP2b <$3>

MSP2a <$1> How many <$2> products did you buy on your own for this facility?

1	{Record Number} for this facility	MSP2b <$3>
88	Refused	MSP2b <$3>
99	Don't know	MSP2b <$3>

Ask if SP1 in (2|3); else skip to SP2bL <$4>

MSP2b <$3> How many <$2> products did you buy on your own for other locations?

1	{Record Number} for other locations	SP2bL <$4>
88	Refused	SP2bL <$4>
99	Don't know	SP2bL <$4>

SP2bL <$4> Did you receive an incentive or rebate, or do you expect to receive an incentive or rebate for &LIGHT_TECH1B from elsewhere, such as another utility or from another organization such as the government?

1	Yes, Received/expect to receive an incentive from ANOTHER utility program	SP2cU <$5>
2	Yes, Received/expect to receive an incentive from a program offered by an organization other than a utility (e.g. a government program	SP2c <$6>
3	Yes, Received/expect to receive an incentive from the manufacturer	SP5L <$7>
4	No, did not receive/expect to receive an incentive	SP5L <$7>

ASK IF SP2bL <$4> = 1

SP2cU <$5> From what utility program did you receive/expect to receive an incentive or rebate?

77	Record	RESTART MACRO

ASK IF SP2bL <$4> = 2

SP2c <$6> From what organization or program did you receive/do you expect to receive an incentive or rebate?

77	Record	SP5L <$7>

Ask if SP2bL <$4> ^ = 1

SP5L <$7> Why did you install this energy efficiency equipment without receiving a rebate or incentive from the &UTILITY program? {DO NOT READ; INDICATE ALL THAT APPLY}

1	Too much paperwork	SP5c <$9>
2	Takes too long to get approval	SP5c <$9>
3	No time to participate, needed equipment immediately	SP5c <$9>
4	The program had ended	SP5c <$9>
5	The equipment would not qualify {PROBE: Why not?}	<$8>

6	The amount of the rebate wasn't important enough	SP5c <$9>
7	Did not know the program was available	SP5c <$9>
8	There was no program available	SP5c <$9>
9	Received rebate from an organization other than a utility	SP5c <$9>
10	Received a larger incentive from another organization	SP5c <$9>
11	Took the first incentive offered	SP5c <$9>
77	Other {SPECIFY}	SP5c <$9>
88	Refused	SP5c <$9>
99	Don't know	SP5c <$9>

ASK IF SP5L <$7> = 5; ELSE SKIP TO SP5c

<$8> Why would this equipment not qualify?

77	Record reason…	SP5c <$9>
88	Refused	SP5c <$9>
99	Don't know	SP5c <$9>

SP5c <$9> Was this equipment specifically recommended by a PROGRAM or UTILITY sponsored audit?

1	Yes	SP5d <$10>
2	No	SP5d <$10>
88	Refused	SP5d <$10>
99	Don't know	SP5d <$10>

SP5d <$10> Can you briefly explain why you decided to implement this equipment? (Note to interviewer, if the respondent mentions the utility programs as a factor in deciding to install the measure, record the open ended response in the appropriate response below)

77	Response not related to utility program (record verbatim)	SP5eL <$11>
78	Response related to utility program (record verbatim)	SP5f <$12>

If $10 is not 78

SP5eL <$11> Did your experience participating in the <%UTILITY> in 2013-2014 encourage you in any way to implement <$2>?

1	Yes	SP5f <$12>
2	No	SP5h <$15>
88	Refused	SP5f <$12>
99	Don't Know	SP5f <$12>

SP5f <$12> How influential was your experience in the <PROGRAM> in your decision to implement this equipment, using a scale of 0 to 10, where 0 is not at all influential and 10 is extremely influential?

	{Record Response (0-10)} _____	SP5f_CONCHECK <$13>
88	Refused	SP5f_CONCHECK <$13>
99	Don't Know	SP5f_CONCHECK <$13>

IF ($10(78) | $11(1)) & $12(11|1|2|3|4); else skip to SP5gL

SP5f_CONCHECK <$13> Earlier you indicated that the program encouraged you to implement this equipment, but now you've scored the program fairly low. Why is that?

77	Record VERBATIM [REVISE SP5f IF NECESSARY]	SP5h <$15>

If they would like to give a new rating, type it in the open end below and the reason\,

IF $12(5||10); else skip to SP5h

SP5gL <$14> Can you explain specifically how your experience with the PROGRAM influenced your decision to install this additional energy efficient equipment?

77	Record VERBATIM	MEAS2_1 <$17>
88	Don't know	MEAS2_1 <$17>
99	Refused	MEAS2_1 <$17>

IF $12(11|1|2|3|4);

SP5h <$15> Using a 0 to 10 scale where 0 is not at all likely and 10 is extremely likely, how likely would you have been to install this equipment...<$2>...if you had not participated in the program?

#	Record 0 to 10 likelihood rating (_____)	SP5h_CONCHECK <$16>
88	Refused	SP5h_CONCHECK <$16>
99	Don't know	SP5h_CONCHECK <$16>

IF $15 (11 or 1 - 4) & ($10(77) | $11(2)); else skip to MEAS2_1 <$17>

SP5h_CONCHECK <$16> Earlier you indicated that the program did not encourage you to implement this equipment, but now say that you would have been less likely to install the measure without the program. Why is that?

77	Record VERBATIM [REVISE SP5h IF NECESSARY]	MEAS2_1 <$17>

MEAS2_1 <$17> In what year did you install <$2>? (PROBE FOR BEST GUESS)

1	2013	MSP20 <$18>
2	2014	MSP20 <$18>
88	Refused	MSP20 <$18>
99	Don't know	MSP20 <$18>

MSP20 <$18> What type of lighting was removed and replaced when you installed <$2>?

1	High performance T8 (1" diameter bulbs)	MSP25 <$19>
2	T8 fluorescent fixtures (1" diameter bulbs)	MSP25 <$19>
3	T10 fluorescent fixtures	MSP25 <$19>
4	T12 Fixtures (1.5" diameter bulbs)	MSP25 <$19>

5	HID (High Density Discharge) Fixtures, Compact	MSP25 <$19>
6	Compact Fluorescent, Screw-in Modular	MSP25 <$19>
7	Compact Fluorescent, Hardwire	MSP25 <$19>
8	Incandescent	MSP25 <$19>
9	Exit Signs, Compact Fluorescent	MSP25 <$19>
10	Exit Signs, LED	MSP25 <$19>
11	Halogen	MSP25 <$19>
12	Install Reflectors	MSP25 <$19>
13	Electronic Ballast	MSP25 <$19>
14	Magnetic Ballast	MSP25 <$19>
15	Lighting Controls, Time Clock	MSP25 <$19>
16	Lighting Controls, Occupancy Sensor	MSP25 <$19>
17	Lighting Controls, Bypass/Delay Timers	MSP25 <$19>
18	Lighting Controls, Photocell	MSP25 <$19>
19	Other Fluorescent	MSP25 <$19>
20	Fat/Thick Tubes	MSP25 <$19>
21	Skinny/Thin Tubes	MSP25 <$19>
22	T5 Fixtures (5/8" diameter)	MSP25 <$19>
66	NOTHING, EQUIPMENT WAS ONLY ADDED, NOT REPLACED	
77	Other (PLEASE SPECIFY)	MSP25 <$19>
88	Refused	MSP25 <$19>
99	Don't know	MSP25 <$19>

ASK IF ^$18(66)

MSP25 <$19> Approximately how old was this light equipment that you removed/replaced? Would you say…

1	Less than 5 years old	MSP26 <$20>
2	Between 5 and 10 years old	MSP26 <$20>
3	Between 10 and 15 years old	MSP26 <$20>
4	More than 15 years old	MSP26 <$20>
88	Refused	MSP26 <$20>
99	Don't know	MSP26 <$20>

MSP26 <$20> How would you describe the condition of this removed equipment? Would you say they were…

1	In poor condition	MSP27 <$21>
2	Fair condition, or	MSP27 <$21>
3	Good condition	MSP27 <$21>
88	Refused	MSP27 <$21>
99	Don't know	MSP27 <$21>

MSP27 <$21> Approximately what percentage of this removed lighting equipment was broken or not working prior to installing…

%	Percent	MACRO LOW
101	Refused	MACRO LOW

102	Don't know	MACRO LOW

BEGIN MACRO LOW

<$1> In what year did you install <$2>? (PROBE FOR BEST GUESS)

1	2013	<$3>
2	2014	<$3>
88	Refused	<$3>
99	Don't know	<$3>

<$3> What type of lighting was removed and replaced when you installed <$2>?

1	High performance T8 (1" diameter bulbs)	<$4>
2	T8 fluorescent fixtures (1" diameter bulbs)	<$4>
3	T10 fluorescent fixtures	<$4>
4	T12 Fixtures (1.5" diameter bulbs)	<$4>
5	HID (High Density Discharge) Fixtures, Compact	<$4>
6	Compact Fluorescent, Screw-in Modular	<$4>
7	Compact Fluorescent, Hardwire	<$4>
8	Incandescent	<$4>
9	Exit Signs, Compact Fluorescent	<$4>
10	Exit Signs, LED	<$4>
11	Halogen	<$4>
12	Install Reflectors	<$4>
13	Electronic Ballast	<$4>
14	Magnetic Ballast	<$4>
15	Lighting Controls, Time Clock	<$4>
16	Lighting Controls, Occupancy Sensor	<$4>
17	Lighting Controls, Bypass/Delay Timers	<$4>
18	Lighting Controls, Photocell	<$4>
19	Other Fluorescent	<$4>
20	Fat/Thick Tubes	<$4>
21	Skinny/Thin Tubes	<$4>
22	T5 Fixtures (5/8" diameter)	<$4>
66	NOTHING, EQUIPMENT WAS ONLY ADDED, NOT REPLACED	<$4>
77	Other (PLEASE SPECIFY)	<$4>
88	Refused	<$4>
99	Don't know	<$4>

ASK IF ^$3(66)

<$4> Approximately how old was this light equipment that you removed/replaced? Would you say…

1	Less than 5 years old	<$5>
2	Between 5 and 10 years old	<$5>
3	Between 10 and 15 years old	<$5>
4	More than 15 years old	<$5>

88	Refused	<$5>
99	Don't know	<$5>

<$5> How would you describe the condition of this removed equipment? Would you say they were…

1	In poor condition	<$6>
2	Fair condition, or	<$6>
3	Good condition	<$6>
88	Refused	<$6>
99	Don't know	<$6>

<$6> Approximately what percentage of this removed lighting equipment was broken or not working prior to installing…

%	Percent	CFL1A
88	Refused	CFL1A
99	Don't know	CFL1A

IF SP2L = 6; else skip to VEND1

CFL1A Where did you purchase the CFLs that were installed OUTSIDE the program? [ACCEPT MULTIPLES]

1	Home Depot	CFL3A
2	Costco	CFL3A
3	Orchard Supply Hardware	CFL3A
4	ACE Hardware	CFL3A
5	Lowe's	CFL3A
6	SaveMart	CFL3A
7	K-Mart	CFL3A
8	Sam's Club	CFL3A
9	Smart & Final	CFL3A
10	Yardbirds Home Center	CFL3A
11	Fry's Electronics	CFL3A
12	True Value	CFL3A
65	CONTRACTOR INSTALLED	CFL3A
66	Did not install CFLs	VEND1
77	OTHER [Specify:]	CFL3A
88	Refused	CFL3A
99	Don't know	CFL3A

ASK IF ^CFL1A(66)

CFL3A Were all these CFLs installed or were some put in storage for later use?

1	All installed	VEND1
2	All in storage	VEND1
3	Some in storage, Some installed	CFL4
88	Refused	VEND1

99	Don't Know	VEND1

IF CFL3A = 3

CFL4 What percentage were installed?

77	Open Record	CFL5
88	Refused	CFL5
99	Don't know	CFL5

IF CFL3A = in (2, 3)

CFL5 Why were they put in storage?

77	Open Record	VEND1
88	Refused	VEND1
99	Don't know	VEND1

ROLE OF CONTRACTORS

ASK IF SP2L(1|2|5|6|7|9|10|12|15|16|17|18|21|22|23)

VEND1 Now I would like to find out, did you use a contractor/vendor to install the non-rebated energy efficient lighting?

1	Yes	VEND2
2	No	ENDLOOP
3	Received a rebate	ENDLOOP
88	Refused	ENDLOOP
99	[DO NOT READ] Don't know/No Answer	ENDLOOP

IF VEND1 = 1

VEND2 On a scale of 0 - 10, with 0 being very unimportant and 10 being very important. How important was the input from the contractor you worked with in deciding which specific equipment to install? Was it …

1	0-10 response	VEND3
88	Refused	VEND3
99	Don't know	VEND3

Ask if VEND2(7||10); Else LI30_A;

VEND3 Can you give me your contractor's name? Do you have his/her email address? Do you have a phone number for him/her?

77	RECORD NAME, Phone, Email ETC	LI30_A
88	Refused	LI30_A
99	Don't know	LI30_A

ASK IF SP2L(1||77)

LI30_1 Considering all of the lighting changes we just discussed (purchases outside the programs), approximately what percentage of the facility's lighting was affected by those changes?

%	Percent	OT5

101	Refused	OT5
102	Don't know	OT5

SPILLOVER BATTERY - OTHER

IF SP2(2||77)

Comment Next I would like to discuss any equipment you might have installed OUTSIDE of the &UTILITY program.

DISPLAY Earlier you mentioned that your organization installed...<(SP2(2))/HVAC or COOLING EQUIPMENT/> <(SP2(3))/WATER HEATING EQUIPMENT/> <(SP2(4))/COMPRESSED AIR EQUIPMENT/> <(SP2(5))/FOOD SERVICE EQUIPMENT/> <(SP2(6))/GAS EQUIPEMNENT/> %O<%SP2> outside of the program without any benefit of incentive or rebate. I would like to ask you a few questions about this equipment.

Response names in the following questions will have endings "_#" where # signifies the response number to SP2 (# = 1, 2, or 3)

MACRO OTHER

<$1> Was this equipment ...<$2> ...installed at this facility or another facitility or was it installed in both?

1	This facility	<$3>
2	Another facility	<$2>
3	Both this and another facility	<$3>
66	Was not installed	NEXT MEASURE
88	Refused	NEXT MEASURE
99	Don't know	NEXT MEASURE

Ask if <$1> in (1,3)

<$3> Please describe the type of <$2> that you installed at this facility.

77	Record verbatim	<$4>
88	Refused	<$4>
99	Don't know	<$4>

<$4> Please describe the quantity of <$2> that was installed at this facility.

77	Record verbatim	<$5>
88	Refused	<$5>
99	Don't know	<$5>

<$5> Please describe the efficiency level of <$2> that was installed at this facility.

1	Standard Efficiency	<$6>
2	High Efficiency	<$6>
3	Energy Star	<$6>
88	Refused	<$6>
99	Don't know	<$6>

Ask if <$1> in (2-3)

<$6> Please describe the type of <$2> that you purchased and installed at your other facility

77	Record verbatim	<$7>
88	Refused	<$7>
99	Don't know	<$7>

<$7> Please describe the quantity of <$2> that was installed at your other facility

77	Record verbatim	<$8>
88	Refused	<$8>
99	Don't know	<$8>

<$8> Please describe the efficiency level of <$2> that was installed at your other facility

1	Standard Efficiency	<$9>
2	High Efficiency	<$9>
3	Energy Star	<$9>
88	Refused	<$9>
99	Don't know	<$9>

<$9> Did you receive an incentive or rebate, or do you expect to receive an incentive or rebate for &OT_TECH1B from elsewhere, such as another utility or from another organzation such as the government?

1	Yes, Received/expect to receive an incentive from ANOTHER utility program	<$10>
2	Yes, Received/expect to receive an incentive from a program offered by an organization other than a utility (e.g. a government program	<$11>
3	Yes, Received/expect to receive an incentive from the manufacturer	<$12>
4	No, did not receive/expect to receive an incentive	<$12>

ASK IF $9 = 1

<$10> From what utility program did you receive/expect to receive an incentive or rebate?

77	Record	end for this measure

ASK IF $9 = 2

<$11> From what organization or program did you receive/expect to receive an incentive or rebate?

77	Record	SP5O

ASK IF ^$9(1)

<$12> Why did you purchase this equipment without the financial assistance available through &UTILITY program? {DO NOT READ; INDICATE ALL THAT APPLY}

1	Too much paperwork	<$14>
2	Takes too long to get approval	<$14>
3	No time to participate, needed equipment immediately	<$14>
4	The program had ended	<$14>
5	The equipment would not qualify {PROBE: Why not?}	<$13>
6	The amount of the rebate wasn't important enough	<$14>
7	Did not know the program was available	<$14>
8	There was no program available	<$14>
10	Received a larger incentive from another organization	<$14>
11	Took the first incentive offered	<$14>
77	Other {SPECIFY}	<$14>
88	Refused	<$14>
99	Don't know	<$14>

ASK IF <$12> = 5

<$13> Why would this equipment not qualify?

77	Record answer	<$14>
88	Refused	<$14>
99	Don't know	<$14>

<$14> Was this equipment... <$2>... specifically recommended by a PROGRAM/UTILITY sponsored audit?

1	Yes	<$15>
2	No	<$15>
88	Refused	<$15>
99	Don't know	<$15>

<$15> Can you briefly explain why you decided to implement this equipment? (Note to interviewer, if the respondent mentions the utility programs as a factor in deciding to install the measure, record the open ended response in the appropriate response below

77	Response not related to utility program (record verbatim)	<$17>
78	Response related to utility program (record verbatim)	<$16>
88	Refused	<$17>
99	Don't know	<$17>

ASK IF <$15> ^= 78

Did your experience participating in the <%UTILITY> <%PROGRAM> program in 2013-2014 encourage you in any way to implement

<$16> &OT_TECH1B?

1	Yes	<$17>
2	No	<$17>
88	Refused	<$17>
99	Don't Know	<$17>

<$17> How influential was your experience in the PROGRAM in your decision to implement this equipment, using a scale of 0 to 10, where 0 is not at all influential and 10 is extremely influential?

	{Record Response (0-10)} _____	<$18>
88	Refused	<$18>
99	Don't Know	<$18>

ASK IF ($15(78) | $16(1)) & $17(11|1|2|3|4)

<$18> Earlier you indicated that the program encouraged you to implement this equipment, but now you've scored the program fairly low. Why is that?

77	Record VERBATIM [REVISE <$17> IF NECESSARY]	

ASK IF IF $17(5||10)

<$19> Can you explain specifically how your experience with the <%PROGRAM> program influenced your decision to install this additional energy efficient equipment?

77	Record VERBATIM	
88	Don't know	
99	Refused	

ASK IF $17(11|1|2|3|4)

<$20> Using a 0 to 10 scale where 0 is not at all likely and 10 is extremely likely, how likely would you have been to install this equipment...<$2>...if you had not participated in the program?

#	Record 0 to 10 likelihood rating (_____)	
88	Refused	
99	Don't know	

ASK IF $20(11|1|2|3|4) & ($15(77) | $16(2))

<$21> Earlier you indicated that the program did not encourage you to implement this equipment ...<$2> >.., but now say that you would have been less likely to install the equipment without the program. Why is that?

77	Record VERBATIM [REVISE xxx IF NECESSARY]	

<$22> In what year did you install <$2>

1	2013	VEND1
2	2014	VEND1
88	Refused	VEND1
99	Don't know	VEND1

ROLE OF CONTRACTORS

ASK IF SP2(2||77)

OTVEND1 Now I would like to find out, did you use a contractor/vendor to install the non-rebated energy efficient equipment?

1	Yes	OTVEND2
2	No	ENDOTHERLOOP
88	Refused	ENDOTHERLOOP
99	[DO NOT READ] Don't know/No Answer	ENDOTHERLOOP

ASK IF OTVEND1(1)

OTVEND2 On a scale of 0 - 10, with 0 being very unimportant and 10 being very important. How important was the input from the contractor you worked with in deciding which specific equipment to install? Was it …

1	0-10 response	VEND3
88	Refused	VEND3
99	Don't know	VEND3

IF OTVEND2(7||10)

OTVEND3_(1-3) Can you give me your contractor's name?
Do you have his/her email address?
Do you have a phone number for him/her?

77	RECORD NAME, Phone, Email ETC	ENDOTHERLOOP
88	Refused	ENDOTHERLOOP
99	Don't know	ENDOTHERLOOP

ENDOTHERLOOP **END OTHER MEASURE LOOP; IF FINISHED OTHER MEASURES OR NO MORE OTHER MEASURES, GO ON TO NEXT BATTERY**

OPERATING HOURS

DISPLAY We are almost finished. The next few questions are to help us get a full understanding of your organization's operational hours.

ALWAYS Is your organization operation 24 hours a day, 7 days a week?

1	Yes	HOLIDAYS
2	No	HOLIDAYS
88	Refused	HOLIDAYS

HOLIDAYS	Dose your facility closed for any holidays during the year? If so, which one(s)?	
1	New Year's Day - January 1	DAYS
2	Martin Luther King Jr. Day - January 18, 2010 (3rd Monday in January)	DAYS
3	President's Day - February 15, 2010 (3rd Monday in February)	DAYS
4	Memorial Day - May 31, 2010 (Last Monday in May)	DAYS
5	Independence Day - July 4th (Or Surrounding Monday/Friday if July 4 is a weekend)	DAYS
6	Labor Day - September 6, 2010 (First Monday in September)	DAYS
7	Thanksgiving - November 26, 2010 (4th Thursday in November)	DAYS
8	Day after Thanksgiving	DAYS
9	Christmas Eve - December 24	DAYS
10	Christmas Day - December 25	DAYS
66	NO HOLIDAY CLOSURES	DAYS
77	Other - Specify	DAYS
88	Refused	DAYS
99	Don't Know	DAYS

DAYS	**Ask if ALWAYS = 2; else skip to OS_REC;** Is your facility closed any of the 7 days of the week? If so, which days are you CLOSED?	
1	Monday	MONDAY_OPEN
2	Tuesday	MONDAY_OPEN
3	Wednesday	MONDAY_OPEN
4	Thursday	MONDAY_OPEN
5	Friday	MONDAY_OPEN
6	Saturday	MONDAY_OPEN
7	Sunday	MONDAY_OPEN
66	Open EVERYDAY	MONDAY_OPEN
88	REFUSED	MONDAY_OPEN
99	DON'T KNOW	MONDAY_OPEN

MONDAY_OPEN	**Ask if ALWAYS(2)&^DAYS(1); else skip to TUESDAY_OPEN;** What time do you open your facility on MONDAY?	
	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	MONDAY_CLOSE
88	REFUSED	MONDAY_CLOSE
99	DON'T KNOW	MONDAY_CLOSE

IF MONDAY_OPEN(1||64)

MONDAY_CLOSE What time do you close your facility on MONDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	TUESDAY_OPEN
88	REFUSED	TUESDAY_OPEN
99	DON'T KNOW	TUESDAY_OPEN

Ask if ALWAYS(2)&^DAYS(2); else skip to WEDNESDAY_OPEN;

TUESDAY_OPEN What time do you open your facility on TUESDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	TUESDAY_CLOSE
88	REFUSED	TUESDAY_CLOSE
99	DON'T KNOW	TUESDAY_CLOSE

IF TUESDAY_OPEN(1||65)

TUESDAY_CLOSE What time do you close your facility on TUESDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	WEDNESDAY_OPEN
88	REFUSED	WEDNESDAY_OPEN
99	DON'T KNOW	WEDNESDAY_OPEN

Ask if ALWAYS(2)&^DAYS(3); else skip to THURSDAY_OPEN;

WEDNESDAY_OPEN What time do you open your facility on WEDNESDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	WEDNESDAY_CLOSE
88	REFUSED	WEDNESDAY_CLOSE
99	DON'T KNOW	WEDNESDAY_CLOSE

IF WEDNESDAY_OPEN(1||65)

WEDNESDAY_CLOSE What time do you close your facility on WEDNESDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	THURSDAY_OPEN
88	REFUSED	THURSDAY_OPEN
99	DON'T KNOW	THURSDAY_OPEN

Ask if ALWAYS(2)&^DAYS(4); else skip to FRIDAY_OPEN;

THURSDAY_OPEN What time do you open your facility on THURSDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	THURSDAY_CLOSE
88	REFUSED	THURSDAY_CLOSE
99	DON'T KNOW	THURSDAY_CLOSE

IF THURSDAY_OPEN(1||65)

THURSDAY_CLOSE What time do you close your facility on THURSDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	FRIDAY_OPEN
88	REFUSED	FRIDAY_OPEN
99	DON'T KNOW	FRIDAY_OPEN

Ask if ALWAYS(2)&^DAYS(5); else skip to SATURDAY_OPEN;

FRIDAY_OPEN What time do you open your facility on FRIDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	FRIDAY_CLOSE
88	REFUSED	FRIDAY_CLOSE
99	DON'T KNOW	FRIDAY_CLOSE

IF FRIDAY_OPEN(1||65)

FRIDAY_CLOSE What time do you close your facility on FRIDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	SATURDAY_OPEN
88	REFUSED	SATURDAY_OPEN
99	DON'T KNOW	SATURDAY_OPEN

Ask if ALWAYS(2)&^DAYS(6); else skip to SUNDAY_OPEN;

SATURDAY_OPEN What time do you open your facility on SATURDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	SATURDAY_CLOSE
88	REFUSED	SATURDAY_CLOSE
99	DON'T KNOW	SATURDAY_CLOSE

IF SATURDAY_OPEN(1||65)

SATURDAY_CLOSE What time do you close your facility on SATURDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	SUNDAY_OPEN
88	REFUSED	SUNDAY_OPEN
99	DON'T KNOW	SUNDAY_OPEN

Ask if ALWAYS(2)&^DAYS(7); else skip to DIFF_SCHEDULE;

SUNDAY_OPEN What time do you open your facility on SUNDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	SUNDAY_CLOSE
88	REFUSED	SUNDAY_CLOSE

99	DON'T KNOW	SUNDAY_CLOSE

IF SUNDAY_OPEN(1||65)

SUNDAY_CLOSE What time do you close your facility on SUNDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	DIFF_SCHEDULE
88	REFUSED	DIFF_SCHEDULE
99	DON'T KNOW	DIFF_SCHEDULE

DIFF_SCHEDULE Some organizations have different schedules for certain times of the year. Does your organization maintain a different schedule for certain months of the year?

1	Yes	MONTHS
2	No	OS_REC
88	REFUSED	OS_REC
99	DON'T KNOW	OS_REC

Ask if DIFF_SCHEDULE = 1; Else skip to OS_REC;

MONTHS Which months of the year does the schedule vary from the times I just recorded?

1	January	ALT_DAYS
2	February	ALT_DAYS
3	March	ALT_DAYS
4	April	ALT_DAYS
5	May	ALT_DAYS
6	June	ALT_DAYS
7	July	ALT_DAYS
8	August	ALT_DAYS
9	September	ALT_DAYS
10	October	ALT_DAYS
11	November	ALT_DAYS
12	December	ALT_DAYS
88	REFUSED	ALT_DAYS
99	DON'T KNOW	ALT_DAYS

ALT_ALWAYS Is your organization operation 24 hours a day, 7 days a week?

1	Yes	HOLIDAYS
2	No	HOLIDAYS
88	Refused	HOLIDAYS

If ^ALT_ALWAYS(1) then ask; Else skip to OS_REC;

ALT_DAYS During this alternate schedule, is your facility closed any of the 7 days of the week? If so, which days are you CLOSED?

1	Monday	ALT_MONDAY_OPEN
2	Tuesday	ALT_MONDAY_OPEN
3	Wednesday	ALT_MONDAY_OPEN
4	Thursday	ALT_MONDAY_OPEN
5	Friday	ALT_MONDAY_OPEN
6	Saturday	ALT_MONDAY_OPEN
7	Sunday	ALT_MONDAY_OPEN
66	Open EVERYDAY	ALT_MONDAY_OPEN
88	REFUSED	ALT_MONDAY_OPEN
99	DON'T KNOW	ALT_MONDAY_OPEN

Ask if
DIFF_SCHEDULE(1)&^ALT_DAYS(1);
else skip to ALT_TUESDAY_OPEN;

ALT_MONDAY_OPEN For the alternate schedule, what time do you open your facility on MONDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_MONDAY_CLOSE
88	REFUSED	ALT_MONDAY_CLOSE
99	DON'T KNOW	ALT_MONDAY_CLOSE

IF ALT_MONDAY_OPEN(1||64)

ALT_MONDAY_CLOSE What time do you close your facility on MONDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_TUESDAY_OPEN
88	REFUSED	ALT_TUESDAY_OPEN
99	DON'T KNOW	ALT_TUESDAY_OPEN

Ask if
DIFF_SCHEDULE(1)&^ALT_DAYS(2);
else skip to ALT_WEDNESDAY_OPEN;

ALT_TUESDAY_OPEN What time do you open your facility on TUESDAY during your alternate schedule?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_TUESDAY_CLOSE
88	REFUSED	ALT_TUESDAY_CLOSE
99	DON'T KNOW	ALT_TUESDAY_CLOSE

IF ALT_TUESDAY_OPEN(1||65)

ALT_TUESDAY_CLOSE What time do you close your facility on TUESDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_WEDNESDAY_OPEN
88	REFUSED	ALT_WEDNESDAY_OPEN
99	DON'T KNOW	ALT_WEDNESDAY_OPEN

Ask if
DIFF_SCHEDULE(1)&^ALT_DAYS(3);
else skip to ALT_THURSDAY_OPEN;

ALT_WEDNESDAY_OPEN What time do you open your facility on WEDNESDAY during your alternate schedule?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_WEDNESDAY_CLOSE
88	REFUSED	ALT_WEDNESDAY_CLOSE
99	DON'T KNOW	ALT_WEDNESDAY_CLOSE

IF ALT_WEDNESDAY_OPEN(1||65)

ALT_WEDNESDAY_CLOSE What time do you close your facility on WEDNESDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_THURSDAY_OPEN
88	REFUSED	ALT_THURSDAY_OPEN
99	DON'T KNOW	ALT_THURSDAY_OPEN

Ask if
DIFF_SCHEDULE(1)&^ALT_DAYS(4);
else skip to ALT_FRIDAY_OPEN;

ALT_THURSDAY_OPEN What time do you open your facility on THURSDAY during your alternate schedule?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_THURSDAY_CLOSE
88	REFUSED	ALT_THURSDAY_CLOSE
99	DON'T KNOW	ALT_THURSDAY_CLOSE

ALT_THURSDAY_OPEN(1||65)

ALT_THURSDAY_CLOSE What time do you close your facility on THURSDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_FRIDAY_OPEN
88	REFUSED	ALT_FRIDAY_OPEN
99	DON'T KNOW	ALT_FRIDAY_OPEN

Ask if
DIFF_SCHEDULE(1)&^ALT_DAYS(5);
else skip to ALT_SATURDAY_OPEN;

ALT_FRIDAY_OPEN What time do you open your facility on FRIDAY during this alternate schedule?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_FRIDAY_CLOSE
88	REFUSED	ALT_FRIDAY_CLOSE
99	DON'T KNOW	ALT_FRIDAY_CLOSE

IF ALT_FRIDAY_OPEN(1||65)

ALT_FRIDAY_CLOSE

What time do you close your facility on FRIDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_SATURDAY_OPEN
88	REFUSED	ALT_SATURDAY_OPEN
99	DON'T KNOW	ALT_SATURDAY_OPEN

ALT_SATURDAY_OPEN

Ask if DIFF_SCHEDULE(1)&^ALT_DAYS(6); else skip to ALT_SUNDAY_OPEN;
I recorded that during your alternate schedule you are also open on Saturday. What time do you open your facility on SATURDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_SATURDAY_CLOSE
88	REFUSED	ALT_SATURDAY_CLOSE
99	DON'T KNOW	ALT_SATURDAY_CLOSE

ALT_SATURDAY_CLOSE

IF ALT_SATURDAY_OPEN(1||65)
What time do you close your facility on SATURDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_SUNDAY_OPEN
88	REFUSED	ALT_SUNDAY_OPEN
99	DON'T KNOW	ALT_SUNDAY_OPEN

ALT_SUNDAY_OPEN

Ask if DIFF_SCHEDULE(1)&^ALT_DAYS(7); else skip to OS_REC;
I recorded that during your alternate schedule you are also open on Sunday. What time do you open your facility on SUNDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	ALT_SUNDAY_CLOSE
88	REFUSED	ALT_SUNDAY_CLOSE
99	DON'T KNOW	ALT_SUNDAY_CLOSE

ALT_SUNDAY_CLOSE

IF ALT_SUNDAY_OPEN(1||65)
What time do you close your facility on SUNDAY?

	Record Time 1AM - 12:30 AM in 12 hour format by half hour as 1-24	OS_REC
88	REFUSED	OS_REC
99	DON'T KNOW	OS_REC

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.

A3 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?

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

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?

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

N3aa How, specifically, did this enter into your decision to install/delamp this equipment?

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

N3c Please rate the degree of importance of information provided through...A1B(1)|<ID0(1)/The Facility or System AUDIT/>

#	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

N3d Recommendation from an equipment vendor that sold you the equipment and/or installed it for you **[VENDOR_1]**

#	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

N3g Information from the Program, Utility, or Program Administrator training course?

#	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

N3ggg How, specifically, did this enter into your decision to install/delamp this equipment?

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

N3h Information from the Program, Utility, or Program Administrator Marketing materials?

#	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

N3hhh How, specifically, did this enter into your decision to install/delamp this energy efficient equipment?

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

N3oo How, specifically, did this enter into your decision to install/delamp this equipment?

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

N3p Compliance with state or federal regulations such as Title 24, air quality, OSHA, or FDA regulations

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

IF N3p > 5, THEN ASK

N3pp How, specifically, did this enter into your decision to upgrade to energy efficient equipment?

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

ASK IF NTG_TYPE >= 3

N3r Compliance with your organization's normal remodeling or equipment replacement practices?

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

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

N3RRR 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?

# yrs	Record Number of Years	N3rr
88	Refused	N3rr
99	Don't know	N3rr

IF N3r > 5, THEN ASK

N3rr How, specifically, did this enter into your decision to install/delamp this equipment?

77	RECORD VERBATIM	N3s.
88	Don't know	N3s.
99	Refused	N3s.

N3s Were there any other factors we haven't discussed that were influential in your decision to install/delamp this MEASURE?

1	Nothing else influential	CC1
77	Record verbatim	N3ss
88	Refused	CC1
99	Don't know	CC1

ASK IF N3s = 77

N3ss Using the same zero to 10 scale, how would you rate the influence of this factor?

#	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

CC1 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?

77	RECORD VERBATIM	CC1a
88	Don't know	CC1a
99	Refused	CC1a

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

CC1a 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?

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

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

NCC3 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?

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

NCC3a 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?

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

P1 What financial calculations does your company typically make before proceeding with the installation of energy efficient equipment like you installed through the program?

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

P2A 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…

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

P3 Did the rebate move your energy efficient equipment project within this acceptable range?

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

If P3 = 1 THEN ASK; ELSE SKIP TO P3A

P4 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?

#	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

P3a 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?

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

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

P3e 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?

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);

DISPLAY 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 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>@

DISPLAY 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?\

N41 How many of the ten points would you give to the importance of the PROGRAM in your decision?

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

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
N5 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?

#	Record 0 to 10 score (_____)	N5a
88	Refused	N5B
99	Don't know	N5B

IF REPLACE(2) THEN ASK; ELSE SKIP TO N6
N5aa 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?

#	Record 0 to 10 score (_____)	N6
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

N5a role the rebate played in your decision to install this efficient equipment?

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

NN5aa rating of <%N5> and/or we can change both if you wish?

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

N5b did?

#	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

DISPLAY company's needs before you had to or chose to replace it. TD1

If the program had not been available, how likely is it that you would have

TD1 replaced your existing equipment within one year of when you did?

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

TD2 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?

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

TD3 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?

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

N9bb 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.

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

ADDITIONAL BASELINE INPUT

N6 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?

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)

N7 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?

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

Ask if N6(1);

N6a How many fewer units would you have installed/Delamped? (It is okay to take an answer such as ...HALF...or 10 percent fewer ... etc.)

77	RECORD VERBATIM	ER2
88	Refused	ER2
99	Refused	ER2

Ask if N6(3);

N6b 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)

77	RECORD VERBATIM	ER2
88	Don't know	ER2
99	Refused	ER2

Ask if N6(6);

N6c How long do you think the repaired equipment would have lasted before requiring replacement?

77	RECORD VERBATIM	ER2
88	Don't know	ER2
99	Refused	ER2

EARLY REPLACEMENT BATTERY

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

DISPLAY 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. ER2

IF REPLACE(1);

ER2 How many more years do you think your equipment would have gone before failing and required replacement?

77	___ Estimated Remaining Useful Life (in years)	ER6
88	Don't know	ER6
99	Refused	ER6

IF A3 = 4, THEN ASK

ER6 How much downtime did you experience in the past year?

77	_____Downtime Estimate (in weeks)	ER9
88	Don't know	ER9
99	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

ER15 Can you briefly describe the specific code/regulatory requirements that this project addressed?

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

IF A3 = 10, THEN ASK

ER19 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?

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

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?

#	Record 0 to 10 score (_____)	PP5B
88	Refused	PP6
99	Don't know	PP6

IF PP5A < 6 THEN ASK; ELSE SKIP TO PP6

PP5B Why do you say that?

77	Record VERBATIM	PP6
88	Don't know	PP6
99	Refused	PP6

PP5C Using the same 0 - 10 scale, how would you rate your OVERALL satisfaction with the quality of the installers' work?

#	Record 0 to 10 score (_____)	PP5D
88	Refused	PP5E
99	Don't know	PP5E

PP5D Why do you say that?

77	Record VERBATIM	PP5E
88	Don't know	PP5E
99	Refused	PP5E

PP5E From your perspective, what if anything could be done to improve the quality of the installers' work?

77	Record VERBATIM	PP6
88	Don't know	PP6
99	Refused	PP6

In qsl: IF ^UNRECORDED(IMPLEMENTER);

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

PP6 The program you participated in was run by %IMPLEMENTER. Has your organization participated in energy efficiency programs run by <%UTILITY> in the past three years?

1	Yes	PP8
2	No	PP10
88	Refused	PP10
99	Don't know	PP10

ASK IF PP6=1

PP8 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?

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

ASK IF IOU_PROG = 1 (utility administered program); ELSE PP12

PP10 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)

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

ASK IF PP10 = 3;

PP12 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)

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

ASK if PP10 in (1, 2)

PP14 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)

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

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

PP16 Which entity, the <%UTILITY> program or the <%IMPLEMENTER> <%PP10> program was more effective in supporting your organization's decision making process?

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

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?

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

PP24 Which entity was more effective in supporting you through the application process

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

DISPLAY 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. LT2

LT2 For how many years have you been participating in %UTILITY's energy efficiency programs?

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

LT3 During this time, how many times has your organization participated in these PROGRAM(s)?

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

LT7 And exactly how did that experience help to convince you to install this energy efficient equipment?

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

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

LT8 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.]

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

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

LT9 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]

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

LT10 Has your organization assigned responsibility for controlling energy usage and costs to any of the following?

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

LT11 Does your organization have any internal incentive or reward policies for business units or staff responsible for managing energy costs?

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

CA2 In marketing materials or in communications with customers, does your company highlight the ways in which your business is environmentally conscious?

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

DISPLAY 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. LOG_REC

LOG_REC Are you interested in participating in this project?

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 technecian 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

COMMENT1	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. By receiving a rebate through the <%PROGRAM>, your firm has agreed to allow verification of the installation of the equipment rebated through the program.	
OS_NAME1	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?	

1	Same as for logger	HB_Lift
77	Record Name	OS_PHONE1
99	Don't know	T&T

IF OS_NAME1(77)

OS_PHONE1	May I also have the best phone number for the technician to reach this person?	
&OS_PHONE1	PHONE FOR PRIMARY CONTACT	OTHER
88	Refused	T&T
99	Don't know	T&T

OTHER	Is there another person that the engineer might speak with at your company, if this primary person is not available?	
&OTHER	Get name	OS_NAME2

88	Refused	T&T
99	Don't know	T&T

OS_NAME2 May I please have their name so our technician can call them at another time?

&OS_NAME2	Get name	OS_PHONE2
88	Refused	T&T
99	Don't know	T&T

OS_PHONE2 May I also have the best phone number for the technician to reach them?

&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

HB_Lift 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?

1	Yes	OS_Business
2	No	OS_Business
88	Refused	T&T
99	Don't know	T&T

OS_Business Do you have a sign or business name other than <%BUSINESS> that our technicians should look for when they visit your site?

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

VISIT_NOTES DO NOT READ.....If you have any special notes about the on@-site visit or the installation of loggers, add these notes here.

1	No additional notes	Vendor_Name
77	Record Notes	Vendor_Name

Ask if V1(1)

Vendor_Name	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?	
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

Nonresidential Downstream ESPI Impact Evaluation Onsite Survey Instrument

CPUC 2013-14 Non-Residential Downstream On-Site Verification Survey Form

General Site Information (from phone survey & IOU tracking database)

Itron SiteID			
Sample Strata		What to Do	
Evaluation Phase		What to Log	

Corporate (Multi-Site) Name			
Business Name (Tracking Data)			
Actual Business Name			
Service Address			
City		Zip Code	
CORRECTIONS TO SITE INFORMATION			
Revised Corp. (Multi-Site) Name			
Revised Business Name			
Revised Service Address			
Revised City		Revised Zip	

Site Contact Information

PS Completion Date:		Length (min)		Respondent:		Date of Install:	

	Contacted	Contact Name	Phone Number	Alternate Phone	Email Address
OS Primary	☐				
OS Back-up	☐				
OS Other	☐				

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 Travel Time	hrs
Survey Duration (24 hr clock)	Start:	Survey Duration (24 hr clock)	End:
Total Onsite Time	hrs	Total Time to Fill Out Survey Form	hrs

	Date:	Initials
Field survey completed:	__ __ / __ __ / __ __	__ __ __
Survey received from surveyor:	__ __ / __ __ / __ __	__ __ __
Initial QC check completed:	__ __ / __ __ / __ __	__ __ __
Survey sent back to surveyor (*if needed*):	__ __ / __ __ / __ __	__ __ __
Received from surveyor (*if needed*):	__ __ / __ __ / __ __	__ __ __
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

PRIMARY BUSINESS TYPE DESCRIPTION: *(do not leave blank)*	

Phone Survey	**Phone Survey Building Type:**	*FM050*
	Detailed Building Type:	*FM050a-j*

Recent Survey Area Changes: Give a brief description about any changes made to this site since January 2011 that significantly impacted energy usage.		
Percent of Site Lighting Retrofitted: 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**)?	*CC4*	Revised	O L
How many full-time equivalent employees work at this premise?	*FM070*	Revised	
What is the total occupied floor area of this premise? (exclude prkg garage)	*CC2a / CC2b* ft^2	Revised	_____ft^2
-- If the premise has an enclosed parking garage, what is the floor area?	_____ft^2		
What percent of the total floor area is heated or cooled?	*CC2c / CC2d* %	Revised	_____%
How many buildings are part of this premise?			
What year was the majority of the facility built?	*CC8*	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	
What kind of site is this? **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	☐	July 4th Celebrated	☐
New Year's Day	☐	Labor Day	☐
New Year's Day Celebrated	☐	Columbus Day	☐
Martin Luther King Day	☐	Veterans' Day	☐
Presidents' Day	☐	Thanksgiving	☐
St. Patrick's Day	☐	Thanksgiving Friday	☐
Easter Sunday	☐	Christmas Eve	☐
Memorial Day	☐	Christmas Day	☐
Flag Day	☐	Christmas Day Celebrated	☐
July 4th	☐	Caesar Chavez Day	☐
Other (1) _____	☐	Other (2)_____	☐

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 <u>all</u> 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

☐ N/A

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

☐ N/A

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)

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.

Premise/Site-Plan sketch comments:

Premise/Site-Plan Sketch

Premise/Site-Plan sketch comments:

_____

_____

_____

_____

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 DayTypes		**%** 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 DayTypes		**%** 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 DayTypes		**%** 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 DayTypes		**%** 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 DayTypes		**%** 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 DayTypes		**%** 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

Use this table to record information for installed measurement devices such as lighting loggers.

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)
Placement Description Include building, floor, room #, etc. and be descriptive enough that it can be located for extraction.					
Schedule #					

Extraction

Logger Intact? See Legend Belo	**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	%	%	%	%	%
Extraction Comments					
Logger Date&Time (HH:MM)					
Computer Date&Time (HH:MM)					
Alternate Extraction Date					

Logger Intact: "Y" – If logger is as originally installed, does <u>not</u> appear to be tampered with, and display indicates the logger is working
Logger Tested "OK" – <u>If Logger Intact was "Y"</u> then <u>is it</u> properly logging the light ON/OFF, "Y" or "N"? <u>If Logger Intact was "N"</u> use "NA"

Lighting Logger Installation Form (continued)

Use this table to record information for installed measurement devices such as lighting loggers.

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)
Placement Description Include building, floor, room #, etc. and be descriptive enough that it can be located for extraction.					
Schedule #					

Extraction

Logger Intact? (L=Lost/missing)	**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	%	%	%	%	%
Extraction Comments					
Logger Date&Time (HH:MM)					
Computer Date&Time (HH:MM)					
Alternate Extraction Date					

Logger Intact: "Y" – If logger is as originally installed, does <u>not</u> appear to be tampered with, and display indicates the logger is working
Logger Tested "OK" – <u>If Logger Intact is "Y"</u> then is it properly logging the light ON/OFF, "Y" or "N"? <u>If Logger Intact is "N"</u> use "NA"

Lighting Logger Installation Form (continued)

Use this table to record information for installed measurement devices such as lighting loggers.

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)
Placement Description Include building, floor, room #, etc. and be descriptive enough that it can be located for extraction.					
Schedule #					

Extraction

Logger Intact? (L=Lost/missing)	**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	%	%	%	%	%
Extraction Comments					
Logger Date&Time (HH:MM)					
Computer Date&Time (HH:MM)					
Alternate Extraction Date					

Logger Intact: "Y" – If logger is as originally installed, does <u>not</u> appear to be tampered with, and display indicates the logger is working
Logger Tested "OK" – <u>If Logger Intact is "Y"</u> then is it properly logging the light ON/OFF, "Y" or "N"? <u>If Logger Intact is "N"</u> use "NA"

Indoor/Outdoor CFL Compact Fluorescent Lighting Measures

IOU Tracking Data	Measure Category	CFL_MeasCategory			
	Measure Code	CFL_OS_MeasCode			
	Measure Name	CFL_OS_MeasName			
	Rebated #of Units	CFL_IOUUnitQtyRebated			
	IOU Unit Basis	CFL_IOUUnitBasis			
	Correct Unit Basis (if incorrect above 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				
	Multilevel: Fixture or Lamp switched?	Y N			
Verification Counts	**(A) Installed & Operational # of units (ex post quantity)**		#		
	-- Was subsampling 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 Units in Storage/Spares		#		
	-- Utility rebate sticker observed on packages?	**Y N**			
Physical Inspection Data	*Check box if Lamps/Fixtures are NOT accessible (explain in comments)*	☐			
	Number of units physically inspected				
	*If more than one type	**Primary**	***Secondary**		
	Lamp Wattage				
	Make/Manufacturer				
	Model/Lamp Code				
	Energy Star Observed				
	CFL Lamp Shape Code				
	Ballast configuration: M=Modular I=Integral	**M I**	**M I**		
	Lamp Base Type:	**Screw Pin Other**	**Screw Pin Other**		
	# of lamps				
Baseline System Summary Data (Observed or Self-Reported)	Is post-installation operation the same as pre-retrofit operation?	**Y N**	**B SC E**		
	-- If pre-retrofit operation was different, specify Sched #				
	Approximate age of existing lighting system prior to retrofit (years)		**B SC E**		
	Lamp Type Code		**B SC E**		
	Lamp Wattage		**B SC E**		
	Control Type Code		**B SC E**		
	Number of lamps per fixture		**B SC E**		
Observed versus Rebated # of Units is: 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				
	(D) # of units located at Other Affiliated Sites	#			

Baseline Sources:

- **B** – Baseline equipment (includes physical inspection, documentation, or building/energy management system)
- **SC** – Site Contact
- **E** – Engineering estimate

Failed (and Replaced) <u>Rebated</u> Units (Indirect/Self-Report)	How long did units typically operate before failure (months)?	
	(E) # of rebated units that Failed, but replaced w/ incandescent	#
	# of rebated units that Failed but were replaced in-kind (Ref)	
Removed <u>Rebated</u> 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 purchased at Retailer?	
	# that were received from utility give-away program?	
	# that were obtained from OTHER means (describe in comments)?	
Total # of units (A-F) LESS than Rebated # of Units	# of rebated units, other site contact explanation (note in comments)	
	# of rebated units, unaccounted for	

CFL – Activity Area Assignment Table

Measure Code:_____

Use this table to associate CFL # of units to Activity Areas, equipment operation 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.

Area ID #	Sched #	Item #	Primary or Secondary Type	Control type Code	Repres. # of Units	% of Total Inst&Op. Units (Ref)	Primary Logger S/N	Ref. Logger	Back-up Logger S/N	Comments
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
						%	<= Totals # of Installed & Operational Units check *(no data entry)*			

Comments:_____

Indoor/Outdoor Linear Fluorescent Lighting Measures

IOU Tracking Data	Measure Category	LINFLUOR_MeasCategory	
	Measure Code	*LINFLUOR_OS_MeasCode*	
	Measure Name	LINFLUOR_OS_MeasName	
	Rebated #of Units	LINFLUOR_IOUUnitQtyRebated	
	IOU Unit Basis	*LINFLUOR_IOUUnitBasis*	
	Correct Unit Basis (if incorrect above above)		
	Can Rebated measures be clearly identified?	Y N	
	Associated DELAMP Measure Code *(if applicable)*		
	All associated CASCADE Measure Code(s) *(if applicable)*		
Visual Verification Data	Inside or outside lighting?	**I O**	
	Ceiling height in ft		
	Fixture height from floor in ft		
	Total number of fixtures		
	PREDOMINANT # of lamps per fixture		
	Total number of lamps		
	Tube Length in ft. (e.g. 1.5 2 3 4 8)		
	Tube Diameter (T5 T8 T12)	**T8 T5 T12**	
	Multilevel: Fixture or Lamp switched?	**Y N**	
	Ltg Application Code		
	Fixture Mount type code		
	Shiny/polished reflector?	**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 Lamps/Fixtures are NOT accessible (explain in comments)*	☐	
	Number of units physically inspected		
	Lamp Wattage		
	Lamp Make/Manufacturer		
	Lamp Model/Lamp Code		
	Ballst type: **M**=Magnetic **E**=Electronic **A**=Advanced	**M E A**	
	Ballast Type Code		
	Predominant Fixture Type: # of ballasts per fixture		
	Ballast Model #		
	Ballast Manufacturer/Brand		
	Secondary Fixture Type: # of ballasts per fixture		
	Ballast Model #		
	Ballast Manufacturer/Brand		
Baseline System Summary Data (Observed or Self-Reported)	Is post-installation operation the same as pre-retrofit operation?	**Y N**	**B SC E**
	-- If pre-retrofit operation was different, specify Sched #		
	Baseline Sources: ▪ B – Baseline equipment ▪ SC – Site Contact ▪ E – Engineering estimate B = (physical inspection, documentation, or BMS/EMS) — Lamp Type Code		**B SC E**
	Lamp Wattage		**B SC E**
	Control type Code		**B SC E**
	Tube Length (ft)		**B SC E**
	Tube Diameter (e.g. T8, T12)		**B SC E**
	Number of lamps per fixture		**B SC E**
	Ballast type: **M**=Magnetic **E**=Electronic **A**=Advanced	**M E A**	**B SC E**
Observed versus Rebated # of Units is: 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	
	(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 comments)	
	# of rebated units, unaccounted for	

Linear - 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
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%	<= Total # of Installed & Operational Units check *(no data entry)*			

Comments (for delamping, explain how counts were confirmed: tombstone shadows observed, etc.)**:** _____

Baseline Technology Characterization

Approximate age of existing lighting system prior to retrofit (years)	
Prior to retrofit, if original lamps were replaced, were they replaced with **Energy Saver** lamps?	**Y N**
Since original fixtures were installed, approximately how many **ballasts** had been replaced?	
Were the replacement ballasts **M**agnetic, **E**lectronic or **A**dvanced?	**M E A**
Condition of original fixtures prior to retrofit (**G**ood, **F**air, **P**oor)	**G F P**
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 topic on its level of influence for retrofitting the lighting fixtures:	
Burned out fixtures	

Comments: _____

_____

_____

_____

Indoor/Outdoor Delamping Lighting Measures

IOU Tracking Data	Measure Category	DELAMP_MeasCategory	
	Measure Code	*DELAMP_OS_MeasCode*	
	Measure Name	DELAMP_OS_MeasName	
	Rebated #of Units	DELAMP_IOUUnitQtyRebated	
	IOU Unit Basis	*DELAMP_IOUUnitBasis*	
	Correct Unit Basis (if incorrect above above)		
	Can Rebated measures be clearly identified?	Y N	
	Associated LINFLUOR Measure Code *(if applicable)*		
Visual Verification Data	Inside or outside lighting?	**I O**	
	Ceiling height in ft		
	Fixture height from floor in ft		
	Total number of fixtures (onsite right now)		
	Number of lamps per fixture (in the fixture right now)		
	Number of **lamps/fixture REMOVED** from original fixtures		
	Total number of lamps onsite (installed right now)		
	Tube Length in ft. (e.g. 1.5 2 3 4 8)		
	Tube Diameter (T5 T8 T12)	**T8 T5 T12**	
	***Multilevel:* Fixture or Lamp switched?**	**Y N**	
	Ltg Application Code		
	Fixture Mount type code		
	Shiny/polished reflector?	**Y N**	
Verification Counts	**(A) Delamped # of units (ex post quantity = Installed & Operable)**		
	-- Was subsampling 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 Lamps/Fixtures are NOT accessible (explain in comments)*	☐	
	Number of fixtures physically inspected (for evidence of delamping)		
	Installed Lamp Wattage		
	Installed Lamp Make/Manufacturer		
	Installed Lamp Model/Lamp Code		
	Ballst type: **M**=Magnetic **E**=Electronic **A**=Advanced	**M E A**	
	Ballast Type Code		
	Predominant Fixture Type: # of ballasts per fixture		
	Ballast Model #		
	Ballast Manufacturer/Brand		
	Secondary Fixture Type: # of ballasts per fixture		
	Ballast Model #		
	Ballast Manufacturer/Brand		

Baseline System Summary Data (Observed or Self-Reported)	Is post-installation operation the same as pre-retrofit operation?	**Y N**	**B SC E**
	-- If pre-retrofit operation was different, specify Sched #		
	Approximate age of existing lighting system prior to retrofit (years)		**B SC E**
	Lamp Type Code		**B SC E**
	Lamp Wattage		**B SC E**
	Tube Length (ft)		**B SC E**

Baseline Sources:

- **B** – Baseline equipment (includes physical inspection, documentation, or building/energy management system)
- **SC** – Site Contact **E** – Engineering estimate

Baseline System Summary Data (Observed or	Tube Diameter (e.g. T8, T12)		**B SC E**
	Number of lamps per fixture		**B SC E**
	Ballast type: **M**=Magnetic **E**=Electronic **A**=Advanced		**M E A**
Observed versus Rebated # of Units is: 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		
	(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)		
(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 comments)		
	# of rebated units, unaccounted for		

Delamping – Activity Area Assignment Table **Measure Code:**_____

For fixtures that are covered by both a* LF *and a* Delamping *measure, the logger information should be recorded on the LF form and copied below, making sure to check all Ref. Logger boxes. *Use this table to associate lighting units to Activity Areas, equipment operation 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.*

Area ID #	Sched #	Item #	Control Type Code	Repres. # of Units	% of Total Inst&Op. Units (Ref)	Comments
					%	
					%	
					%	
					%	
					%	
					%	
					%	
					%	
					%	
					%	
					%	<= Total # of Installed & Operational Units check *(no data entry)*

Comments (for delamping, explain how counts were confirmed: tombstone shadows observed, etc. and any discrepancies in observed versus rebated quantities)**:** _____

Occupancy Sensor Lighting Measures (1 of 2): Verification Totals

NOTE: If any lighting measures are associated with the Occupancy Sensors, **FIRST** fill out the lighting measure forms, then fill out this form, making sure to link the Occ. Sensor **Item #'s** to the other measure forms.

IOU Tracking Data	Measure Category	LIGHTINGCONTROL_MeasCategory	
	Measure Code	LIGHTINGCONTROL _OS_MeasCode	
	Measure Name	LIGHTINGCONTROL _OS_MeasName	
	Rebated #of Units	LIGHTINGCONTROL _IOUUnitQtyRebated	
	IOU Unit Basis	LIGHTINGCONTROL _IOUUnitBasis	
	Correct Unit Basis (if incorrect above above)		
	Can Rebated measures be clearly identified?	Y N	
Verification Counts and Physical Inspection Data	Inside or Outside Occupancy Sensors		**I O**
	Installed & Operational # of Occupancy Sensor Units (A)		
	Was subsampling or estimation used?		**Y N**
	Number of Non-Operable (broken/non-powered) Units in place (B)		
	Occupancy Sensor Make/Manufacturer		
	Occupancy Sensor Model		
	Number of Units in Storage/Spares (C)		
	Check box if Lamps/Fixtures are NOT accessible (explain in comments)		☐
	Number of units physically inspected		
Observed versus Rebated # of Units is: 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		
	(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 comments)		
	# of rebated units, unaccounted for		

Comments:_____

Occ. Sensor Ltg Measures (2 of 2): Controlled Watts Detail **Measure:**_____

Control Information								
OccupancySensor Item #								
Associated **Panel Meter Item #**: *(if applicable)*								
Installed & Operational *(OP)* or Non-Operable *(N-OP)*	OP	N-OP		OP	N-OP		OP	N-OP
Inside or Outside Occupancy Sensor(s)	I	O		I	O		I	O
Area ID # / Sched #								
Control Type Code								
If Non-Operable, **Control Type Code** now controlling fixtures								
Associated Lighting Measure Code(s) If '**N**' & applicable								
Lamp Type code								
Total # of Controls represented here: ***(A)***								
# of Fixtures on EACH control ***(B)***								
# of Lamps Per Fixture Controlled by Occ. Sensor ***(C)***								
# of Lamps per fixture								
Total number of lamps burnt out ***(D)***								
Number of Fixtures physically inspected								
Lamp Make/Manufacturer								
Lamp Model								
Lamp Wattage ***(E)***								
Total Controlled Lamp Wattage: ***(A*B*C*E)-(D*E)*** ***(F)***								
Tube diameter (T8 or T5)								
Ballst type:	**M**	**E**	**A**	**M**	**E**	**A**	**M**	**E**	**A**
Ballast Type Code								
# of Ballasts per fixture								
Ballast Manufacturer/Brand								
Ballast Model #								
Baseline System Summary Data (observed or self-eported)								
Pre-retrofit Control Type Code		**B SC E**			**B SC E**			**B SC E**
(required) Pre-retrofit operation Sched #		**B SC E**			**B SC E**			**B SC E**
Approximate age of existing lighting system prior to retrofit		**B SC E**			**B SC E**			**B SC E**
Logger Information								
Logger Type: ***(DCT** = DENT CT, **H**=HOBO, **DLL**=DENT LL)*	DCT	H	DLL	DCT	H	DLL	DCT	H	DLL
Primary Logger S/N:								
Reference Logger: *(Check if logger info already exists on this form or another)*	☐			☐			☐		
Backup Logger S/N:								
Logger Channel # HOBO								
CT Amp size HOBO								

KEY:

Baseline Sources:

- **B** – Baseline equipment
- **SC** – Site Contact
- **E** – Engineering estimate

* Baseline equipment includes physical inspection, documentation, or building/energy management system

Comments:
(Make sure to provide detailed comments about the information above and/or logger, if it is associated with other measures, Acitvity Area Assignement Tables, or Panel Metering)

Indoor/Outdoor (HID) High Intensity Discharge Lighting Measures

IOU Tracking Data	Measure Category	HID_MeasCategory		
	Measure Code	HID_OS_MeasCode		
	Measure Name	HID_OS_MeasName		
	Rebated #of Units	HID_IOUUnitQtyRebated		
	IOU Unit Basis	HID_IOUUnitBasis		
	Correct Unit Basis (if incorrect above above)			
	Can Rebated measures be clearly identified?	Y N		
Visual Verification Data	Inside or outside lighting?	**I O**		
	Lamp Type Code			
	Ceiling height in ft			
	Fixture height from floor in ft			
	Total number of fixtures			
	Number of lamps per fixture			
	Multilevel: Fixture or Lamp switched?	**Y N**		
	Total number of lamps			
	Ltg Control Type Code			
	Ltg Application Code			
	Fixture Mount type code			
Verification Counts	**(A) Installed & Operational (or delamped) # of units (ex post quantity)**			
	-- Was subsampling 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 Lamps/Fixtures are NOT accessible (explain in comments)*	☐		
	Number of units physically inspected			
	Lamp Wattage			
	Lamp Make/Manufacturer			
	Lamp Model/Lamp Code			
	Ballst type: **M**=Magnetic **E**=Electronic **A**=Advanced	**M E A**		
	Ballast Type Code			
	Predominant Fixture Type: # of ballasts per fixture			
	Ballast Model #			
	Ballast Manufacturer/Brand			
	Secondary Fixture Type: # of ballasts per fixture			
	Ballast Model #			
	Ballast Manufacturer/Brand			
Baseline System Summary Data (Observed or Self-Reported)	Is post-installation operation the same as pre-retrofit operation?	**Y N**	**B SC E**	
	-- If pre-retrofit operation was different, specify Sched #			
	Approximate age of exisiting lighting system prior to retrofit (years)		**B SC E**	
	Lamp Type Code		**B SC E**	
	Lamp Wattage		**B SC E**	
	Tube Length (ft)		**B SC E**	
	Tube Diameter (e.g. T8, T12)		**B SC E**	
	Number of lamps per fixture		**B SC E**	
	Ballast type: **M**=Magnetic **E**=Electronic **A**=Advanced	**M E A**	**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 10-12)	
	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 comments)	
	# of rebated units, unaccounted for	

HID Lighting – 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 **DENT LL**: Only fill out **AAAT** below.*
- *If **DENT LL & (DENT CT or HOBO)**: Fill out **AAAT** with **DENT LL** info, & **HIGHBAY** Form for Panel Metering*
- *If only **DENT CT** or **HOBO**: 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
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%	<= Total # of Installed & Operational Units check *(no data entry)*			

Comments:_____

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	
	Rebated #of Units	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		
	Multilevel: Fixture or Lamp switched?	**Y N**	
Verification Counts	**(A) Installed & Operational # of units (ex post quantity)**		
	-- Was subsampling 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 Units in Storage/Spares		
	-- Utility rebate sticker observed on packages?	**Y N**	

Physical Inspection Data	*Lamps/fixtures are NOT accessible (Check box & explain in comments)*	☐	
	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?	**Y N**	**B SC E**
	-- If pre-retrofit operation was different, specify Sched #		
	Lamp Type Code		**B SC E**
	Watts per lamp		**B SC E**
	Number of lamps per fixture		**B SC E**
Observed versus Rebated # of Units is: 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		
	(D) # of units located at Other Affiliated Sites		

Baseline Sources:

- **B** – Baseline equipment (includes physical inspection, documentation, or building/energy management system)
- **SC** – Site Contact
- **E** – Engineering estimate

Failed (and Replaced) <u>Rebated</u> Units (Indirect/Self-Report)	How long did units typically operate before failure (months)?	
	(E) # of rebated units that Failed, but replaced w/ incandescent	
	# of rebated units that Failed but were replaced in-kind (Ref)	
Removed <u>Rebated</u> 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 comments)	
	# of rebated units, unaccounted for	

LED – Activity Area Assignment Table **Measure Code:**_____

Use this table to associate LED # of units to Activity Areas, equipment operation 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.

Area ID #	Sched #	Item #	Primary or Secondary Type	Control type Code	Repres. # of Units	% of Total Inst&Op. Units (Ref)	Primary Logger S/N	Ref. Logger	Back-up Logger S/N	Comments
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
			P S			%		☐		
						%	<= 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 (**G**ood, **F**air, **P**oor)	**G F P**
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 fixtures:	
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 them? (years)	

Comments: _____

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 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**		
	If LED Linear Tubes or Track lighting fixtures: PREDOMINANT # Lamps per Fixture			
	If LED Linear Tubes or Track lighting fixtures: 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 _____X_____Width (ft)		
	If LED **linear fixture:** Fixture dimensions (length X width in ft) and Tube length (ft)	Length _____X_____Width (ft)		
	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**		
	(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)*	☐		
	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 Data (Observed or	Is post-installation operation the same as pre-retrofit operation?	**Y N**		**B SC E**
	-- If pre-retrofit operation was different, specify Sched #			
	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 10-12)	
	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 comments)	
	# 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
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		
					%		☐		

% <= Total # 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 (**G**ood, **F**air, **P**oor)	**G F P**
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 fixtures:	
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 them? (years)	

Comments: _____

General Comments

Item #	Form Name	Comments

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	
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8	
9	
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11	
12	
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24	

Incentive Payment

My signature acknowledges that I received a participation incentive in the form of a $____ gift card for the survey effort.

Print Name		**Date Received**	
Gift Card Company		**Gift Card Serial #**	
Signature			

Panel Meter - Circuit Spot Measurement Table: (REFERENCE ONLY – NO DATA ENTRY)

Note 1: Fill this table out, then fill out the ***Consolidated Logging Circuit Table*** below.

Circuit Label #	Phase	# Fixtures Controlled *(DD)*	# Lamps per Fixture *(EE)*	Watts per Lamp (FF)	# Lamps Burnt Out (GG)	*(DD*EE*FF) -(FF*GG)* Calc. Circuit Watts *(HH)*	Measured Circuit Watts (MW) *(II)*	PF (JJ)	Measured Volts *(KK)*	Measured Amps *(LL)*	Measured Parasistic Watts *(MM)*	Comments

Panel Meter – Consolidated Logging Circuit Table: (REFERENCE ONLY – NO DATA ENTRY)

Note 1: After each circuit measurement is recorded in the table above, fill out the table below; here you can roll up >1 circuit into a single CT channel (if on the same phase).
Note 2: You will copy **ALL** values from the table below into their fields on the ***Panel Meter – Final Spot Measurement and Logging*** form.
Note 3: The "**Item #**" below should correlate to the "**Item #**" on the ***Panel Meter – Final Spot Measurement and Logging*** form.

Item # *(A)*	*From table above* Circuit Label #*(s)* *(B)*		*From table above* Phase *(C)*	*DCT or HOBO* Logger Type *(X)*	Logger ID *(Y)*	*(HOBO)* CT Channel # *(Z)*	*From applicalbe fields in table above* Total Fixtures Controlled *(D)*	# Lamps per Fixture *(E)*	Watts per Lamp *(F)*	# Lamps Burnt Out *(G)*	Sum Circuit Watts *(H)*	*From applicalbe fields in table above* Sum Meas. Watts *(I)*	Avg. *PF* (J)	Avg. Meas. Volts *(K)*	Sum *Meas. Amp* *(L)*	Sum Parasitic Watts *(M)*

Panel Meter – Final Spot Measurement and Logging – (DATA ENTRY)

Breaker Circuit and Point of Control (POC) Assessment				
Panel Meter Item #:	***(A)***			
Associated Measure Code(s)				
IOU Unit Basis				
Panel number/identifier (if applicable)				
Circuit Label Number(s):	***(B)***			
Phase of Circuit(s):	***(C)***	A B C	A B C	A B C
Control Type Code (CTC)				
# Wall switches connected to this Circuit				
Circuit Configuration Code (CCC)				
Schedule #				
Area ID #: *(if >1 AA, enter from left to right)*				
# Rebated Controls per Activity Area(s) above:				
Fixture Verification and Nominal Watt Calculation				
Circuit(s) tested (On/Off)?		Y N	Y N	Y N
# of Rebated **Units** on Circuit(s)		`		
# of Rebated Fixtures controlled by Circuit(s):	***(D)***			
# of Rebated Lamps per Fixture:	***(E)***			
Rated Lamp Wattage:	***(F)***			
# of Lamps Burned-out or Non-Operable:	***(G)***			
Total Nominal Rebated Circuit(s) Watts: ***(D*E*F)-(F*G)***	***(H)***			
Spot Measurements				
Max Measured Wattage: (with all fixtures on Circuit ON):	***(I)***	G N	G N	G N
Power Factor: *(if 2 circuits on 1 CT, average the PF)*:	***(J)***			
Measured Circuit(s) Voltage: (to Ground or Neutral):	***(K)***			
Max Measured Amperage: (with all fixtures 'ON'):	***(L)***			
% Meas. vs. Calc. Watts: ***(I/H*100)***; Is this between 90-110%?		% Y N	% Y N	% Y N
Non-Rebated or Parsitic Loads				
Do Non-Rebated or Parasitic Loads exist on this Circuit?		Y N DK	Y N DK	Y N DK
Is the parasitic load Constant or Variable?		C V NA	C V NA	C V NA
Parasitic Wattage: (only if a contant parasitic load):	***(M)***			
Logger Information				
Logger Type: ***(DCT** = DENT CT, **H**=HOBO)*	***(X)***	DCT H	DCT H	DCT H
Primary Logger S/N:	***(Y)***			
Logger Channel #	***(Z)***			
Reference Logger:		☐	☐	☐
Reference Channel:		☐	☐	☐
CT Amp size				
Logger Installation Comments				

Panel Meter – Final Spot Measurement and Logging – (DATA ENTRY)

Breaker Circuit and Point of Control (POC) Assessment				
Panel Meter Item #:	***(A)***			
Associated Measure Code(s)				
IOU Unit Basis				
Panel number/identifier (if applicable)				
Circuit Label Number(s):	***(B)***			
Phase of Circuit(s):	***(C)***	A B C	A B C	A B C
Control Type Code (CTC)				
# Wall switches connected to this Circuit				
Circuit Configuration Code (CCC)				
Schedule #				
Area ID #: *(if >1 AA, enter from left to right)*				
# Rebated Controls per Activity Area(s) above:				
Fixture Verification and Nominal Watt Calculation				
Circuit(s) tested (On/Off)?		Y N	Y N	Y N
# of Rebated **Units** on Circuit(s)		`		
# of Rebated Fixtures controlled by Circuit(s):	***(D)***			
# of Rebated Lamps per Fixture:	***(E)***			
Rated Lamp Wattage:	***(F)***			
# of Lamps Burned-out or Non-Operable:	***(G)***			
Total Nominal Rebated Circuit(s) Watts: ***(D*E*F)-(F*G)***	***(H)***			
Spot Measurements				
Max Measured Wattage: (with all fixtures on Circuit ON):	***(I)***	G N	G N	G N
Power Factor: *(if 2 circuits on 1 CT, average the PF)*:	***(J)***			
Measured Circuit(s) Voltage: (to Ground or Neutral):	***(K)***			
Max Measured Amperage: (with all fixtures 'ON'):	***(L)***			
% Meas. vs. Calc. Watts: ***(I/H*100)***; Is this between 90-110%?		% Y N	% Y N	% Y N
Non-Rebated or Parsitic Loads				
Do Non-Rebated or Parasitic Loads exist on this Circuit?		Y N DK	Y N DK	Y N DK
Is the parasitic load Constant or Variable?		C V NA	C V NA	C V NA
Parasitic Wattage: (only if a contant parasitic load):	***(M)***			
Logger Information				
Logger Type: ***(DCT** = DENT CT, **H**=HOBO)*	***(X)***	DCT H	DCT H	DCT H
Primary Logger S/N:	***(Y)***			
Logger Channel #	***(Z)***			
Reference Logger:		☐	☐	☐
Reference Channel:		☐	☐	☐
CT Amp size				
Logger Installation Comments				

Appendix C

Custom Lighting Gross Impact Evaluation Methodology

This appendix provides a detailed description of the methods that were 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

For this evaluation a gross realization rate (GRR) approach was utilized, where site-specific gross ex-post impacts were estimated for a sample of participants. These site-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, which was then applied to the entire population of participants to create a population estimate of ex-post gross savings.

The general approach that was used to estimate site-specific ex-post gross savings values is based on developing hourly impacts to create an impact load profile. From this profile, impacts were then aggregated to develop an annual ex-post gross kWh savings value, or averaged over a set of specific hours to develop an ex-post gross kW savings value. The general algorithm applied to estimate energy savings for a specific hour is:

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

Where,

Measure_Qty = the quantity of measures found to have been installed and operable based on an on-site visit.

Baseline_Wattage = the wattage associated with the measures that were replaced or with measures 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).

Post_Wattage = the wattage associated with the measures that were installed.

Percent_On_Pre = the percentage of time the baseline equipment was on during a specific hour i, which was obtained from self-reported operating hours gathered on site or monitored HOUs if applicable.

Percent_On_Post = the percentage of time the installed equipment was on during a specific hour i, which was obtained from adjusted self-reported operating hours gathered on site. The Percent_On_Pre and Percent_On_Post were assumed to be equal for all measures, except occupancy sensors.

One final parameter that was utilized to estimate annual energy and demand impacts was 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 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.

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. This is because the customer would have installed equipment in the absence of the program; therefore the existing equipment does not provide the 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 and HID measures, but not for CFLs, LEDs and occupancy sensors. Because CFLs and LEDs 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

As discussed above, the dual baseline approach was applied to all linear fluorescent and HID measures. In order to estimate a site-specific impact for a participant, it was first determined if the installation was ROB/NR or ER or new construction (NC). If it is determined that the installation was ER, the RUL was estimated as one third of the EUL, following the DEER methodology. For the linear fluorescent measures being evaluated, the EUL is defined as:

$$\text{EUL} = \text{Minimum of either } \frac{Service\ Life\ (hours)}{Annual\ Hours\ of\ Use} \text{ or 15 years.}$$

Where,

Service Life = 70,000 for T8s, electronic ballasts and HIDs; 20,000 for T12s (based on lamp life)

Annual Hours of Use = the site-specific estimate of post-retrofit annual hours of operation obtained from adjusted self-reported operating hours gathered on site.

Then, as mentioned above, for ER installations, the replaced equipment was used to determine 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.

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."[1]

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, for determining if an installation is ROB or ER. This approach is based solely on participant phone survey data.

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 have been able to 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 8760 load shapes, or percent on, for lighting equipment. Pre- and post-retrofit load shapes were based on the

[1] From CPUC guidance document "Project Basis (RET, ROB, etc.), EUL/RUL Definitions, & Preponderance of Evidence" dated 1/29/14.

participant's claimed HOUs. All self-report results were further adjusted in the post case using results from the 2010-2012 Nonresidential Downstream Lighting Impact Evaluation and the 2006-08 Small Commercial Evaluation. The 2010-2012 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 HOUs were equal to the post-retrofit HOUs. 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 HOUs 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[2]). 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

2 2006-08 Small Commercial Contract Group Direct Impact Evaluation, Appendix G.7.2, page G-62.

schedules were 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 for the Commercial Market Share Tracking (CMST) study
- Code Based Wattages – some retrofits triggered Title 20 or Title 24 and required code compliance, and therefore baseline wattages were affected

C.5.1 Post-Retrofit Wattages

Post-retrofit wattages were based primarily on make and model information gathered on site. For some measures, like CFLs, the on-site auditor was able to gather 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 the limited cases where it was not possible to gather make and model information, or perform spot watt measurements, we used the participant application, which often times 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 only used for linear fluorescent, high bay fluorescent, delamping and HID measures.

For HID measures above 150W, customers that were ROB or, for customers that were classified as ER during the post-RUL period, the baseline wattage was a pulse start metal halide as the ISP, which is consistent with Title 20, beginning in 2008. For customers installing lower wattage HIDs, those measures tended to replace incandescents or other short EUL projects. Those measures were considered to be ROB, but their baseline wattage was set equal to the replaced equipment wattage, similar to an LED or CFL.

For linear fluorescent measures (including high bay and delamping), the ISP baselines were developed using data collected for the Commercial Market Share Tracking (CMST) Study on linear fluorescent installations performed during 2009-12, as documented in the 2010-2012 Nonresidential Downstream Lighting Impact Evaluation, Appendix G. Using the CMST, average wattages were developed by lamp length, the number of lamps per fixture, and if the fixture was installed in a high bay application or not (defined as greater than 12 feet in height). For example, an average wattage was developed for all 3-lamp, 4-foot fixtures that were not high bay applications. This served as the ISP baseline wattage for all installed non-high bay linear fluorescent measures that were 3-lamp, 4-foot fixtures. Note that this ISP baseline wattage is comprised of various efficiencies of linear fluorescent measures including T8 and T5 fixtures.

Two different averages were taken, one which excluded T12 fixtures and one which excluded both T12 and 700 series T8 fixtures. T12 fixtures were excluded in both because T12 lamps began being phased out in 2012 and the CMST found that only 1% of all installations included T12s. Therefore, T12s were not considered to be industry standard practice. Although 700 series T8 fixtures were also being phased out, the phase out data had been pushed back to July 2014. The CMST also found that a significant portion of the installations during 2010-12 (approximately a third) included 700 series T8s. For customers that were classified as ROB, their ISP baseline was used for the full EUL, which would take affect when their installation was made (i.e., between 2013-14, prior to the phase out of 700 series T8s). For these participants, their ISP baseline included 700 series T8s. For customers classified as ER, their ISP baseline was used in the post-RUL period, which typically would begin approximately 5 years after their

installation (i.e., between 2018-19). By this time, 700 series T8s are not expected to be available; therefore, for these participants, their ISP baseline excluded 700 series T8s.

Because not all possible combinations of configuration were represented in the CMST, ratios of ISP wattage to pre-retrofit wattage were developed by measure, PA and program type. These ratios were then be applied to the pre-retrofit wattage for any configuration within that given measure, PA and program type to estimate the industry standard practice wattage.