# Smart Ideas for Your Business Custom Program PY6 Evaluation Report

## Final

## Energy Efficiency / Demand Response Plan: Plan Year 6 (6/1/2013-5/31/2014)

## Presented to Commonwealth Edison Company

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# E.    Executive Summary

This report presents a summary of the findings and results from the Impact and Process Evaluation of the program year six (PY6) Custom program. ComEd's Smart Ideas for Your Business suite of energy efficiency programs for business customers includes a Custom incentive program. This program provides a Custom incentive, based on a formula, for less common or more complex energy-saving measures installed in qualified retrofit and equipment replacement projects. Custom incentives are available based on the project's kWh savings, provided the project meets all program eligibility requirements. The Custom program pays an incentive of $0.07/kWh saved for eligible projects. Incentives cannot exceed 100% of the total project cost and 100% of the incremental project cost. The primary objectives of this evaluation are to quantify gross and net impacts, determine process-related program strengths and weaknesses and identify ways in which the program can be improved. PY6 represents the sixth full-scale year of implementation for the Custom program.

## E.1.    Program Savings

Table E-1 summarizes the electricity savings from the Custom Program.

### Table E-1. PY6 Total Program Electric Savings

| Savings Category | Energy Savings (kWh) | Peak Demand Savings (kW) |
|---|---|---|
| Ex-Ante Gross Savings | 27,305,336 | 1,825 |
| Verified Gross Savings | 26,587,755 | 1,750 |
| Verified Net Savings | 16,218,531 | 1,120 |

*Source: ComEd tracking data and Evaluation Team analysis.*

Based on the gross impact sample size of 20 projects in PY6, the evaluation results yielded an energy gross realization rate of 0.97 and a peak demand gross realization rate of 0.96. The relative precision for the gross impact results at one-tailed 90% confidence level is ± 5% for the kWh realization rate and ± 3% for the kW realization rate. For PY6, the evaluation team used a deemed net-to-gross ratio (NTGR) of 0.61[1] for kWh and 0.64 for kW savings which were derived from PY4 evaluation results, and are based on the SAG-approved values[2].

## E.2.    Impact Estimate Parameters for Future Use

In the course of our PY6 research, the evaluation team conducted research on parameters used in impact calculations. Some of those parameters are eligible for deeming for future program years. The evaluation team's parameters recommended for future use are shown in the following Table E-2.

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[1] A deemed value. Source: ComEd PY5-PY6 Proposal Comparisons with SAG.xls, which is to be found on the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html
[2] Ibid.

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**Table E-2. Impact Estimate Parameters for Future Use**

| Parameter | kWh Value | kW Value | Data Source |
|-----------|-----------|----------|-------------|
| NTGR | 0.67 | 0.67 | PY6 Evaluation Results |

*Source: Evaluation Team analysis*

### E.3.  Results Summary

The following Table E-3 summarizes the key metrics from PY6.

**Table E-3. PY6 Results Summary**

| Participation | Units | PY6 |
|---------------|-------|-----|
| Net Savings | kWh | 16,218,531 |
| Net Demand Reduction | kW | 1,120 |
| Gross Savings | kWh | 26,587,755 |
| Gross Demand Reduction | kW | 1,750 |
| Program kWh Realization Rate | % | 97% |
| Program kW Realization Rate | % | 96% |
| Program kWh NTG Ratio † | # | 61% |
| Participants | #s | 89 |
| Projects completed | #'s | 93 |

*Source: ComEd tracking data and Evaluation Team analysis.*
† A deemed value. Source: ComEd PY5-PY6 Proposal Comparisons with SAG.xls, which is to be found on the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html

### E.4.  Key Findings and Recommendations

The PY6 gross energy realization rate of 0.97 is higher than the PY5 level of 0.89, which is a significant increase for a Custom program. The PY6 energy savings realization rate results ranged from 0.59 to 2.87 which show a very large variation in realization rates across projects. For 11 out of the 20 projects, the gross energy realization rate was greater than program mean realization rate (0.97) and for the remaining nine projects, the gross energy realization rate was less than program mean. Note that the overall energy realization rate was affected by one stratum 2 project (#21691) which had an energy realization rate of 2.87. Removing this project from the evaluated sample yields a program level energy realization rate of 0.92. That 0.92 realization rate, without project #21691, exceeds the PY5 realization rate of 0.89. Although the PY6 realization rate results indicate strong program performance, the evaluation team found a number of common themes within the evaluated sample of projects. The following provides insight into key program findings and recommendations.[3]

**Utilization of M&V Data for Savings Calculations**

> **Finding 1.** Data collected for the ex-ante analysis was not always fully utilized to calculate the saving estimates. For example, the metered data collected for the ex-ante analysis for project #21691 indicated that only one of the 500 HP pumps was required to meet the chilled water demand for the vast majority of the operating conditions. However, this

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[3] Numbered findings and recommendations in this section are the same as those found in the Findings and Recommendations section of the evaluation report for ease of reference between each section.

data was disregarded and the customer self-report hours of operation were used in the ex-ante analysis. Similarly, for project #18429, occupancy and runtime data was collected for the infrared heaters, however, this data was modified with an assumed 90% reduction in operating hours.

**Recommendation 1.** Ensure calculated savings use all data collected, rather than using information from customer interviews or other less-reliable data sets.

**Demand Savings Estimates**

**Finding 2.** Program peak demand savings estimates were set to zero for 11 sampled projects for which the evaluation team found non-zero savings.

**Recommendation 2.** Calculate peak demand savings consistent with PJM requirements for all eligible projects and also ensure that the demand savings are populated consistently in the tracking system.

**Estimation of Power Factor**

**Finding 3.** For projects #16726 and #11062, the program M&V activities did not accurately determine power factor values. The program used power factor values of 95% or greater for motors which is not typical and resulted in overestimation of motor power (kW) usage.

**Recommendation 3.** The program should ensure that power factors used to determine power (kW) usage are reasonable when compared to typical power factor levels for similar type of equipment.

**Net-to-Gross Ratio Research**

**Finding 5.** The Evaluation Research Findings NTG ratio is 0.67 for both kWh and kW. These values are improved from those in PY5, which is commendable. Nevertheless, there is still free ridership occurring, particularly among the small and medium-sized stratum 2 and 3 projects.

**Recommendation 5.** ComEd should consider adopting procedures to limit or exclude known free riders by conducting screening for high free ridership on a project-by-project basis. In addition, ComEd should consider making certain changes to the incentive structure. Each of these strategies is designed to reduce free ridership in the program.

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## 1. Introduction

### 1.1 Program Description

ComEd's Smart Ideas for Your Business suite of energy efficiency programs for business customers includes a Custom incentive program. This program provides a Custom Incentive, based on a formula, for less common or more complex energy-saving measures installed in qualified retrofit and equipment replacement projects. Custom incentives are available based on the project's kWh savings, provided the project meets all program eligibility requirements. For eligible projects, the program pays an incentive of $0.07/kWh saved. This is the sixth full-scale year of implementation of the Custom program.

The Custom incentives program also provides an early commitment incentive option to commercial and industrial (C&I) customers. The early commitment option provides incentive funding certainty once an application is approved. To qualify for this option, projects must reduce energy consumption by a minimum of 500,000 kWh. For qualifying early commitment projects, the program pays an incentive of $0.06/kWh saved. Incentives are paid after successful completion of the project has been verified and will not be subject to change based on actual verified kWh savings. Incentives for the Custom program cannot exceed 100% of the total project cost and 100% of the incremental project cost.

### 1.2 Evaluation Objectives

The evaluation team identified the following key objectives for PY6.

#### 1.2.1 Impact Objectives

1. Estimate the gross impacts from the program.
2. Identify opportunities for improvement to the within-program impact calculations and estimates.
3. Estimate the net impacts from the program.
4. Provide up-front evaluation input for large or complex projects before each application is finalized and paid by the program.

The evaluation team did not conduct a process evaluation in PY6 and placed priority on the Net and Gross impact evaluation efforts. Additionally, the evaluation team conducted process evaluation for PY1 thru PY5 and did not see any significant program procedural changes in PY6.

## 2. Evaluation Approach

For the PY6 impact evaluation, gross program impact results were developed based on detailed M&V analysis for 20 projects. The NTGR used to calculate a PY6 impact was deemed by SAG[4] and was derived from PY4 evaluation results. The verified gross savings estimates were multiplied by the deemed NTGR to calculate the verified net energy and peak demand savings.

### 2.1 Overview of Data Collection Activities

The core data collection activities included on-site audits, detailed M&V analysis in support of gross impact analysis and telephone surveys in support of NTG analysis. The evaluation team did not conduct in-depth interviews with the program manager since process evaluation activities were not planned for PY6 and will conduct interviews in PY7. The full set of data collection activates is shown in Table 2-1.

**Table 2-1. Primary Data Collection Activities**

| What | Who | Target Completes | Completes Achieved | When | Comments |
|------|-----|------------------|--------------------|------|----------|
| Onsite M&V Audit | Participants | 15 | 15 | May – November 2014 | Sampled PY6 projects |
| Desk Reviews | Participants | 5 | 5 | May – November 2014 | Sampled PY6 projects |
| Telephone Survey | Participants | 30 | 30 | June – November 2014 | Data collection supporting NTG research |
| Telephone Survey | Vendors | - | 2 | October - November 2014 | Triggered during NTG research |

### 2.2 Verified Savings Parameters

The following table presents the parameters that were used in the verified gross and net savings calculations and indicates which were examined through evaluation activities and which were deemed.

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[4] http://ilsagfiles.org/SAG_files/Meeting_Materials/2013/August 5-6, 2013 Meeting/ComEd PY5-PY6 Proposal Comparisons with SAG.xls

**Table 2-2. Verified Savings Parameter Data Sources**

| Gross Savings Input Parameters | Data Source | Deemed † or Evaluated? |
|---|---|---|
| Gross Energy Savings | PY6 Analysis | Evaluated |
| Gross Peak Demand Savings | PY6 Analysis | Evaluated |
| Gross Energy Savings Realization Rate | PY6 Analysis | Evaluated |
| NTG Ratio † | SAG Agreement | Deemed |
| Net Energy Savings | PY6 Analysis | Evaluated |
| Net Peak Demand Savings | PY6 Analysis | Evaluated |

*† Source: ComEd PY5-PY6 Proposal Comparisons with SAG.xls, which is to be found on the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html*

### 2.2.1    Verified Gross Program Savings Analysis Approach

The objective of the gross program savings evaluation is to verify the veracity and accuracy of the PY6 ex-ante gross savings estimates in the Custom program tracking system. The PY6 evaluation activities included on-site measurement and verification (M&V) analysis for fifteen projects and engineering desk reviews for five projects. The savings reported for the completed PY6 projects were evaluated using the methods described directly below.

On-site data collection included verification of measure installation, functioning system and planned system operation, and specific details of any variation between the ex-ante and ex-post verifications. On-site audits also entailed collection of customer-stored data to support downstream M&V calculations. Measurement data obtained from the sites, including spot measurements, run-time hour data logging, and post-installation interval metering, were used to calibrate the site-specific analyses. Customer-supplied data from energy management systems (EMS) or supervisory control and data acquisition (SCADA) systems were also obtained when available.

For the five engineering desk review projects, the evaluation team conducted an engineering review of the algorithms and an audit of ex-ante calculation models used by the program to estimate energy and peak demand savings. The engineering audit of program calculations determined if the inputs for the program calculations were reasonable and acceptable or if they needed any revisions based on evaluation findings. In addition to the desk reviews, the evaluation team completed telephone interviews with the site contacts for each site and the information collected during these interviews was used to verify the savings estimates. Also, the site contacts were requested to provide post-installation operating data electronically. The information collected was used to inform evaluation savings calculations.

Engineering calculations were performed to derive evaluated gross kWh and kW savings based on data collected during the on-site visit or the desk review process. The engineering reviews also included a preliminary judgment to identify those assumptions with higher uncertainty or potential to influence the program savings estimates. Data obtained from the sampled sites served to verify measure installation, determine installed measure characteristics, assess operating hours and relevant modes of operation, identify the characteristics of the replaced equipment, support the selection of

baseline conditions and perform ex-post savings calculations. The peak kW savings calculation methodology was consistent with PJM requirements[5] for each project.

The final step involved discussion of project-level results with the implementation teams and ComEd's program staff to ensure that both the evaluation team and the implementation teams are in agreement about their understanding of the project scope and details.

A verified gross realization rate was then estimated for the sampled sites, weighted by sampling stratum, and applied to the entire population of projects. The result is a verified gross savings estimate for the Custom program. Additional details on the sampling approaches are described in greater detail in Section 2.3 below.

### 2.2.2 Verified Net Program Savings Analysis Approach

Verified net energy and demand (coincident peak and overall) savings were calculated by multiplying the Verified Gross Savings estimates by a NTGR. In PY6, the NTGR estimates used to calculate the Net Verified Savings were based on past evaluation research and defined through a negotiation process through SAG as documented in a spreadsheet.[6]

NTG research methods in PY6 combine participant and service provider survey results. NTG research methods in PY6 consisted of participant and trade allies survey data collection and analysis. Research for both groups used a self-report survey-based method in which participants and trade allies were asked a series of questions designed to assess the influence of program and non-program factors on their decisions to implement and offer energy efficient Custom measures. The participant survey instrument researched the participants' awareness of the installed measures prior to their participation in the program, and their previous use of those measures outside the program.

*Free Ridership*

For PY6, the net program impacts were quantified solely on the estimated level of free-ridership. This requires estimating what would have happened in the absence of the program. The scoring approach used to calculate free-ridership from data collected through participant phone surveys is summarized in Table 6-6. Once free-ridership has been estimated, the NTGR is calculated as follows:

$$NTGR = 1 – Free\text{-}ridership\ rate$$

*The existence of participant spillover was examined in PY6 but no significant spillover activity was reported by participants, and, therefore, quantification was not warranted.*

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[5] PJM defines the coincident summer peak period as 1:00-5:00 PM Central Prevailing Time on non-holiday weekdays, during the months of June through August.

[6] Source: ComEd PY5-PY6 Proposal Comparisons with SAG.xls, which is to be found on the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html

# 2.3 Sampling

### 2.3.1 Profile of Population

The table below presents the three sampling strata used in the evaluation of the Custom program. In PY6, lighting projects contributed about 16% of the total ex-ante energy savings. The number of records is presented by stratum, along with the claimed ex-ante gross kWh, claimed kW, and the amount of incentive paid in Table 2-3 below.

**Table 2-3. PY6 Custom Program Participation by Sampling Strata**

| Sampling Strata | Ex-Ante kWh Impact Claimed | Ex-Ante kW Impact Claimed | Tracking Records |
|---|---|---|---|
| 1 | 10,748,916 | 928 | 5 |
| 2 | 8,977,285 | 332 | 12 |
| 3 | 7,579,135 | 565 | 76 |
| TOTAL | 27,305,336 | 1,825 | 93 |

*Source: Evaluation Team analysis*

### 2.3.2 Gross Impact (M&V) Sample

Consistent with the evaluation plan, a stratified random sampling approach was used to select the gross impact sample of 20 projects. The gross impact (M&V) sampling was conducted in two waves. For Wave 1, ComEd's tracking database extract dated May 4, 2014 (referred to as 5/4/2014) was used to select 14 M&V sample points. Using the 5/4/2014 tracking extract, Custom records were sorted and placed in three strata using ex-ante savings kWh to create roughly equal contributions to total program savings.

When the July 28, 2014 (referred to as 7/28/2014) extract became available for Wave 2 sampling, the strata boundaries defined on 5/4/2014 were preserved. This ensured that the Wave 1 sample remained representative of the projects installed before 5/4/2014, and that it could be easily combined with the additional Wave 2 sample to estimate PY6 results. Six additional M&V sample points were selected from the incremental projects installed between 5/4/2014 and 7/28/2014, so that the sample reflects the final population distribution of savings within each stratum. Overall, a total of 20 M&V sample points were selected, consistent with the PY6 evaluation plan. The random sample of 20 projects was drawn to achieve a one tailed 90/10 confidence/precision level.

#### Profile of the Gross Impact M&V Sample

Table 2-4 provides a profile of the gross impact M&V sample for the Custom program in comparison with the program population. This table shows the resulting sample that was drawn which consists of 20 projects. These projects make up 18.7 million kWh of the ex-ante impact claim which represents 68% of the ex-ante impact claim for the program population. Also shown are the ex-ante based kWh sample weights for each of the three strata. Note that a census of five stratum 1 projects was picked and these projects accounted for about 58% of total sample kWh.

**Table 2-4. PY6 Custom Program Participation by Sampling Strata**

| Sampling Stratum | Custom Population Summary | | Impact Sample | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Number of Tracking Records (N) | Ex-Ante kWh Impact Claimed | kWh Weights | Number of Tracking Records (n) | Ex-Ante kWh | Sampled % of Population kWh |
| 1 | 5 | 10,748,916 | 0.39 | 5 | 10,748,916 | 100% |
| 2 | 12 | 8,977,285 | 0.33 | 8 | 6,576,080 | 73% |
| 3 | 76 | 7,579,135 | 0.28 | 7 | 1,354,084 | 18% |
| TOTAL | 93 | 27,305,336 | | 20 | 18,679,080 | 68% |

*Source: Evaluation Team analysis*

### 2.3.3 Telephone Survey Sample

For telephone survey (NTG) purposes, the evaluation team picked a sample of 30 for Custom projects based on the same considerations as for M&V sampling. A stratified random sample of program participants was drawn in order to achieve a sample size of 30 completed customer interviews. Note that the selected participant sample included all the gross impact sample points.

For telephone surveys, the unit of sampling is the project contact. To develop the sample of unique project contacts, duplicate contact names were removed from the sample where a single person was involved in more than one project application. In addition, contacts that also completed Prescriptive program projects could only be contacted once regarding a given project (if the project yielded both Standard and Custom savings). Because fewer Custom projects were completed compared to the Standard Program, Custom projects were given preference over Standard ones.

For Custom telephone surveys, 21 sample points were selected using the 5/4/2014 database extract, and nine additional sample points were selected using the 7/28/2014 database extract. The telephone survey was conducted for the two waves yielding a total of 30 completed interviews. The evaluation team completed telephone surveys for 13 of the 20 PY6 gross M&V sample points.

**Profile of the Telephone Survey Sample**

Table 2-5 summarizes the participating customer telephone interviews completed in support of the PY6 NTG research and process evaluation efforts. The completed interviews represent 21.7 million kWh or 79% of the ex-ante impact claim for the total program population. The achieved sample size meets the one-tailed 90/10 confidence/precision level at the program level - the selected sample points were representative of the program population.

**Table 2-5. PY6 Telephone Survey Sample by Strata**

| Sampling Strata | Population Summary | | Completed Interviews | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Number of Tracking Records (N) | Ex-Ante kWh Impact Claimed | kWh Weights | Number of Tracking Records (n) | Ex-Ante kWh | Sampled % of Population kWh |
| 1 | 5 | 10,748,916 | 0.39 | 5 | 10,748,916 | 100% |
| 2 | 12 | 8,977,285 | 0.33 | 11 | 8,741,665 | 97% |
| 3 | 76 | 7,579,135 | 0.28 | 14 | 2,171,455 | 29% |
| TOTAL | 93 | 27,305,336 | - | 30 | 21,662,036 | 79% |

*Source: Evaluation Team analysis.*

## 3.  Gross Impact Evaluation

The evaluation team reviewed ComEd's tracking data extract to determine reported PY6 ex-ante gross savings. The verified gross program impacts for the evaluation for the Custom program were developed based on the on-site M&V analysis for fifteen sites and engineering desk reviews for five projects.

### 3.1    Tracking System Review

ComEd provided the evaluation team with direct access to their on-line tracking system and data for evaluation purposes. The on-line system was easy to work with and provided viewing access to the project tracking data plus downloading rights to project documentation in electronic format for each project. This documentation was complete and greatly facilitated the evaluation efforts.

A key finding is:

- For two projects (#17842 and #19607) in the gross sample, the program calculated peak demand savings, but the peak demand savings were not reported in the tracking system.

### 3.2    Gross Program Impact Parameter Estimates

Gross program impacts for this evaluation of the Custom program were developed based on the on-site visits including detailed M&V analysis for fifteen projects and thorough engineering desk reviews supported with telephone interviews for five projects. The EM&V team conducted research to validate the parameters that were not specified in the TRM. The verified gross impact results for PY6 are shown in Table 3-1 below.

**Table 3-1. Verified Gross Savings Parameters**

| Input Parameters | Value | Deemed or Evaluated? |
|---|---|---|
| Energy Savings Realization Rate | 0.97 | Evaluated |
| Peak Demand Savings Realization Rate | 0.96 | Evaluated |

*Source: Evaluation Team analysis*

### 3.3    Development of the Verified Gross Realization Rate

There are two basic statistical methods for combining individual gross realization rates from the sample projects into an estimate of verified gross kWh savings for the population when stratified random sampling is used. These two methods are called "separate" and "combined" ratio estimation.[7] In the case of a separate ratio estimator, a separate gross kWh savings realization rate is calculated for each stratum and then combined. In the case of a combined ratio estimator, a single gross kWh savings realization rate is calculated directly without first calculating separate gross realization rates by stratum.

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[7] A full discussion and comparison of separate vs. combined ratio estimation can be found in <u>Sampling Techniques</u>, Cochran, 1977, pp. 164-169.

The evaluation team used the separate ratio estimation technique to estimate verified gross impacts for the Custom program. This is because the separate ratio estimation technique follows the steps outlined in the California Evaluation Framework[8] which identified best practices in program evaluation. These steps are matched to the stratified random sampling method that was used to create the sample for the program. The standard error was used to estimate the error bound around the estimate of verified gross impacts.

## 3.4  Verified Gross Program Impact Results

Based on the gross impact sample size of 20 projects in PY6, the evaluation results yielded energy gross realization rate of 0.97 and demand gross realization rate of 0.96. The resulting total program verified gross savings is 26,587,755 kWh and 1,750 kW as shown in Table 3-2.

### Table 3-2. Gross Parameters and Savings Estimates

| Sampling Strata | Ex-Ante kWh | Evaluation Verified kWh | kWh RR | Ex-Ante kW | Evaluation Verified kW | kW RR |
|---|---|---|---|---|---|---|
| 1 | 10,748,916 | 10,214,640 | 0.95 | 928 | 878 | 0.95 |
| 2 | 8,977,285 | 10,266,671 | 1.14 | 332 | 415 | 1.25 |
| 3 | 7,579,135 | 6,106,444 | 0.81 | 565 | 456 | 0.81 |
| PY6 TOTAL | 27,305,336 | 26,587,755 | 0.97 | 1,825 | 1,750 | 0.96 |

*Source: Evaluation Team analysis.*

The PY6 gross energy realization rate of 0.97 is higher than the PY5 level of 0.89 which is a significant increase for a Custom program. PY6 gross realization rate (RR) results indicate that stratum 2 (medium sized custom projects) with a RR of 1.14 realized a higher proportion of the ex-ante claims than stratum 1 (largest sized custom projects) with a RR of 0.95 and stratum 3 (smallest sized custom projects) with a RR of 0.81. The primary reason for the significantly larger stratum 2 realization rate is project #21691 which had an energy realization rate of 2.87. By removing this project from the stratum 2 sample, the average realization rate decreases to 0.95. These results indicate program M&V activities and calculation method were consistent for all sizes of projects which are an improvement compared to PY5 results. Table 3-3 below shows the site-specific ex-ante and ex-post savings along with stratum level realization rates.

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[8] Tec Market Works, "The California Evaluation Framework," Prepared for the California Energy Commission, June 2004. Available at http://www.calmac.org

**Table 3-3. Gross Impact Realization Rate Results for the Selected Custom and Data Center Sample**

| Sampled Application ID | Sample-Based Ex-ante kWh Impact Claimed | Sample-Based Ex-ante kW Impact Claimed | Sampling Strata | Ex-Ante-Based kWh Gross Impact Weights by Strata | Sample-Based Evaluation Verified Gross kWh Impact | Sample-Based Evaluation Verified Gross kW Impact | Application - Specific Evaluation Verified Gross kWh Realization Rate | Application - Specific Evaluation Verified Gross kW Realization Rate | Sample-Based Evaluation Verified Gross kWh Realization Rate | Sample-Based Evaluation Verified Gross kW Realization Rate |
|---|---|---|---|---|---|---|---|---|---|---|
| 11062 | 2,698,282 | 0 | 1 | 0.25 | 2,760,403 | 0.00 | 1.02 | - | | |
| 16726 | 3,096,083 | 353 | 1 | 0.29 | 2,435,669 | 235.50 | 0.79 | 0.67 | | |
| 22633 | 1,273,463 | 121 | 1 | 0.12 | 1,273,076 | 197.90 | 1.00 | 1.64 | 0.95 | 0.95 |
| 18305 | 2,118,973 | 242 | 1 | 0.20 | 2,097,802 | 214.58 | 0.99 | 0.89 | | |
| 20003 | 1,562,115 | 212 | 1 | 0.15 | 1,647,690 | 230.40 | 1.05 | 1.09 | | |
| 17276 | 1,372,321 | 0 | 2 | 0.21 | 1,532,301 | 0.00 | 1.12 | - | | |
| 17842 | 1,169,301 | 0 | 2 | 0.18 | 1,139,884 | 0.00 | 0.97 | - | | |
| 17611 | 907,908 | 0 | 2 | 0.14 | 951,782 | 0.00 | 1.05 | - | | |
| 17884 | 702,731 | 84 | 2 | 0.11 | 591,677 | 115.25 | 0.84 | 1.37 | | |
| 21409 | 372,206 | 41 | 2 | 0.06 | 217,772 | 41.36 | 0.59 | 1.01 | 1.14 | 1.25 |
| 19104 | 593,845 | 0 | 2 | 0.09 | 598,289 | 0.00 | 1.01 | - | | |
| 14746 | 805,219 | 0 | 2 | 0.12 | 616,185 | 0.00 | 0.77 | - | | |
| 21691 | 652,550 | 0 | 2 | 0.10 | 1,872,697 | 0.00 | 2.87 | - | | |
| 18989 | 526,558 | 116 | 3 | 0.39 | 391,411 | 92.30 | 0.74 | 0.80 | | |
| 18858 | 423,831 | 0 | 3 | 0.31 | 322,335 | 0.00 | 0.76 | - | | |
| 19607 | 129,599 | 0 | 3 | 0.10 | 126,970 | 0.00 | 0.98 | - | | |
| 18429 | 127,021 | 0 | 3 | 0.09 | 119,170 | 0.00 | 0.94 | - | 0.81 | 0.81 |
| 21507 | 13,879 | 3 | 3 | 0.01 | 17,210 | 4.20 | 1.24 | 1.40 | | |
| 15719 | 71,464 | 0 | 3 | 0.05 | 64,493 | 0.00 | 0.90 | - | | |
| 23036 | 61,732 | 14 | 3 | 0.05 | 49,385 | 10.90 | 0.80 | 0.78 | | |
| TOTAL | 18,679,080 | 1,186 | - | NA | 18,826,201 | 1,142 | NA | NA | 0.97 | 0.96 |

*Source: Evaluation Team analysis*

The energy realization rates for all evaluated projects, broken down by strata are shown below in Figure 3-1. The PY6 energy savings realization rate results ranged from 0.59 to 2.87 which show a very large variation in realization rates across projects. For 11 out of the 20 projects, the gross energy realization rate was greater than program mean realization rate (0.97) and for the remaining nine projects, the gross energy realization rate was less than program mean. Note that the overall energy realization rate was affected by one stratum 2 project (#21691) which had an energy realization rate of 2.87. Removing this project from the evaluated sample yields a program level energy realization rate of 0.92, which is still better than the PY5 realization rate of 0.89.

**Figure 3-1. PY6 Custom Program Energy Realization Rates**
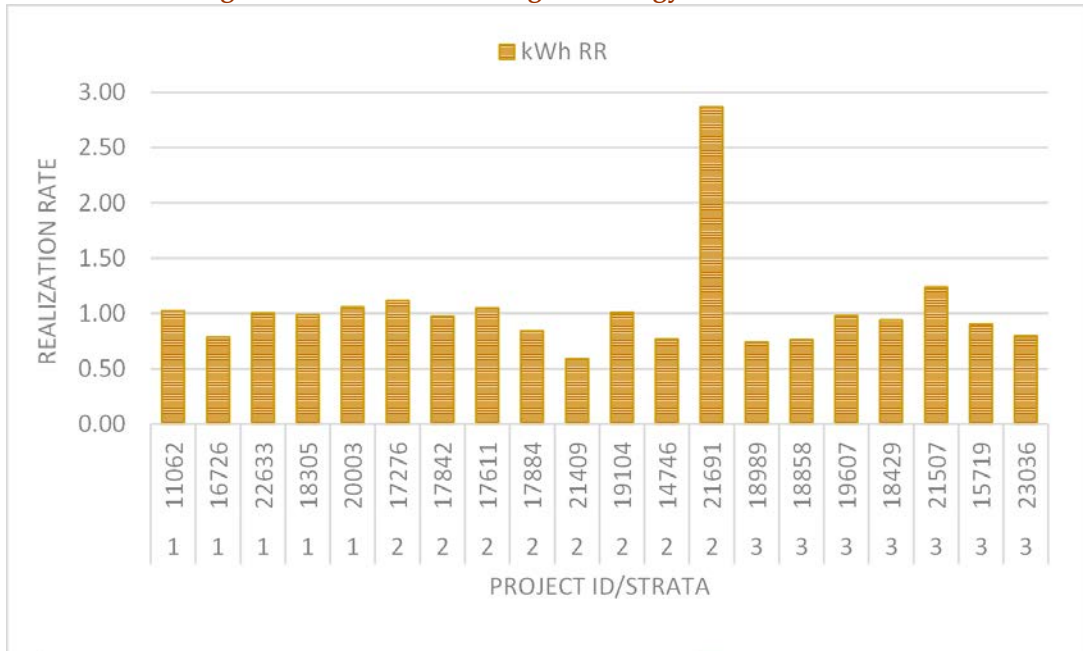


*Source: Evaluation Team analysis.*

Comparative demand realization rates for all evaluated projects, broken down by strata are shown below in Figure 3-2 respectively. The PY6 peak demand savings realization rate results ranged from 0.67 to 1.64 which reveals considerable variation in realization rates across projects. This variation in demand realization rates was typically due to the program calculations not accurately representing measure operating conditions (e.g., operating schedule, using average demand instead of peak). As a result, the program calculations models and inputs were adjusted by the evaluation team. Five of the twenty projects had gross peak demand realization rates greater than 1.0 and four projects had less than 1.0. From the 11 projects for which the program reported zero kW savings, the evaluation team found positive kW savings for nine projects and negative kW savings for one project, while one project did not realize any ex-post kW savings.

**Figure 3-2. PY6 Custom Program Demand Realization Rates**
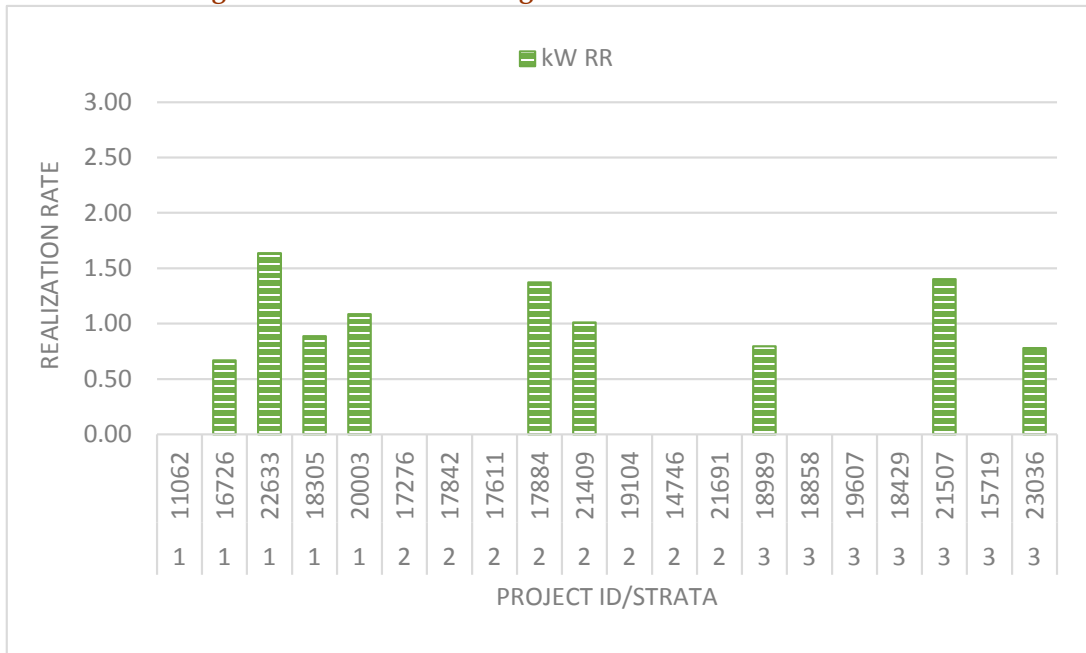


Source: Evaluation Team analysis.

For the program level realization rate estimation, only the evaluated kW was included for the projects where there was a non-zero ex-ante kW. This led to less sample-based coverage for demand realization rate estimates in comparison with energy realization rate coverage. ComEd claimed non-zero ex-ante demand savings for nine of the twenty projects in the sample. The ex-post demand savings of 1,142 kW for these nine projects resulted in gross realization rate of 0.96.

A summary of un-weighted energy realization rates by end-use types is shown in Figure 3-3 below. As evident, the *Process, VSDs, Other (including drives and controller measures)* and *Lighting* end-use projects realized higher realization rates than *Compressed Air* and *Controls* end-use projects.

**Figure 3-3. PY6 Custom Program Energy Realization Rates Summary by End-Use**
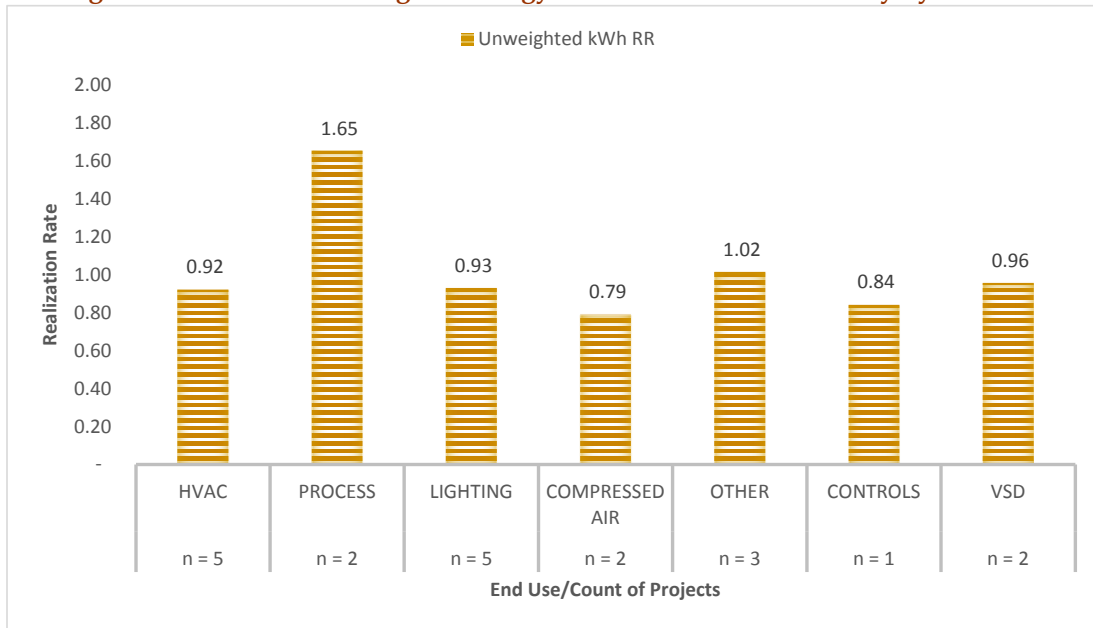


*Source: Evaluation Team analysis.*

The summary of end-use based un-weighted demand realization rates shown below in Figure 3-4 also includes the project counts by end-use type for which the program did not report any kW savings.

**Figure 3-4. PY6 Custom Program Demand Realization Rates Summary by End-Use**
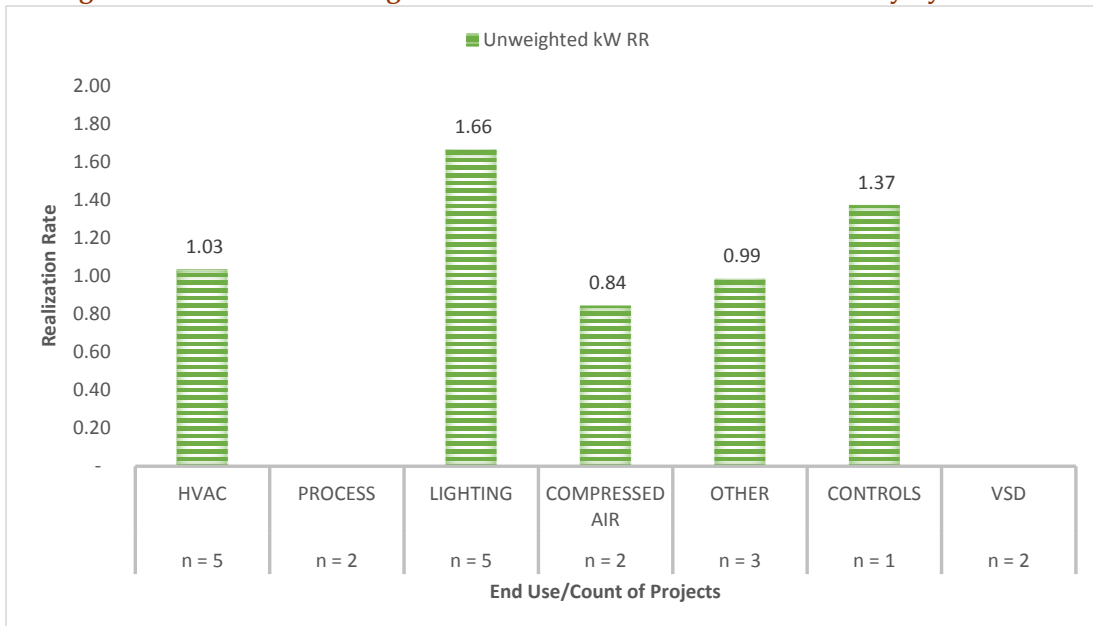


*Source: Evaluation Team analysis.*

The relative precision for the gross impact results at one-tailed 90% confidence level is ± 5% for the kWh realization rate and ± 3% for the kW realization rate. The achieved precision rates of ± 5% at one-tailed 90% confidence level is better than the evaluation targeted kWh realization rate of ± 10%.

**Table 3-4. Gross kWh Realization Rates and Relative Precision at 90% Confidence Level**

| Stratum | Relative Precision ± % | Low | Mean | High |
|---------|------------------------|-----|------|------|
| Stratum 1 | 0% | 0.95 | 0.95 | 0.95 |
| Stratum 2 | 13% | 1.00 | 1.14 | 1.29 |
| Stratum 3 | 6% | 0.76 | 0.81 | 0.85 |
| **PY6 kWh RR** | **5%** | **0.92** | **0.97** | **1.02** |

*Source: Evaluation Team analysis.*

**Table 3-5. Gross kW Realization Rates and Relative Precision at 90% Confidence Level**

| Stratum | Relative Precision ± % | Low | Mean | High |
|---------|------------------------|-----|------|------|
| Stratum 1 | 0% | 0.95 | 0.95 | 0.95 |
| Stratum 2 | 13% | 1.09 | 1.25 | 1.41 |
| Stratum 3 | 3% | 0.78 | 0.81 | 0.83 |
| **PY6 kW RR** | **3%** | **0.93** | **0.96** | **0.99** |

*Source: Evaluation Team analysis*

The evaluation team has provided ComEd with site-specific M&V reports for each verified project. These site-specific impact evaluation reports summarize the ex-ante savings in the Final Application submitted, the ex-post M&V plan, data collected at the site, and all of the calculations and parameters used to estimate savings.

Some general observations from the gross impact sample are listed by project ID and strata below:

- Project #16726 (1): There were several issues that the evaluation team uncovered when reviewing this site. About 20% of the discrepancy for this site was due to a spreadsheet calculation cell reference error. The power factor used in the ex-ante calculations was not supported with documentation and did not represent motor operation with a variable speed drive (VSD), so the evaluation team used the rated nameplate power factor for the equipment where it was available. Finally, the evaluation team used a different method of normalization for this site.

- Project #22633 (1): There were several issues associated with the demand savings for this site. These related to the coincidence factor used, and the fact that demand savings were not claimed for occupancy sensors.

- Project #21409 (2): The only factor affecting this site was reflected in the hours of use of the lighting system, which was over-reported in the ex-ante analysis. The ex-ante calculations claimed 6760 annual HOU, estimated by the contractor who filled out the project application. The ex-post calculations used 3744 annual HOU, calculated in response to a discussion with the site contact who was confident that the warehouse hours ran 12 hours per day Monday-Saturday. The evaluation team believes that the contact who was listed on the application

and who is familiar with the operation is a more reliable source for the hours of operation, than the contractor who filled out the application.

- Project #17884 (2): A cell reference error for this site would have actually increased the savings claimed by the ex-ante analysis. However, the savings were reduced for this project due to the ex-post metered data that was collected during the evaluation which significantly affected the hours of use of the equipment.

- Project #14746 (2): The ex-ante savings calculations assumed that the make-up air units operated 8,760, while the evaluation team determined that the annual hours of operation were only 3,120.

- Project #21691 (2): This site resulted in a very high realization rate of close to 300%. This issue uncovered by the evaluation team was related to hours of pump operation. The ex-ante calculations incorrectly translated the metered data into annual operating hours. If this had been corrected, the ex-post energy realization rate would have been 91%.

- Project #21507 (2): The ex-post savings accounted for HVAC interactive effects which were not accounted for in the ex-ante analysis.

- Project #18858 (3): The reduction in savings for this site was generally a result in the change in fan equipment operating hours, based on collected data.

- Project #23036 (3): The savings reduction was a result of a change in operating hours of the dock lights, based on the evaluation teams findings. The lighting applications are directional dock lights, which are used to shine into the back of trucks during unloading. These lights are only used when unloading the trucks, and there are not always trucks in the loading docks during the business hours. The contact provided a rough estimated that the lights were off at least 20% of the time.

- Project #18989 (3): The biggest reason for discrepancy for this site was related to the normalization method. The ex-ante calculation normalized the air compressor demand using production data, however the evaluation team determined that the correlation between the two sets of data were weak. The evaluation team developed operating profiles based on metered data and assumed that ex-ante and ex-post compressor air usage was the same.

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## 4. Net Impact Evaluation

SAG determined[9] that the NTG values for this program should be deemed prospectively and used to calculate verified net savings. The PY6 demand NTGR value is also derived from the PY4 evaluation results and the evaluation team believes it is a reasonably representative value. The table below shows the deemed NTG values. Refer to the Appendix for complete details on the NTG research.

### Table 4-1. Verified Net Savings Parameters

| Input Parameters | Value | Deemed or Evaluated? |
|---|---|---|
| Energy Savings NTGR | 0.61 | Deemed |
| Peak Demand Savings NTGR | 0.64 | Evaluated (derived from PY4 evaluation results) |

*Source: Evaluation Team analysis.*

### 4.1.1 Evaluation Verified Net Program Impact Results

Net program impacts were derived by multiplying PY6 Evaluation Research Findings Gross program savings by the deemed PY6 Net-to-Gross Ratio (NTGR). Table 4-2 provides the program-level Evaluation-Verified net impact results for the PY6 Custom program. Based on the M&V analysis conducted for the projects in the sample, the Evaluation Research Findings gross realization rate for energy savings is 0.97, and the realization rate for demand is 0.96.

### Table 4-2. PY6 Verified Net Impact Savings Estimates

| Savings Source | Sample Size | Energy Savings (kWh) | 90/10 Significance | Coincident Peak Demand Savings (kW) | 90/10 Significance |
|---|---|---|---|---|---|
| Ex-ante PY6 Gross Savings | 10 | 27,305,336 | Yes | 1,825 | Yes |
| Realization Rate | 10 | 0.97 | Yes | 0.96 | Yes |
| Verified Gross Savings | 10 | 26,587,755 | Yes | 1,750 | Yes |
| Free Ridership | 30 | 0.39 | Yes | 0.36 | Yes |
| Spillover | 30 | 0 | Yes | 0 | Yes |
| NTG | 30 | 0.61 | Yes | 0.64 | Yes |
| Verified Net Savings | 30 | 16,218,531 | Yes | 1,120 | Yes |

*Source: Evaluation Team analysis*

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[9] Source: ComEd PY5-PY6 Proposal Comparisons with SAG.xls, which is to be found on the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html

# 5. Findings and Recommendations

The PY6 gross energy realization rate of 0.97 is higher than the PY5 level of 0.89 which is a significant increase for a Custom program. The PY6 energy savings realization rate results ranged from 0.59 to 2.87 which show a very large variation in realization rates across projects. For 11 out of the 20 projects, the gross energy realization rate was greater than program mean realization rate (0.97). For the remaining nine projects, the gross energy realization rate was less than program mean. Note that the overall energy realization rate was affected by one stratum 2 project (#21691) which had an energy realization rate of 2.87. Removing this project from the evaluated sample yields a program level energy realization rate of 0.92, which is still an improvement over the PY5 realization rate of 0.89. Although the PY6 realization rate results indicate strong program performance, the evaluation team found a number of common themes within the evaluated sample of projects. Key evaluation findings and recommendations include the following:

**Utilization of M&V Data for Savings Calculations**

**Finding 1.** Data collected for the ex-ante analysis was not always fully utilized to calculate the saving estimates. For example, the metered data collected for the ex-ante analysis for project #21691 indicated that only one of the 500 HP pumps was required for meet the chilled water demand for the vast majority of the operating conditions. However, this data was disregarded and the customer self-report hours of operation was used in the ex-ante analysis. Similarly, for project #18429, occupancy and runtime data was collected for the infrared heaters, however, this data was modified with an assumed 90% reduction in operating hours.

**Recommendation 1.** Ensure calculated savings fully use all data collected, rather than using information from customer interviews or other less-reliable data sets.

**Demand Savings Estimates**

**Finding 2.** Program peak demand savings estimates were set to zero for 11 sampled projects for which the evaluation team found non-zero savings.

**Recommendation 2.** Calculate peak demand savings consistent with PJM requirements for all eligible projects and also ensure that the demand savings are populated consistently in the tracking system.

**Estimation of Power Factor**

**Finding 3.** For projects #16726 and #11062, the program M&V activities did not accurately determine power factor values. The program used power factor values of 95% or greater for motors which is not typical and resulted in overestimation of motor power (kW) usage.

**Recommendation 3.** The program should ensure that power factors used to determine power (kW) usage are reasonable when compared to typical power factor levels for similar type of equipment.

**Estimation of Operating Hours**

**Finding 4.** For a total of seven projects (e.g., #20003, #21409, #17884, #14746, #21691, #18858, and #23036), the program-reported operating hours were found to be incorrect and were updated based on ex-post site visit findings.

**Recommendation 4.** Given the large impact of the equipment operating schedules, it is critical that the methods used by the program for estimating customer self-reported operating hours are thorough. The program should verify in greater detail if the data collected is representative of typical operating conditions. In cases where no measurements are performed, in-depth interviews with customer contact and also additional facility staff should be conducted to help verify customer self-reported operating hours. The source for any program inputs and assumptions should be clearly reported within each project file.

**Net-to-Gross Ratio Research**

**Finding 5.** The Evaluation Research Findings NTG ratio is 0.67 for both kWh and kW. These values are improved from those in PY5, which is commendable. Nevertheless, there is still free ridership occurring, particularly among the small and medium-sized stratum 2 and 3 projects.

**Recommendation 5.** ComEd should consider adopting procedures to limit or exclude known free riders by conducting screening for high free ridership on a project-by-project basis. In addition, ComEd should consider making certain changes to the incentive structure. Each of these strategies is designed to reduce free ridership in the program. Please refer to Section 6.1 for more information.

# 6. Appendix

## 6.1 Evaluation Research Impact Approaches and Findings

### 6.1.1 Evaluation Research Net Impact Findings

*Free-Ridership*

The program's Net-to-Gross Ratio is equal to one minus the free ridership rate plus the spillover rate. The free ridership rate was calculated using a self-report method which relies on the results of surveys with PY6 participants. The calculation of both the free ridership rate and each project's Net-to-Gross Ratio (NTGR) is a multi-step process. Responses from the telephone survey are used directly to calculate a Timing and Selection score, a Program Influence score and a No-Program score for each project. These three scores can take values of 0 to 10 where a lower score indicates a higher level of free-ridership. The calculation then averages those three scores to come up with a project-level net-to-gross ratio.

Telephone surveys were completed for a total of 30 projects to support the calculation of the net-to-gross ratio in PY6. Of these, 13 overlap with the 20 gross M&V sample points. The PY6 project-specific NTGRs are plotted in Figure 6-1.

**Figure 6-1. Sample NTGR by Stratum**
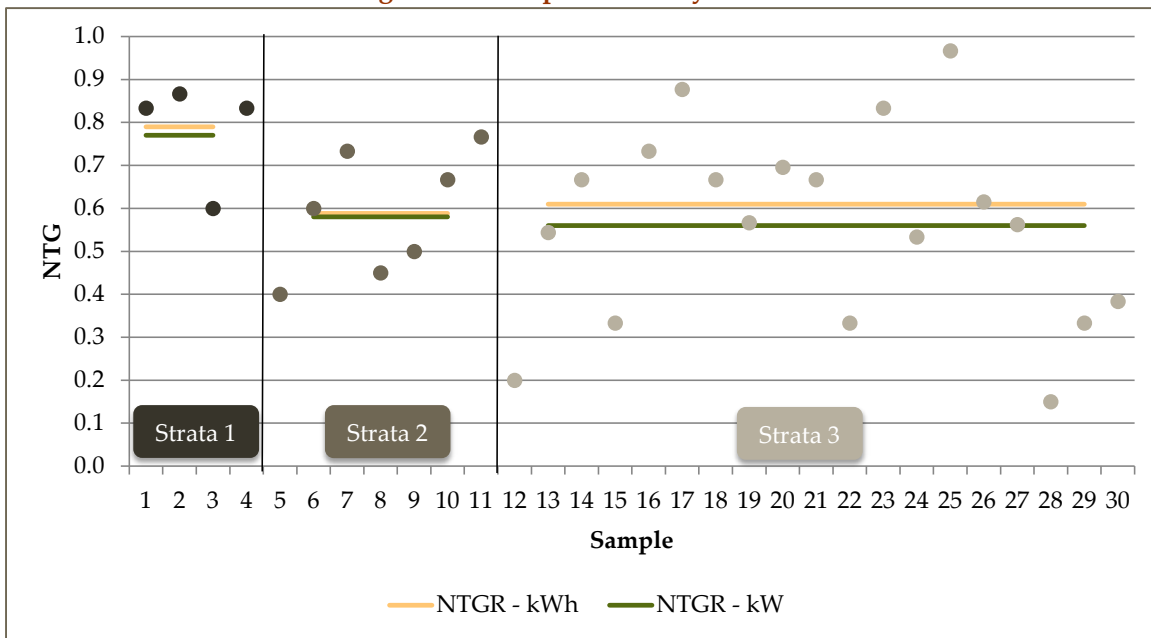


Source: *Evaluation Team analysis*

The separate ratio estimation technique was used to estimate NTGR for the program. The separate ratio estimation technique follows the steps outlined in the California Evaluation Framework. The standard error was used to estimate the error bound around the estimate of verified evaluation NTGR. The program level NTGR, along with precision estimates, is shown in Table 6-1 (kWh impacts) and in Table 6-2 (kW impacts).

Information regarding participant spillover was also collected, but ultimately did not support a finding of any spillover. Therefore, spillover was not included in the calculation of the NTGR for PY6.

**Table 6-1. kWh NTG Ratio and Relative Precision at 90% Confidence Level**

| Sampling Strata | Relative Precision ± % | Low | Mean | High |
|---|---|---|---|---|
| 1 | 4% | 0.76 | 0.79 | 0.83 |
| 2 | 7% | 0.55 | 0.59 | 0.63 |
| 3 | 16% | 0.51 | 0.61 | 0.70 |
| Custom PY6 | 5% | 0.64 | 0.67 | 0.70 |

*Source: Evaluation Team analysis*

**Table 6-2. kW NTG Ratio and Relative Precision at 90% Confidence Level**

| Sampling Strata | Relative Precision ± % | Low | Mean | High |
|---|---|---|---|---|
| 1 | 8% | 0.71 | 0.77 | 0.83 |
| 2 | 18% | 0.48 | 0.58 | 0.68 |
| 3 | 10% | 0.51 | 0.56 | 0.62 |
| Custom PY6 | 6% | 0.63 | 0.67 | 0.71 |

*Source: Evaluation Team analysis*

The Evaluation Research Findings PY6 kWh NTGR for Custom projects of 0.67 is higher than the PY5 NTGRs of 0.61 for energy savings and 0.53 for demand savings. The energy NTGR scores for the three custom sampling strata are 0.79 for stratum 1 (large sized projects), 0.59 for stratum 2 (medium sized projects), and 0.61 for stratum 3 (small sized projects) which indicates the free-ridership level for the largest sized projects (stratum 1) is significantly lower than the free-ridership of the smaller project sizes.

A breakdown of NTGR by the three component scores is shown in Figure 6-2. The Timing and Selection score reflects the importance of various program and program-related elements in the customer's decision and timing of the decision in selecting specific program measures. The Program Influence score reflects the relative degree of influence the program had on the customer's decision to install the specified measures as versus non-program factors. The No-Program score captures the likelihood of various actions the customer might have taken at this time and in the future if the program had not been available.

**Figure 6-2. NTGR Level by Component Scores**
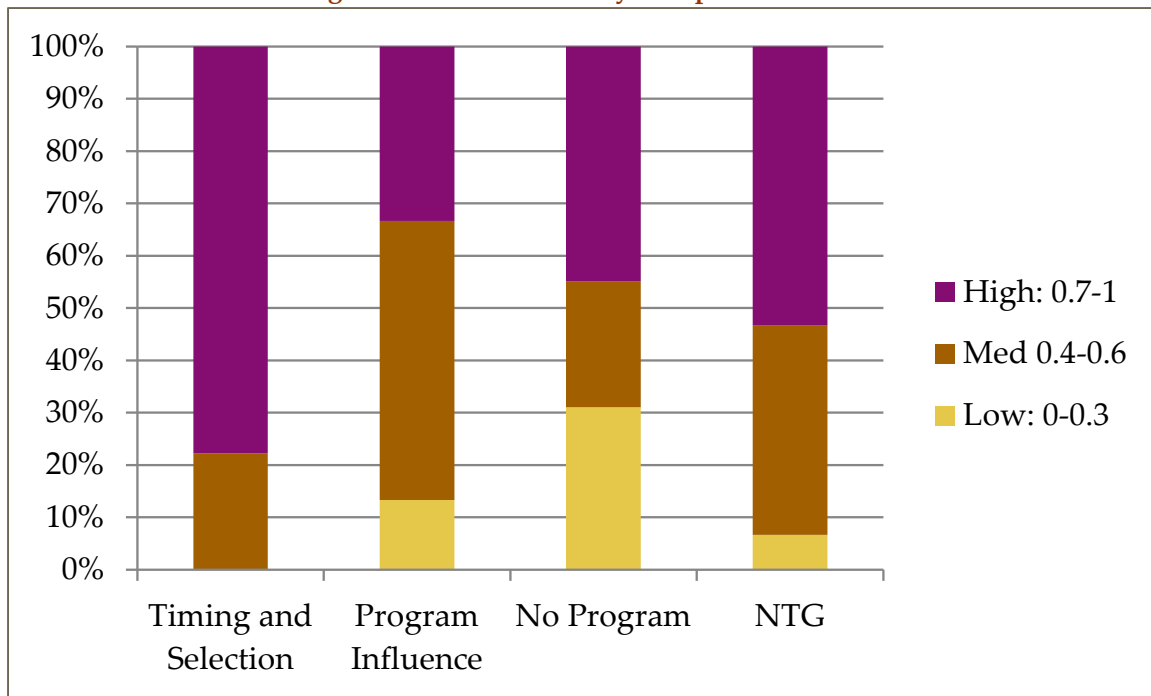


*Source: Evaluation Team analysis*

Significant free-ridership (above 40%) was found in 14 out of 30 evaluated projects; of which two projects had a resulting NTGR below 0.30. Both projects with the highest free-ridership were small sized projects (stratum 3).

The timing and selection score is calculated as the maximum score among the self-reported influence levels a program had for six potential influences. A component of one of the six potential influences is the recommendation from an equipment contractor or vendor that helped with the choice of equipment. If the participant rates a vendor recommendation highest (and the score is at least 5) among the five other potential influences, a vendor interview is triggered. The result of the vendor interview is a score of how influential the program is on the vendor's decision to recommend the equipment. A combination of the vendor interview score and vendor recommendation score is then evaluated among the five other timing and selection influences. The maximum score among these six influences determines the timing and selection score. During the course of the PY6 participant telephone surveys, two participants' responses triggered a vendor interview. As a result of the vendor interviews, one of the projects' (16726) timing and selection score increased from 2 to 10, indicating a very high program influence and thereby bringing the project NTGR up from 0.60 to 0.87. The vendor interview for another project (17611) did not have any impact on the NTGR.

Across business segments, low levels of free-ridership were found in projects from Heavy Industry, Light Industry, and Medical businesses, see Figure 6-3 below. Other segments experiencing higher free ridership are Retail/Service and Offices. A closer examination of the three component scores (Figure 6-4) reveals that Retail/Service and Office businesses on average score lower on both the Program Influence and No-Program scores.

**Figure 6-3. Average NTGR by Business Category**
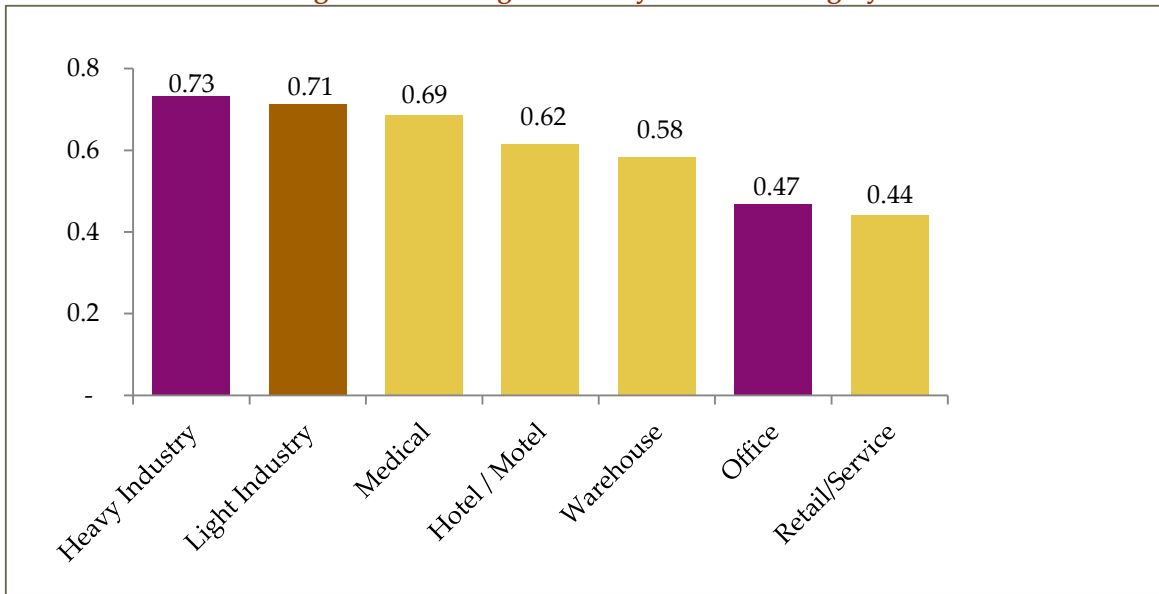


*Source: Evaluation Team analysis*

**Figure 6-4. Retail/Service and Office - Average Component Scores**
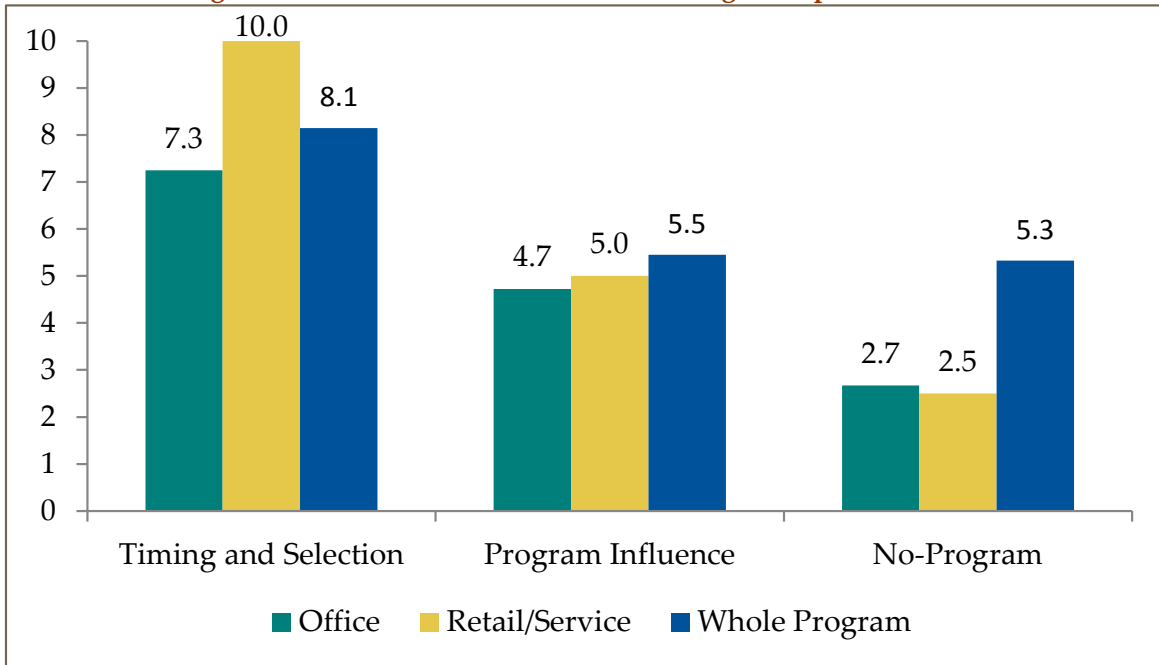


*Source: Evaluation Team analysis*

Low free-ridership was reported for projects addressing the Process and VSD end uses, resulting in NTGRs of at least 0.70 for each segment (Figure 6-5). Projects addressing the Compressed Air and Lighting end uses reported higher free-ridership levels and generally had NTGRs below 0.60. Of the ten Lighting end use projects surveyed, there was one large-sized project (stratum 1) with a high NTGR of 0.83, and nine small-sized projects (stratum 3) with a lower average NTGR of 0.55.

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**Figure 6-5. Average NTGR by End Use**



Bar chart values: PROCESS 0.71, VSD 0.70, HVAC 0.64, CONTROLS 0.61, LIGHTING 0.58, COMPRESSED AIR 0.56, OTHER 0.50
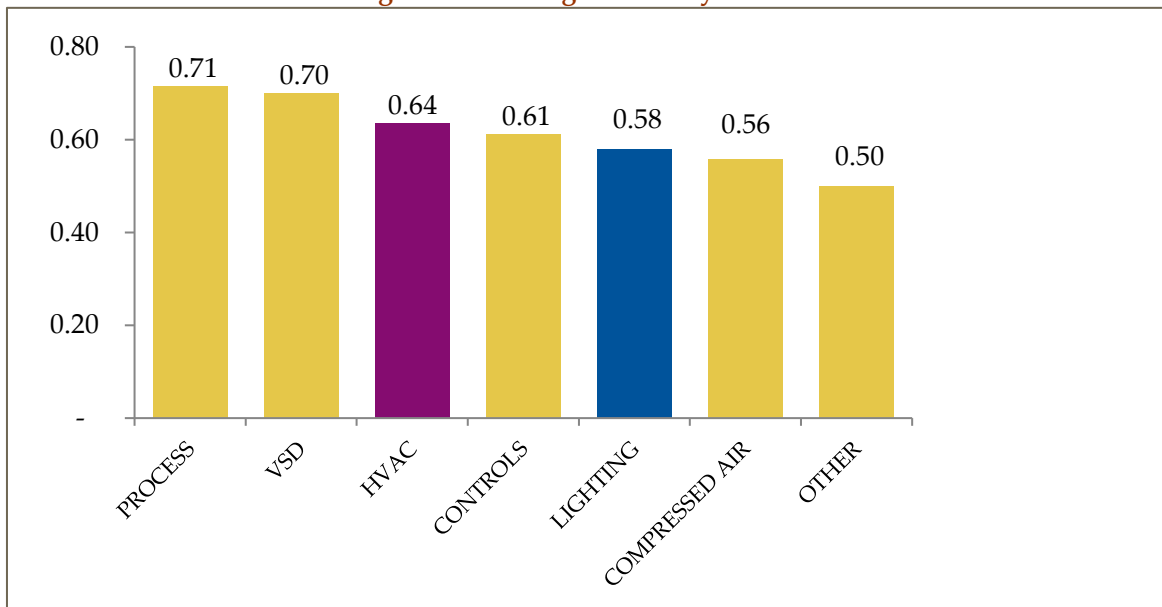
*Source: Evaluation Team analysis*

### Procedures to Reduce Free Ridership

Without a doubt, the large non-residential market is perhaps the most challenging to address in terms of the size and sophistication of end-use customers and suppliers, and the complexity of end-user projects. As a result, a certain amount of free ridership is to be expected in this market. A moderate amount of free ridership was found in this year's evaluation. Despite these challenges, there are a number of different strategies available to ComEd to adjust program design elements and implementation procedures in order to reduce free ridership. These recommendations are as follows:

**Recommendation**: Adopt procedures to limit or exclude known free riders.

The best way to accomplish this is to conduct screening for high free ridership on a project-by-project basis. In cases where it is found, the program implementer should encourage such customers to move to a higher level of efficiency, undertake a bundled retrofit to ensure deeper savings, or should ask about any other energy efficiency retrofit projects under consideration. Any of these options will result in funding a project that would not have been implemented absent the program. Another path is for the program to set the standard for incentive eligibility higher across-the-board so that all such projects will need to meet a higher standard to qualify. Note that **none** of these options equates to rejecting a customer for energy efficiency funding. Instead, the concept is to "upsell" the customer to an energy efficiency project that they weren't already planning to do on their own.

### Screening out Free Riders

One way to assess the rate of free ridership likely on a given project is to critically examine the key reasons behind the project **before** the incentive is approved. For example:

- Has the project already been included in the capital or operating budget? Has the equipment already been ordered or installed?

- Is the measure one that the company or other comparable companies in the same industry/segment routinely installs as a standard practice? Is the measure installed in other locations, without co-funding by incentives? Is the measure potentially Industry Standard Practice?
- Is the project being done, in part, to comply with regulatory mandates (such as environmental regulations)?
- Are the project economics already compelling without incentives? Is the rebate large enough to make a difference in whether or not the project is implemented?
- Is the company in a market segment that is ahead of the curve on energy efficiency technology installations? Is it part of a national chain that already has a corporate policy to install the proposed technology?
- Does the proposed measure have substantial non-energy benefits? Is it largely being considered for non-energy reasons (such as improved quality or increased production)?
- Is the project payback quite short even without the incentive?

By conducting a brief interview regarding these issues before the incentive is approved, ComEd can better assess the likely degree of free ridership and may be able to then decide if the project should be excluded or substantially re-scoped to a higher efficiency level.

**Recommendation:** Make changes to the incentive design

*Tier incentives by technology class*, such as end-use, to enhance promotion of technologies that are less well accepted versus those that are already established. Under this approach, the incentive level for less widely adopted and emerging technologies would be higher, while the incentive level for more widely-adopted measures would be lower.

*Consider Incorporating a Payback Floor, Excluding Projects for Which the Payback Time is Less Than One Year (for example).* Project-specific investigation of free ridership for custom programs also indicates that projects with extremely short payback periods are more likely to be free riders, all else being equal. Although it is certainly true that many customers do not adopt attractive efficiency projects with very low paybacks[10], a payback floor can still be helpful, particularly if it is not set too high and if the administrator is allowed some flexibility in its application. Several program administrators in other parts of the country have used payback floors effectively, although such criteria present project cost verification challenges. A one year floor guideline makes sense because projects with a one-year payback or less can usually be funded out of the current year's energy budget. The use of a payback floor (a minimum payback level based on energy savings alone) can help to reduce free ridership by eliminating projects that have extremely quick paybacks and thus little need for ratepayer-funded incentives. *Offer bonuses to incent desirable behavior*, such as installation of multiple measures or installation by a first-time participant.

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[10] For example, industrial end users sometimes do not invest in compressed air projects with paybacks as low as one year or even less.

### 6.1.1.1    *Spillover*

Spillover effects were addressed qualitatively in the PY6 evaluation, based on responses to a battery of spillover questions in the telephone survey. Detailed spillover-related findings from the surveys are reported in Table 6-3 below.

**Table 6-3. Detailed Spillover-Related Findings for PY6**

| Spillover Question | Evidence of Spillover |
|---|---|
| Since receiving an incentive for the project we just discussed, did you implement any ADDITIONAL energy efficiency measures at this facility or at your other facilities within ComEd's service territory that did NOT receive incentives through any utility or government program? | Of the 29 surveyed customers that responded, 7 (24%) did implement an additional measure without receiving incentive. These 7 respondents implemented a total of 13 energy efficiency measures. |
| What type of energy efficiency measure was installed without an incentive? | (6) Lighting Measures (2 LED lamps, 2 T8 lamps, 1 outside high efficiency light, 1 stairwell, high fluorescent bulbs) <br> (1) Lighting Controls/Occupancy sensors <br> (2) HVAC measures (1 HVAC - air handling, 1 Fan motors in AC units) <br> (1) furnace <br> (1) windows <br> (1) air compressor, cooling tower, steam cleaned heat recovery coils, replaced damaged exhaust fans <br> (1) ventilation controls |
| On a scale of 0 to 10, where 0 means "not at all significant" and 10 means "extremely significant," how significant was your experience in the ComEd program in your decision to implement this energy efficiency measures? | For the 12 implemented measures for which this question was asked: <br> (11) Rating between 0 and 3 <br> (1) Rating between 4 and 6 <br> (0) Rating between 7 and 10 |
| If you had not participated in the ComEd program, how likely is it that your organization would still have implemented this measure? Use a 0 to 10, scale where 0 means you definitely would NOT have implemented this measure and 10 means you definitely WOULD have implemented this measure? | For the 12 implemented measures for which this question was asked: <br> (0) Rating between 0 and 3 <br> (0) Rating between 4 and 6 <br> (12) Rating between 7 and 10 |
| Why did you purchase this energy efficiency measure without the financial assistance available through the ComEd's program? | For the 12 implemented measures for which this question was asked: <br> (8) Small project, didn't think it was worth it/would qualify <br> (3) Timing, wanted to implement immediately <br> (1) Not aware of a program that offers this measure |

*Source: Evaluation Team analysis*

These findings suggest that there are no spillover effects for PY6 that can be significantly attributed to ComEd's program. Although participating customers are installing other energy efficiency

improvements outside of the program, they attribute little influence to ComEd's program in their decision to install these additional measures. Further they state that they would have taken these actions on their own irrespective of their program participation experiences.

### 6.1.1.2    Evaluation Research Findings Net Program Impact Results

Net program impacts were derived by multiplying Evaluation Research Findings gross program savings by the Evaluation Research Findings Net-to-Gross Ratio (NTGR). Table 6-4 and Table 6-5 provide the program-level Evaluation Research Findings net impact results for the PY6 Custom program. The Research Findings gross realization rate for energy savings is 0.97, while the realization rate for demand is 0.96 is based on the M&V analysis conducted for the projects in the sample. The Evaluation Research Findings NTGR for energy savings and demand savings is 0.67, and is based upon responses from each contributing participant in the sample (and other sources) and the use of kWh-based weights.

#### Table 6-4. Program-Level Evaluation-Adjusted Net kWh Impacts for PY6

| Sampling Strata | Ex-ante Gross kWh | Ex Post Gross kWh | kWh RR | Ex Post Net kWh | NTGR (ex-post gross) |
|---|---|---|---|---|---|
| 1 | 10,748,916 | 10,214,640 | 0.95 | 8,077,205 | 0.79 |
| 2 | 8,977,285 | 10,266,671 | 1.14 | 6,018,576 | 0.59 |
| 3 | 7,579,135 | 6,106,444 | 0.81 | 3,708,123 | 0.61 |
| Custom PY6 | 27,305,336 | 26,587,755 | 0.97 | 17,882,174[11] | 0.67 |

Source: Evaluation Team analysis

#### Table 6-5. Program-Level Evaluation-Adjusted Net kW Impacts for PY6

| Sampling Strata | Ex-ante Gross kW | Ex Post Gross kW | kW RR | Ex Post Net kW | NTGR (ex-post gross) |
|---|---|---|---|---|---|
| 1 | 928 | 878 | 0.95 | 677 | 0.77 |
| 2 | 332 | 415 | 1.25 | 241 | 0.58 |
| 3 | 565 | 456 | 0.81 | 257 | 0.56 |
| Custom PY6 | 1,825 | 1,750 | 0.96 | 1,177 | 0.67 |

Source: Evaluation Team analysis

### 6.1.1.3    Net Impact Evaluation Methods

The primary objective of the net savings analysis for the Custom program was to determine the program's net effect on customers' electricity usage. After gross program impacts have been assessed, net program impacts are derived by estimating a Net-to-Gross Ratio (NTGR) that quantifies the percentage of the gross program impacts that can reliably be attributed to the program. A customer self-report method, based on data gathered during participant phone surveys, was used to estimate the NTGR for this evaluation.

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[11] The population level Ex Post Net kWh is not exactly equal to the sum of the stratum level Ex Post Net kWh due to different weighting criteria for the Net and Gross impact sampling efforts.

For PY6, the net program impacts were quantified solely on the estimated level of free-ridership. This requires estimating what would have happened in the absence of the program. The scoring approach used to calculate free-ridership from data collected through participant phone surveys is summarized in Table 6-6.

Once free-ridership has been estimated the Net-to-Gross Ratio (NTGR) is calculated as follows:

NTGR = 1 – Free-ridership Rate

The existence of participant spillover was examined in PY6 but no significant spillover activity was reported by participants, and therefore, quantification was not warranted.

**Table 6-6. Basic Net-to-Gross Scoring Algorithm for the PY6 Custom Program**

| Scoring Element | Calculation |
|---|---|
| **Timing and Selection Score.** The maximum score (on a scale of 0 to 10 where 0 equals not at all influential and 10 equals very influential) among the self-reported influence level the program had for:<br>A. Availability of the program incentive<br>B. Technical assistance from utility or program staff<br>C. Recommendation from utility or program staff<br>D. Information from utility or program marketing materials<br>E. Endorsement or recommendation by a utility account rep<br>F. Recommendation from an equipment contractor or vendor | Maximum of A, B, C, D, E, and F |
| **Program Influence score.** "If you were given a TOTAL of 10 points that reflect the importance in your decision to implement the <ENDUSE>, and you had to divide those 10 points between: 1) the program and 2) other factors, how many points would you give to the importance of the PROGRAM?" | Points awarded to the program<br>Divide by 2 if the customer learned about the program AFTER deciding to implement the measure that was installed |
| **No-Program score.** "Using a likelihood scale from 0 to 10, where 0 is "Not at all likely" and 10 is "Extremely likely", if the utility program had not been available, what is the likelihood that you would have installed exactly the same equipment?"<br>Adjustments to the "likelihood score" are made for timing: "Without the program, when do you think you would have installed this equipment?" Free-ridership diminishes as the timing of the installation without the program moves further into the future. | Interpolate between No Program Likelihood Score and 10 where "At the same time" or within 6 months equals No Program score, and 48 months later equals 10 (no free-ridership) |
| Project-level Free-ridership (ranges from 0.00 to 1.00) | 1 – Sum of scores (Timing and Selection, Program Influence, No-Program)/30 |
| PY6 Project level Net-to-Gross Ratio (ranges from 0.00 to 1.00) | 1 – Project level Free-ridership |
| Apply score to other end-uses within the same project? | If yes, assign score to other end-uses of the same project |
| Apply score to other projects of the same end-use? | If yes, assign score to same end-use of the additional projects |

## 6.2 Survey Instruments

### 6.2.1 Participant Survey

<div align="center">

**COMED SMART IDEAS FOR YOUR BUSINESS PROGRAM**
**PARTICIPANT SURVEY – CUSTOM PROJECTS**
**PY6 Draft**

</div>

**INTRODUCTION**

[READ IF CONTACT=1]

Hello, this is _____ from Opinion Dynamics calling on behalf of ComEd. This is not a sales call. May I please speak with <PROGRAM CONTACT>?

Our records show that <COMPANY> purchased <ENDUSE>, which was recently installed and received an incentive from ComEd. We are calling to do a follow-up study about <COMPANY>'s participation in this program, which is called the Smart Ideas for Your Business Program. Your answers will provide very important information that will help ComEd improve its program. I was told you're the person most knowledgeable about this project. Is this correct? [IF NOT, ASK TO BE TRANSFERRED TO MOST KNOWLEDGABLE PERSON OR RECORD NAME & NUMBER.]

This survey will take about 20-25 minutes. Is now a good time? [If no, schedule call-back]

[READ IF CONTACT=0]

Hello, this is _____ from Opinion Dynamics calling on behalf of ComEd. I would like to speak with the person most knowledgeable about recent changes in cooling, lighting, or other energy-related equipment for your firm at this location.

[IF NEEDED] Our records show that <COMPANY> purchased <ENDUSE>, which was recently installed and received an incentive from ComEd. We are calling to do a follow-up study about your firm's participation in this program, which is called the Smart Ideas for Your Business Program. Your answers will provide very important information that will help ComEd improve its program. I was told you're the person most knowledgeable about this project. Is that correct? [IF NOT, ASK TO BE TRANSFERRED TO MOST KNOWLEDGABLE PERSON OR RECORD NAME & NUMBER.]

This survey will take about 20-25 minutes. Is now a good time? [If no, schedule call-back]

**SCREENING QUESTIONS**

A1.  Just to confirm, between June 1, 2013 and May 31, 2014 did <COMPANY> participate in ComEd's Smart Ideas for Your Business Program at <ADDRESS>? (IF NEEDED: This is a program where your business received an incentive for installing one or more energy-efficient products covered under the program.)

      1      (Yes, participated as described)
      2      (Yes, participated but at another location)
      3      (NO, did NOT participate in program)
      00    (Other, specify)
      98    (Don't know)
      99    (Refused)

[SKIP A2 IF A1=1,2]

A2.  Is it possible that someone else dealt with the energy-efficient product installation?

      1      (Yes, someone else dealt with it)
      2      (No)
      00    (Other, specify)
      98    (Don't know)

99 (Refused)

[IF A1=2, 3, 00, 98, 99: Thank and terminate. Record dispo as "Could not confirm participation".]

Before we begin, I want to emphasize that this survey will only be about the <ENDUSE> you installed through the Smart Ideas for Your Business Program at <ADDRESS>. [IF NECESSARY, READ PROJECT DESCRIPTION: <PROJDESC>]

# PY4 NET-TO-GROSS MODULE

*Variables for the net-to-gross module:*
<NTG> (B=Basic rigor level, S= Standard rigor level. All questions here are asked if the standard rigor level is designated. Basic rigor level is designated through skip patterns)
Smart Ideas for your Business (ComEd)
<PROGRAM> (Name of energy efficiency program)
<ENDUSE> (Type of measure installed; from program tracking dataset)
<VEND1> (Contractor who installed new equipment, from program tracking dataset)

<OTHERPTS> (Variable to be calculated based on responses. Equals 1- minus response to N3p.)
<MSAME> (Equals 1 if same customer had more than one project of the same measure type; from program tracking database)
<NSAME> (Number of additional projects of the same measure type implemented by the same customer; from program tracking database)
<FSAME> (Equals 1 if same customer also had a project of a different measure type at the same facility; from program tracking database)
<FDESC> (Type of project of a different measure type at the same facility; from program tracking database)

## VENDOR INFORMATION
[SKIP TO V4 IF NTG=B]
I would like to get some information on the VENDORS that may have helped you with the implementation of this equipment.

V1     Did you work with a contractor or vendor that helped you with the choice of this equipment?
        1       (Yes)
        2       (No)
        8       (Don't Know)
        9       (Refused)

[SKIP TO V4 IF V1=2, 8, or 9]

V3      Did you also use a DESIGN or CONSULTING Engineer?
        1       (Yes)
        2       (No)
        8       (Don't know)
        9       (Refused)

V4      Did your utility account manager assist you with the project that you implemented through
        the ComEd *Smart Ideas® for Your Business* Program? (IF NEEDED: A utility account manager is
        an employee of ComEd who is assigned to your company to provide assistance)
        1       (Yes)
        2       (No, don't have a utility account manager)
        3       (No, have a utility account manager but they weren't involved)
        8       (Don't know)
        9       (Refused)

## NET-TO-GROSS BATTERY

I'd now like to ask a few questions about the thought process you used that resulted in the energy
efficient installations and incentive by the program. We want to understand how you thought about
energy efficiency and what influenced your decision to install.<MEASURE> through ComEd's
program.

A2aa.    Did this new energy efficiency equipment that you installed through the program replace existing
         equipment or was it added to control or work directly with existing equipment?
         01      Replaced existing equipment
         02      Added to control or work directly with existing equipment
         00      Other (record VERBATIM)
         98      (Don't know)
         99      (Refused)

N00     In deciding to do a project of this type, there are usually a number of reasons why it may be
undertaken. In your own words, can you tell me why this project was implemented? (IF NEEDED: Were there
any other reasons?) (MULTIPLE RESPONSE OF THREE)

**DO NOT READ**
    1   To replace old or outdated equipment
    2   As part of a planned remodeling, build-out, or expansion
    3   To gain more control over how the equipment was used
    4   The maintenance downtime and associated expenses for the old equipment were too high
    5   Had process problems and were seeking a solution
    6   To improve equipment performance
    7   To improve the product quality
    8   To comply with codes set by regulatory agencies
    9   To comply with company policies regarding regular/normal maintenance/replacement policy
    10  To get an incentive from the program
    11  To protect the environment
    12  To reduce energy costs
    13  To reduce energy use/power outages
    14  To update to the latest technology
    00  Other (RECORD VERBATIM)

98    (Don't know)
99    (Refused)

N1    When did you first learn about ComEd's Smart Ideas for your Business Program?  Was it BEFORE or AFTER you first began to THINK about implementing this measure? (NOTE TO INTERVIEWER: "this measure" refers to the specific energy efficient equipment installed through the program.)
    1     (Before)
    2     (After)
    8     (Don't know)
    9     (Refused)

[ASK N2 IF N1=2, 8, 9]

N2    Did you learn about ComEd's Program BEFORE or AFTER you DECIDED to implement the measure that was installed? (NOTE TO INTERVIEWER: "the measure" refers to the specific energy efficient equipment installed through the program.)
    1     (Before)
    2     (After)
    8     (Don't know)
    9     (Refused)

N3    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 implement this measure. Think of the degree of importance as being shown on a scale with equally spaced units from 0 to 10, where 0 means not at all important and 10 means extremely important. Now using this scale please rate the importance of each of the following in your decision to implement the measure at this time. [FOR N3a-n, RECORD 0 to 10; 96=Not Applicable; 98=Don't Know; 99=Refused]

(If needed: How important in your DECISION to implement the project was…)
[SKIP N3a IF NTG=B]
N3a.    The age or condition of the existing equipment
N3b.    Availability of the PROGRAM incentive
[ASK IF N3b=8, 9, 10]
    N3bb.    Why do you give it this rating? [OPEN END; 98=Don't know; 99=Refused]

[SKIP TO N3f IF NTG=B]
N3c.    Information provided through the technical assistance you received from the program's field staff
[SKIP N3cc IF NTG=B]
[ASK IF N3c=8, 9, 10]
    N3cc.    Why do you give it this rating? [OPEN END; 98=Don't know; 99=Refused]

[ASK N3d IF V1=1]
N3d.    Recommendation from an equipment vendor or contractor that helped you with the choice of the equipment
N3e.    Previous experience with this type of equipment
N3f.    Recommendation from ComEd program staff
[SKIP N3ff IF NTG=B]
[ASK N3ff IF N3f=8, 9, 10]

N3ff.    Why do you give it this rating?


N3h.    Information from ComEd marketing materials
[SKIP N3hh IF NTG=B]
[ASK IF N3h=8, 9, 10]
      N3hh.   Why do you give it this rating?


[SKIP TO N3k IF NTG=B]
[ASK N3i IF V3=1]
N3i.    A recommendation from a design or consulting engineer
N3j.    Standard practice in your business/industry
[SKIP N3k IF V4>1]
N3k.    Endorsement or recommendation by a ComEd account manager
[SKIP N3kk IF NTG=B]
[ASK IF N3k=8, 9, 10]
      N3kk.   Why do you say that?


[SKIP TO N3n IF NTG=B]
N3l.    Corporate policy or guidelines
N3m.    Payback on the investment
N3n.    Were there any other factors we haven't discussed that were influential in your decision to install this MEASURE?
      00    [Record verbatim]
      96    (Nothing else influential)
      98    (Don't Know)
      99    (Refused)


[ASK N3nn IF N3n=00]
N3nn.   Using the same zero to 10 scale, how would you rate the influence of this factor? [RECORD 0 to 10; 98=Don't Know; 99=Refused]


Thinking about this differently, I would like you to compare the importance of the PROGRAM with the importance of other factors in implementing the <ENDUSE> project.


[SKIP TO N3p IF NTG=B]


[READ IF (N3A, N3D, N3E, N3I, N3J, N3L, N3M, OR N3N)=8,9,10; ELSE SKIP TO N3p]
You just told me that the following other factors were important:
[READ IN ONLY ITEMS WHERE THEY GAVE A RATING OF 8 or higher]
      (N3A) Age or condition of existing equipment,
      (N3D) Equipment Vendor recommendation
      (N3E) Previous experience with this measure
      (N3I) Recommendation from a design or consulting engineer
      (N3J) Standard practice in your business/industry
      (N3L) Corporate policy or guidelines
      (N3M) Payback on investment
      (N3N) Other factor

N3p     If you were given a TOTAL of 10 points that reflect the importance in your decision to
        implement the <ENDUSE>, and you had to divide those 10 points between: 1) the program
        and 2) other factors, how many points would you give to the importance of the PROGRAM?
        Points given to program: [RECORD 0 to 100; 998=Don't Know; 999=Refused]

[CALCULATE VARIABLE "OTHERPTS" AS: 100 MINUS N3p RESPONSE; IF N3p=998, 999, SET
OTHERPTS=BLANK]

N3o     And how many points would you give to other factors? [RECORD 0 to 100; 998=Don't Know;
        999=Refused] [The response should be <OTHERPTS> because both numbers should equal 10.
        If response is not <OTHERPTS> ask INC1]

INC1    The last question asked you to divide a TOTAL of 10 points between the program and other
        factors. You just noted that you would give <N3p RESPONSE> points to the program. Does
        that mean you would give <OTHERPTS> points to other factors?
        1       (Yes)
        2       (No)
        98      (Don't know)
        99      (Refused)

[IF INC1=2, go back to N3p]


**CONSISTENCY CHECK ON PROGRAM IMPORTANCE SCORE**

[ASK IF (N3p>6 AND ALL OF (N3b, N3c, N3f, N3h, AND N3k)=0,1,2,3), ELSE SKIP TO N4aa]
N4      You just gave <N3p RESPONSE> points to the importance of the program, I would interpret
        that to mean that the program was quite important to your decision to install this equipment.
        Earlier, when I asked about the importance of individual elements of the program I recorded
        some answers that would imply that they were not that important to you. Just to make sure I
        have recorded this properly, I have a couple questions to ask you.

N4a     When asked about THE AVAILABILITY OF THE PROGRAM INCENTIVE, you gave a rating
        of ...<N3B RESPONSE> ... out of ten, indicating that the program incentive was not that
        important to you. Can you tell me why?
        00      [Record VERBATIM]
        98      (Don't know)
        99      (Refused)

[SKIP N4b IF NTG=B]
N4b     When I asked you about THE INFORMATION PROVIDED THROUGH THE TECHNICAL
        ASSISTANCE, you gave a rating of ...<N3C RESPONSE> ... out of ten, indicating that the
        information provided was not that important to you. Can you tell me why?
        00      [Record VERBATIM]
        98      (Don't know)
        99      (Refused)

N4c   When I asked you about THE RECOMMENDATION FROM A Smart Ideas for your Business COMED PROGRAM STAFF PERSON, you gave a rating of ...<N3F RESPONSE> ... out of ten, indicating that the information provided was not that important to you. Can you tell me why?
    00    [Record VERBATIM]
    98    (Don't know)
    99    (Refused)

N4d   When asked about THE INFORMATION from COMED's MARKETING MATERIALS, you gave a rating of ...<N3H RESPONSE> ... out of ten, indicating that this information from the program or utility marketing materials was not that important to you. Can you tell me why?

    00    [Record VERBATIM]
    98    (Don't know)
    99    (Refused)


[SKIP N4e IF V4>1 or N3k=96,98,99]
N4e   When asked about THE ENDORSEMENT or RECOMMENDATION by YOUR UTILTY ACCOUNT MANAGER, you gave a rating of <N3K RESPONSE> ... out of ten, indicating that this Account manager endorsement was not that important to you. Can you tell me why?
    00    [Record VERBATIM]
    98    (Don't know)
    99    (Refused)

[ASK IF N3p<4 AND ANY ONE OF (N3b, N3c, N3f, N3h, OR N3k=8,9,10) ELSE SKIP TO N5]
N4aa   You just gave <N3p RESPONSE> points to the importance of the program. I would interpret that to mean that the program was not very important to your decision to install this equipment. Earlier, when I asked about the importance of individual elements of the program I recorded some answers that would imply that they were important to you. Just to make sure I understand, would you explain why the program was not very important in your decision to install this equipment?

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

IF A2aa=1 (MEASURE=REPLACEMENT), THEN ASK:
N5   Using a scale from 0 to 10, where 0 is "Not at all likely" and 10 is "Extremely likely", if ComEd's efficiency program had not been available, what is the likelihood  that you would have installed exactly the same equipment? [RECORD 0 to 10; 98=Don't know; 99=Refused]

IF A2aa=2 (MEASURE=ADD-ON) THEN ASK:
N5aa   Using a 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 item/equipment at the same time as you did? [RECORD 0 to 10; 98=Don't know; 99=Refused]
IF A2aa=1 (MEASURE=REPLACEMENT) THEN ASK, ELSE SKIP TO N5A:

Next, I'd like to ask a couple of questions to help us estimate at what point in the future you would definitely have replaced your existing equipment. We understand that you can't know exactly when

you would have done this, especially so far into the future. We're just trying to get a sense of how long you think the current equipment or process would have kept serving your company's needs before you had to or chose to replace it.

N5ab.  If the program had not been available, how likely is it that you would have replaced your existing equipment within **one** year of when you did? Would you have definitely, probably, equally likely or unlikely, probably not or definitely not replaced your existing equipment within one year of when you did?
1    Definitely would have
2    Probably would have
3    Equally likely or unlikely
4    Probably not
5    Definitely not
98      (Don't know)
99      (Refused)

IF N5ab=3,4,5 THEN ASK:

N5ac.   In the absence of the program, how likely is it that you would have replaced your existing equipment within **three** years of when you did?
1    Definitely would have
2    Probably would have
3    Equally likely or unlikely
4    Probably not
5    Definitely not
98      (Don't know)
99      (Refused)


IF N5ac=3,4,5 THEN ASK:

N5ad.   In the absence of the program, how likely is it that you would have replaced your existing equipment within **five** years of when you did?
1    Definitely would have
2    Probably would have
3    Equally likely or unlikely
4    Probably not
5    Definitely not
98      (Don't know)
99      (Refused)

N5ae.   Now I would like you to think one last time about what action you would have taken if the program had not been available. Supposing that you had not installed the program qualifying equipment, which of the following alternatives would you have been MOST likely to do?
a.   Install fewer units
b.   Install standard efficiency equipment or whatever required by code
c.   install equipment more efficient than code but less efficient than what you installed through the program
d.   repair or overhaul the existing equipment
e.   do nothing (keep the existing equipment as is)
f.   something else (specify what _____)

**CONSISTENCY CHECKS**

N5a     When you answered ...<N3B RESPONSE> ... for the question about the influence of the incentive, I would interpret that to mean that the incentive was quite important to your decision to install. Then, when you answered <N5 RESPONSE> for how likely you would be to install the same equipment without the incentive, it sounds like the incentive 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 the role the incentive played in your decision to install this efficient equipment?
00       [Record VERBATIM]
98       (Don't know)
99       (Refused)

N5b     Would you like for me to change your score on the importance of the incentive?  You gave a score of <N3B_RESPONSE>. Or would you like to change your score on the likelihood you would install <MEASURE> without the incentive?  You gave a rating of <N5_RESPONSE>. We can change both if you wish. .
1        (Change importance of incentive rating)
2        (Change likelihood to install the same equipment rating)
3        (Change both)
4        (No, don't change)
8        (Don't know)
9        (Refused)

N5c     How important was… availability of the PROGRAM incentive? (IF NEEDED: in your DECISION to implement the project) [Scale of 0 to 10, where 0 means not at all important and 10 means extremely important; 98=Don't know, 99=Refused]

N5d     If the utility program had not been available, what is the likelihood that you would have installed exactly the same equipment? [Scale of 0 to 10, where 0 means "Not at all likely" and 10 means "Extremely likely"; 98=Don't know, 99=Refused]

[ASK IF N3j>7]

N6 In an earlier question, you rated the importance of STANDARD PRACTICE in your industry very highly in your decision making. Could you please rate the importance of the PROGRAM, relative to this standard industry practice, in influencing your decision to install this measure? Would you say the program was much more important, somewhat more important, equally important, somewhat less important, or much less important than the industry's standard practice?

    1      (Much more important)
    2      (Somewhat more important)
    3      (Equally important)
    4      (Somewhat less important)
    5      (Much less important)
    8      (Don't know)
    9      (Refused)

[ASK IF N5>0, ELSE SKIP TO N8]

N7 You indicated earlier that there was a <N5 RESPONSE> in 10 likelihood that you would have installed the same equipment if the program had not been available. Without the program, when do you think you would have installed this equipment? Would you say…

    1      At the same time
    2      Earlier
    3      Later
    4      (Never)
    8      (Don't know)
    9      (Refused)

[ASK N7a IF N7=3]

N7a. How much later would you have installed this equipment? Would you say…

    1      Within 6 months?
    2      6 months to 1 year later
    3      1 - 2 years later
    4      2 - 3 years later?
    5      3 - 4 years later?
    6      4 or more years later
    8      Don't know
    9      Refused

[ASK N7b IF N7a=6]

N7b. Why do you think it would have been 4 or more years later?

    00      [Record VERBATIM]
    98      (Don't know)
    99      (Refused)

**PAYBACK BATTERY** [ASK N8-N10a IF N3m=6,7,8,9,10]

I'd like to find out more about the payback criteria <COMPANY> uses for its investments.

N8      What financial calculations does <COMPANY> make before proceeding with installation of a MEASURE like this one?
        00      [Record VERBATIM]
        98      (Don't know)
        99      (Refused)

N9      What is the payback cut-off point <COMPANY> uses (in months) before deciding to proceed with an investment? Would you say…
        1       0 to 6 months
        2       7 months to 1 year
        3       more than 1 year up to 2 years
        4       more than 2 years up to 3 years
        5       more than 3 years up to 5 years
        6       Over 5 years
        8       (Don't know)
        9       (Refused)

N10     Does your company generally implement projects that meet the required financial cut-off point?
        1       (Yes)
        2       (No)
        8       (Don't know)
        9       (Refused)

[ASK N10aa IF N10=2]
N10aa   Why doesn't your company generally implement projects that meet the required financial cut-off point?
        00      [Record VERBATIM]
        98      (Don't know)
        99      (Refused)

N10a    Did the incentive play an important role in moving your project within the acceptable payback cutoff point?
        1       (Yes)
        2       (No)
        8       (Don't know)
        9       (Refused)

CORPORATE POLICY BATTERY [ASK N11-N17 IF N3L=6,7,8,9,10]

N11     Does your organization have an environmental policy to reduce environmental emissions or energy use? Some examples would be to "buy green" or use sustainable approaches to business investments.
        1       (Yes)
        2       (No)
        8       (Don't know)
        9       (Refused)

[ASK N12-N17 IF N11=1]

N12    What specific policy influenced your decision to adopt or install the <ENDUSE> through the Smart Ideas for your Business program?
- 00    [RECORD VERBATIM]
- 98    (Don't know)
- 99    (Refused)

N12a    When did your organization adopt that policy?
- 00    [RECORD VERBATIM]
- 98    (Don't know)
- 99    (Refused)

N13    Had that policy caused you to adopt energy efficient <ENDUSE> at this facility before participating in the ComEd efficiency program?
- 1    (Yes)
- 2    (No)
- 8    (Don't know)
- 9    (Refused)

[ASK N15-N16 IF N13=1 OR N14=1]

N15    Did your organization receive an incentive for a previous installation of <ENDUSE>?
- 1    (Yes)
- 2    (No)
- 8    (Don't know)
- 9    (Refused)

[ASK N16 IF N15=1]

N16    To the best of your ability, please describe…. [Record VERBATIM; 98=Don't know; 99=Refused]
- a.    the amount of incentive received
- b.    the approximate timing
- c.    the name of the program that provided the incentive

[ASK N17 IF N13=1 OR N14=1]

N17    If I understand you correctly, you said that <COMPANY> 's corporate policy has caused you to install energy efficient <ENDUSE> previously at this and/or other facilities. I want to make sure I fully understand how this corporate policy influenced your decision versus the Smart Ideas for your Business program. Can you please clarify that?
- 00    [Record VERBATIM]
- 98    (Don't know)
- 99    (Refused)

**STANDARD PRACTICE BATTERY**    [ASK N18-N22 IF N3j=6,7,8,9,10]

N18    Approximately, how long has use of energy efficient <ENDUSE> been standard practice in your industry?
- M    [00 Record Number of Months; 98=Don't know, 99=Refused]
- Y    [00 Record Number of Years; 98=Don't know, 99=Refused]

N19    Does <COMPANY> ever deviate from the standard practice?
      1        (Yes )
      2        (No)
      8        (Don't know)
      9        (Refused)

[ASK IF N19=1]
N19a   Please describe the conditions under which <COMPANY> deviates from this standard practice.
      00      [Record VERBATIM]
      98      (Don't know)
      99      (Refused)

N20    How did this standard practice influence your decision to install the <ENDUSE> through the Smart Ideas for Your Business program
      00      [Record VERBATIM]
      98      (Don't know)
      99      (Refused)

N20a   Could you please rate the importance of the Smart Ideas for Your Business program, versus this standard industry practice in influencing your decision to install the <ENDUSE>. Would you say the Smart Ideas for Your Business program was…
      1        Much more important
      2        Somewhat more important
      3        Equally important
      4        Somewhat less important
      5        Much less important
      8        (Don't know)
      9        (Refused)

N21    What industry group or trade organization do you look to to establish standard practice for your industry?
      00      [Record VERBATIM]
      98      (Don't know)
      99      (Refused)

N22    How do you and other firms in your industry receive information on updates in standard practice?
      00      [Record VERBATIM]
      98      (Don't know)
      99      (Refused)

## DESIGN ASSISTANCE

N23    Who provided the most assistance in the design or specification of the <ENDUSE> you installed through the program?  (If necessary, probe from the list below.)
      1        (Designer)
      2        (Consultant)

3      (Equipment distributor)
4      (Installer)
5      (ComEd/Smart Ideas for your Business account manager)
6      (ComEd staff)
00     (Other, specify)
98     (Don't know)
99     (Refused)

[SKIP N24 IF N23=98, 99]

N24    Please describe the type of assistance that they provided.
00     Record VERBATIM
98     Don't know
99     Refused

## ADDITIONAL PROJECTS

[ASK N26 IF MSAME=1]

Our records show that <COMPANY> also received an incentive from Smart Ideas for your Business ComEd for <NSAME> other <ENDUSE> project(s).

N26    Was it a single decision to complete all of those <ENDUSE> projects for which you received an incentive from Smart Ideas for your Business or did each project go through its own decision process?
1      (Single Decision)
2      (Each project went through its own decision process)
00     (Other, specify)
98     (Don't know)
99     (Refused)

[ASK N27 IF FSAME=1 ELSE SKIP TO EARLY REPLACEMENT BATTERY]

Our records show that <COMPANY> also received an incentive from Smart Ideas for your Business for a <FDESC> project at < ADDRESS >.

N27    Was the decision making process for the <FDESC> project the same as for the <ENDUSE> project we have been talking about?
1      (Same decision making process)
2      (Different decision making process)
00     (Other, specify)
98     (Don't know)
99     (Refused)

## EARLY REPLACEMENT BATTERY

[SKIP IF NOT QN00=01-09]

Earlier, when I asked you a question about why you decided to implement the project, you gave reasons related to [READ LIST OF ISSUES MENTIONED IN N00]. Now I would like to ask some follow up questions regarding the responses you gave me.

IF N00=1, THEN ASK,

ER1. Approximately how old was the existing equipment, in years?
   ___ Estimated Age
   98      (Don't know)
   99      (Refused)

ER1a. Approximately in what year was the existing equipment purchased?
   ___ Estimated Year of Purchase
   98      (Don't know)
   99      (Refused)

ER2Y. How much longer do you think it would have lasted?
   YEAR___ Estimated Remaining Useful Life
   98      (Don't know)
   99      (Refused)

ER3. Would it be possible to obtain a copy of the original invoice for this equipment?
   1.      Yes [ARRANGE FOR DELIVERY]
   2       No
   98      (Don't know)
   99      (Refused)

EMAIL. Can you please provide your email address so that we might contact you and obtain the invoice?
[OPEN END]

ER4. Can you please describe the remodeling, build out or capacity expansion that you did and the role the project played in it?
   00      (Other, specify)
   98      (Don't know)
   99      (Refused)

ER5. Can you please describe how the existing equipment had operated before you upgraded it, and why you sought increased control over it?
   00      (Other, specify)
   98      (Don't know)
   99      (Refused)

ER6. What percentage of downtime did you experience in the past year?
   _____Downtime Estimate
   98      (Don't know)
   99      (Refused)

ER7. What percentage of downtime did you experience in the previous years?
   _____Previous Year Downtime Estimate
   98      (Don't know)
   99      (Refused)

ER8. Over the last 5 years, have maintenance costs been increasing, decreasing or staying about the same?
>1. Increasing
>2. Decreasing
>3. Staying the same
>98    (Don't know)
>99    (Refused)

ER9Y. In your opinion, based on the economics of operating this equipment, for how many more years could you have kept this equipment functioning?
YEAR
>_____Estimate of Remaining Useful Life
>98    (Don't know)
>99    (Refused)

ER9M. In your opinion, based on the economics of operating this equipment, for how many more years could you have kept this equipment functioning?
MONTH
>_____Estimate of Remaining Useful Life
>98    (Don't know)
>99    (Refused)

IF N00=5, THEN ASK ER10 AND ER11
ER10. Can you briefly describe the process problems that you experienced prior to this project?
>00    (Other, specify)
>98    (Don't know)
>99    (Refused)

ER11. Was it critical that these process problems be resolved as soon as possible?
>1.    Yes
>2     No
>98    (Don't know)
>99    (Refused)

IF N00=6, THEN ASK,
ER12. Which of the following statements best describes the performance and operating condition of the equipment you replaced through the ComEd Smart Ideas for your Business program?
>01. Existing equipment was fully functioning, and without significant issues
>02. Existing equipment was fully functioning with minor issues
>03. Existing equipment was fully functioning, but with significant issues
>04. Existing equipment had failed or did not function.
>05. Existing equipment was obsolete
>96. Not applicable, ancillary equipment (VSD, EMS, controls, etc.)   00. Other (RECORD VERBATIM)
>>98    (Don't know)
>>99    (Refused)

IF N00=7, THEN ASK ER13 AND ER14
ER13. Can you briefly describe these product quality improvements that this project provided?]
>00    (Other, specify)
>98    (Don't know)
>99    (Refused)

ER14. Was it critical that these product quality improvements be made as soon as possible?
- 1. Yes
- 2 No
- 98 (Don't know)
- 99 (Refused)

ER15. Can you briefly describe the specific code/regulatory requirements that this project addressed?
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

ER16. Was it critical that your company comply with this code(s) as soon as possible?
- 1. Yes
- 2 No
- 98 (Don't know)
- 99 (Refused)

ER19. Can you briefly describe the specific company policies regarding regular/normal maintenance/replacement policy(ies) that were relevant to this project?
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

ER20. Was it critical that your company comply with these policies as soon as possible?
- 1. Yes
- 2 No
- 98 (Don't know)
- 99 (Refused)

## PY6 SPILLOVER MODULE

Thank you for discussing the new <ENDUSE> that you installed through the Smart Ideas for Your Business Program. Next, I would like to discuss any energy efficient equipment you might have installed OUTSIDE of the program.

SP1    Since receiving an incentive for the project we just discussed, did you implement any ADDITIONAL energy efficiency measures at this facility or at your other facilities within ComEd's service territory that did NOT receive incentives through any utility or government program?
- 1 (Yes)
- 2 (No)
- 8 (Don't know)
- 9 (Refused)

[ASK SP1a-SP1c IF SP1=1, ELSE SKIP TO FIRMOGRAPHICS?]

SP1a. Do you plan to apply for incentives for these energy efficiency measure(s) through a utility program in the future?
  1  Yes  [SKIP TO SP1b]
  2  No  [SKIP TO SP2]
  8  (Don't know) [SKIP TO SP2]
  9  (Refused) [SKIP TO SP2]

SP1b. Which program(s) do you plan to apply to for incentives for these measures?
  00  Record VERBATIM
  98 (Don't know)
  99 (Refused)

SP1c. Approximately when do you plan to apply for incentives through these programs?
  00  Record VERBATIM
  98 (Don't know)
  99 (Refused)

[ASK  IF SP1=1, ELSE SKIP TO FIRMOGRAPHICS? ]
SP2 What was the first measure that you implemented? (IF RESPONSE IS GENERAL, E.G., "LIGHTING EQUIPMENT", PROBE FOR SPECIFIC MEASURE. PROBE FROM LIST, IF NECESSARY.)
  1  (Lighting: T8 lamps)
  2  (Lighting: T5 lamps)
  3  (Lighting: Highbay Fixture Replacement)
  4  (Lighting: CFLs)
  5  (Lighting: Controls / Occupancy sensors)
  6  (Lighting: LED lamps)
  7  (Cooling: Unitary/Split Air Conditioning System)
  8  (Cooling: Room air conditioners)
  9  (Cooling: Variable Frequency Drives (VFD/VSD) on HVAC Motors)
  10  (Motors: Efficient motors)
  11  (Refrigeration: Strip curtains)
  12  (Refrigeration: Anti-sweat controls)
  13  (Refrigeration: EC motor for WALK-IN cooler/freezer)
  14  (Refrigeration: EC motor for REACH-IN cooler/freezer)
  00  (Other, specify)
  96  (Didn't implement any measures)
  98  (Don't know)
  99  (Refused)

[SKIP TO FIRMOGRAPHICS IF SP2=96, 98, 99]
SP3. What was the second measure?  (IF RESPONSE IS GENERAL, E.G., "LIGHTING EQUIPMENT", PROBE FOR SPECIFIC MEASURE. PROBE FROM LIST, IF NECESSARY.)
  1  (Lighting: T8 lamps)
  2  (Lighting: T5 lamps)
  3  (Lighting: Highbay Fixture Replacement)
  4  (Lighting: CFLs)

5 (Lighting: Controls / Occupancy sensors)
6 (Lighting: LED lamps)
7 (Cooling: Unitary/Split Air Conditioning System)
8 (Cooling: Room air conditioners)
9 (Cooling: Variable Frequency Drives (VFD/VSD) on HVAC Motors)
10 (Motors: Efficient motors)
11 (Refrigeration: Strip curtains)
12 (Refrigeration: Anti-sweat controls)
13 (Refrigeration: EC motor for WALK-IN cooler/freezer)
14 (Refrigeration: EC motor for REACH-IN cooler/freezer)
00 (Other, specify)
96 (There was no second measure)
98 (Don't know)
99 (Refused)

[SKIP SP4 IF SP3=96, 98, 99]

SP4 What was the third measure? (IF RESPONSE IS GENERAL, E.G., "LIGHTING EQUIPMENT", PROBE FOR SPECIFIC MEASURE. PROBE FROM LIST, IF NECESSARY.)
1 (Lighting: T8 lamps)
2 (Lighting: T5 lamps)
3 (Lighting: Highbay Fixture Replacement)
4 (Lighting: CFLs)
5 (Lighting: Controls / Occupancy sensors)
6 (Lighting: LED lamps)
7 (Cooling: Unitary/Split Air Conditioning System)
8 (Cooling: Room air conditioners)
9 (Cooling: Variable Frequency Drives (VFD/VSD) on HVAC Motors)
10 (Motors: Efficient motors)
11 (Refrigeration: Strip curtains)
12 (Refrigeration: Anti-sweat controls)
13 (Refrigeration: EC motor for WALK-IN cooler/freezer)
14 (Refrigeration: EC motor for REACH-IN cooler/freezer)
00 (Other, specify)
96 (There was no third measure)
98 (Don't know)
99 (Refused)

SP5 I have a few questions about the FIRST measure that you installed. (If needed, read back measure: <SP2 RESPONSE>) [OPEN END]
a. Can you briefly explain why you decided to install this energy efficiency measure on your own, rather than going through a utility incentive program?
b. Why did you not install this measure through the Smart Ideas for your Business Program?
c. Please describe the SIZE, TYPE, and OTHER ATTRIBUTES of this measure.
d. Please describe the EFFICIENCY of this measure.
e. How many of this measure did you install?
ee. When did you install this measure?

SP5f.   Was this measure specifically recommended by a program related study, report or program technical specialist?

1       (Yes)
2       (No)
8       (Don't know)
9       (Refused)

SP5g.   How significant was your experience in the Smart Ideas for your Business Program in your decision to implement this measure, using a scale of 0 to 10, where 0 is not at all significant and 10 is extremely significant? [SCALE 0-10; 98=Don't Know; 99=Refused]

[SKIP SP5h IF SP5g = 98, 99]
SP5h.   Can you explain specifically how your experience with the <PROGRAM> influenced your decision to install this additional high efficiency measure(s)? [OPEN END]

SP5i.   If you had not participated in the Smart Ideas for your Business program, how likely is it that your organization would still have implemented this measure, using a 0 to 10, scale where 0 means you definitely WOULD NOT have implemented this measure and 10 means you definitely WOULD have implemented this measure? [SCALE 0-10; 98=Don't Know; 99=Refused]

**CONSISTENCY CHECK ON PROGRAM IMPORTANCE RATING VS. NO PROGRAM RATING**

[ASK CC1a IF SP5g=0,1,2,3 AND SP5i =0,1,2,3]
CC1a    When you answered ...<SP5g RESPONSE> ... for the question about the influence of the Smart Ideas for your Business Program on your decision to install this measure, I would interpret that to mean the Program was not very important to your decision. However, when you answered the previous question, it sounds like it was not very likely that you would have installed this measure had you not participated in the Smart Ideas for your Business Program. Can you please explain the role the program made in your decision to implement this measure?

00      [Record VERBATIM]
98      (Don't know)
99      (Refused)

[ASK CC1b IF SP5g=8,9,10 AND SP5i =8,9,10]
CC1b    When you answered ...<SP5g RESPONSE> ... for the question about the influence of the Smart Ideas for your Business Program on your decision to install this measure, I would interpret that to mean the Program was quite important to your decision. However, when you answered the previous question, it sounds like it was very likely that you would have installed this measure had you not participated in the Smart Ideas for your Business  Program. Can you please explain the role the program made in your decision to implement this measure?

00      [Record VERBATIM]
98      (Don't know)
99      (Refused)

[SKIP TO FIRMOGRAPHICS IF SP3=96, 98, 99]
SP6     I have a few questions about the SECOND measure that you installed. (If needed, read back measure: <SP3 RESPONSE>) [OPEN END]

     a.      <span style="color:red">Can you briefly explain why you decided to install this energy efficiency measure(s) on your own, rather than going through a utility incentive program?</span>

     b.      Why did you not install this measure through the Smart Ideas for Your Business Program?

     c.      Please describe the SIZE, TYPE, and OTHER ATTRIBUTES of this measure.

     d.      Please describe the EFFICIENCY of this measure.

     e.      How many of this measure did you install?

     ee.     When did you install this measure?

**SP6f.** Was this measure specifically recommended by a program related study, report or program technical specialist?

    1      (Yes)
    2      (No)
    8      (Don't know)
    9      (Refused)

**SP6g.** How significant was your experience in the Smart Ideas for Your Business Program in your decision to implement this Measure, using a scale of 0 to 10, where 0 is not at all significant and 10 is extremely significant? [SCALE 0-10; 98=Don't Know; 99=Refused]

<span style="color:red">[SKIP SP6h IF SP6g = 98, 99]</span>
**SP6h.** <span style="color:red">Can you explain specifically how your experience with the <PROGRAM> influenced your decision to install this additional high efficiency measure(s)? [OPEN END]</span>

**SP6i.** If you had not participated in the Smart Ideas for Your Business Program, how likely is it that your organization would still have implemented this measure, using a 0 to 10, scale where 0 means you definitely WOULD NOT have implemented this measure and 10 means you definitely WOULD have implemented this measure? [SCALE 0-10; 98=Don't Know; 99=Refused]

**CONSISTENCY CHECK ON PROGRAM IMPORTANCE RATING VS. NO PROGRAM RATING**

<span style="color:blue">[ASK CC2a IF SP6g=0,1,2,3  AND SP6i =0,1,2,3]</span>
CC2a    When you answered ...<SP6g RESPONSE> ... for the question about the influence of the Smart Ideas for Your Business Program on your decision to install this measure, I would interpret that to mean the Program was not very important to your decision. However, when you answered the previous question, it sounds like it was not very likely that you would have installed this measure unless you had participated in the Smart Ideas for your Business Program. Can you please explain the role the program made in your decision to implement this measure?

    00      [Record VERBATIM]
    98      (Don't know)
    99      (Refused)

<span style="color:blue">[ASK CC2b IF SP6g=8,9,10 AND SP6i =8,9,10]</span>
CC2b    When you answered ...<SP6g RESPONSE> ... for the question about the influence of the Smart Ideas for Your Business Program on your decision to install this measure, I would interpret that to mean the Program was quite important to your decision. However, when you answered the previous question, it sounds like it was very likely that you would have installed this measure had you not

participated in the Smart Ideas for your Business Program. Can you please explain the role the program made in your decision to implement this measure?

> 00 [Record VERBATIM]
> 98 (Don't know)
> 99 (Refused)

SP7    I have a few questions about the THIRD measure that you installed. (If needed, read back measure: <SP3 RESPONSE>) [OPEN END]

> a.    Can you briefly explain why you decided to install this energy efficiency measure(s) on your own, rather than going through a utility incentive program?
> b.    Why did you not install this measure through the Smart Ideas for your Business Program?
> c.    Please describe the SIZE, TYPE, and OTHER ATTRIBUTES of this measure.
> d.    Please describe the EFFICIENCY of this measure.
> e.    How many of this measure did you install?
> ee.   When did you install this measure?

SP7f.   Was this measure specifically recommended by a program related study, report or program technical specialist?

> 1    (Yes)
> 2    (No)
> 8    (Don't know)
> 9    (Refused)

SP7g.   How significant was your experience in the Smart Ideas for your Business Program in your decision to implement this Measure, using a scale of 0 to 10, where 0 is not at all significant and 10 is extremely significant? [SCALE 0-10; 98=Don't Know; 99=Refused]

SP7h.   Can you explain specifically how your experience with the <PROGRAM> influenced your decision to install this additional high efficiency measure(s)? [OPEN END]

SP7i.   If you had not participated in the Smart Ideas for your Business  program, how likely is it that your organization would still have implemented this measure, using a 0 to 10, scale where 0 means you definitely WOULD NOT have implemented this measure and 10 means you definitely WOULD have implemented this measure? [SCALE 0-10; 98=Don't Know; 99=Refused]

**CONSISTENCY CHECK ON PROGRAM IMPORTANCE RATING VS. NO PROGRAM RATING**

CC3a    When you answered ...<SP7g RESPONSE> ... for the question about the influence of the Smart Ideas Program on your decision to install this measure, I would interpret that to mean the Program was not very important to your decision. However, when you answered the previous question, it sounds like it was not very likely that you would have installed this measure unless you had participated in the Smart Ideas Program. Can you please explain the role the program made in your decision to implement this measure?

00        [Record VERBATIM]
98        (Don't know)
99        (Refused)

[ASK CC3b IF SP7g=8,9,10 AND SP7i =8,9,10]

CC3b    When you answered ...<SP7g RESPONSE> ... for the question about the influence of the Smart
Ideas Program on your decision to install this measure, I would interpret that to mean the Program
was quite important to your decision. However, when you answered the previous question, it sounds
like it was very likely that you would have installed this measure had you not participated in the
Smart Ideas Program. Can you please explain the role the program made in your decision to
implement this measure?
00        [Record VERBATIM]
98        (Don't know)
99        (Refused)

### Firmographics

I only have a few general questions left.

F1a     What is <COMPANY>'s business type? (PROBE, IF NECESSARY; IF MANUFACTURING,
PROBE IF IT IS LIGHT INDUSTRY OR HEAVY INDUSTRY)
1.        (K-12 School)
2.        (College/University)
3.        (Grocery)
4.        (Medical)
5.        (Hotel/Motel)
6.        (Light Industry)
7.        (Heavy Industry)
8.        (Office)
9.        (Restaurant)
10.       (Retail/Service)
11.       (Warehouse)
15.       (Property Management/Real Estate)
00.       (Other, specify)
98.       (Don't know)
99.       (Refused)

F1b     And is the business type of the facility in which the <ENDUSE> was installed the same?
1.        Yes
2.        No
8.        (Don't know)
9.        (Refused)

[ASK F1c IF F1b=2]

F1c     What is the business type of the facility? (PROBE, IF NECESSARY – CLASS
MANUFACTURING AS EITHER LIGHT OR HEAVY INDUSTRY)
1.        (K-12 School)
2.        (College/University)
3.        (Grocery)

4.     (Medical)
5.     (Hotel/Motel)
6.     (Light Industry)
7.     (Heavy Industry)
8.     (Office)
9.     (Restaurant)
10.    (Retail/Service)
11.    (Warehouse)
15.    (Property Management/Real Estate)
00.    (Other, specify)
98.    (Don't know)
99.    (Refused)

F2     Which of the following best describes the ownership of this facility?
1.     <COMPANY> owns and occupies this facility
2.     <COMPANY> owns this facility but it is rented to someone else
3.     <COMPANY> rents this facility
8.     (Don't know)
9.     (Refused)

[SKIP if F2=1]
F3     Does <COMPANY> pay the electric bill?
1.     Yes
2.     No
8.     (Don't know)
9.     (Refused)

F4a     How old is this facility? [NUMERIC OPEN END, 0 TO 150; 998=Don't know, 999=Refused]

[ASK F4b IF F4a=998]
F4b     Do you know the approximate age? Would you say it is…
1.     Less than 2 years
2.     2-4 years
3.     5-9 years
4.     10-19 years
5.     20-29 years
6.     30 years or more years
8.     (Don't know)
9.     (Refused)

F5a     How many employees, including  part-time, are employed at this facility? [NUMERIC OPEN END, 0 TO 2000; 9998=Don't know, 9999=Refused]

[ASK F5b IF F5a=9998]
F5b     Do you know the approximate number of employees? Would you say it is…
1.     Less than 10
2.     10-49
3.     50-99

4.   100-249
5.   250-499
6.   500 or more
8.   (Don't know)
9.   (Refused)

F6   Which of the following best describes the facility? This facility is…
1.   <COMPANY>'s only location
2.   one of several locations owned by <COMPANY>
3.   the headquarters location of <COMPANY> with several locations

[SKIP F7 IF F2=2]
F7   In comparison to other companies in your industry, would you describe <COMPANY> as…
1.   A small company
2.   A medium-sized company
3.   A large company
4.   (Not applicable)
8.   (Don't know)
9.   (Refused)

### 6.2.2 Vendor NTG Survey Instrument

**Vendor NTG Survey Instrument – for ComEd Custom Programs –CI Custom Version – PY6**

**Introduction**

AA1. Hello, this is _____ from Opinion Dynamics calling on behalf of ComEd. THIS IS NOT A SALES CALL. I am calling about your firm's recent involvement in … <%ENDUSE>… project sponsored by ComEd for ... <%CUSTOMER>... through the ComEd Smart Ideas for Your Business Program on approximately ... <%INSTALL_DATE>._____Our records indicate that ...<%CONTACT>... would be the person most knowledgeable about this. Is he/she available?

| | | |
|---|---|---|
| 1 | Yes | AA5 |
| 2 | No | AA2 |
| 88 | Refused | Thank and Terminate |
| 99 | Don't know | Thank and Terminate |

AA2. Who would be the person most knowledgeable about your firm's involvement in … <%ENDUSE>… project sponsored by ComEd for ...<%CUSTOMER>... through the ComEd Smart Ideas for Your Business Program on approximately...<%INSTALL_DATE>?

| | | |
|---|---|---|
| 1 | Record name | AA3 |
| 88 | Refused | Thank and Terminate |
| 99 | Don't know | Thank and Terminate |

AA3. May I speak with him/her?

| | | |
|---|---|---|
| 1 | Yes | AA4 |
| 2 | No (not available right now) | SCHEDULE APPOINTMENT |

AA4. Hello, this is _____ from Opinion Dynamics calling on behalf of ComEd. THIS IS NOT A SALES CALL. I was told that you are the person most knowledgeable about your firm's involvement in …<%ENDUSE>… project sponsored by ComEd for ...<%CUSTOMER>... through the ComEd Smart Ideas for Your Business Program on approximately...<% INSTALL_DATE>. Is this correct?

| | | |
|---|---|---|
| 1 | Yes | A1 |
| 2 | No, there is someone else (RECORD NAME AND ASK TO BE TRANSFERRED) AA5 | |
| 3 | No and I don't know who to refer you to | Thank and Terminate |
| 88 | Refused | Thank and Terminate |
| 99 | Don't know | Thank and Terminate |

AA5. Am I speaking with …<%BETTER_CONTACT> ...the representative of your company that worked with ...<%CUSTOMER>... during the time of your firm's involvement in …<%ENDUSE>… project sponsored by ComEd? This study was conducted on approximately... <%INSTALL_DATE>.

| | | |
|---|---|---|
| 1 | Yes | A1 |
| 2 | Yes, but we need to make an appointment. | Reschedule appt. |
| 3 | No but I will give you to the correct person. | AA4 |
| 88 | Refused | Thank and Terminate |
| 99 | Don't know | Thank and Terminate |

Before we start, I would like to inform you that for quality control purposes, this call may be monitored by my supervisor. For the sake of expediency, we will be recording this interview.

A1. Our records indicate that your firm was involved in …<%ENDUSE>… project sponsored by ComEd in which you recommended that <%CUSTOMER> install <%MEASURE1-%MEASURE3>. Is this correct?

| | | |
|---|---|---|
| 1 | Yes | A2 |
| 2 | No | Thank and Terminate |
| 88 | Refused | Thank and Terminate |
| 99 | Don't know | Thank and Terminate |

*[DO NOT READ: The following question will determine if we ask about influences on their recommendations. Please be sure to be thorough with this question. If they truly only installed this equipment, then a "No" is fine]*

**LOOP/ASK FOR EACH MEASURE (1-3)**
A2. As <%CUSTOMER>'s vendor, did you recommend the installation of this <%MEASUREx>?

| | | |
|---|---|---|
| 1 | Yes | A3 |
| 2 | No | A3 |
| 88 | Refused | A3 |
| 99 | Don't know | A3 |

A3. Can you please explain what was your firm's involvement with …<%CUSTOMER>'s … implementation of <%MEASUREx>? [IF NEEDED: were they just an order taker, were they just equipment suppliers, or were they instrumental in what equipment was selected?…..if they were instrumental, then you need to go back and correct the answer to the previous question.]

| | | |
|---|---|---|
| 77 | RECORD VERBATIM | A3a |
| 88 | Refused | Thank and Terminate |
| 99 | Don't know | Thank and Terminate |

A3a    Does your company currently stock and sell <%MEASUREx>s?

| | | |
|---|---|---|
| 1 | Yes | V2 |
| 2 | No | V2 |
| 88 | Refused | V2 |
| 99 | Don't know | V2 |

*[READ] For the sake of expediency, during the balance of the interview, we will be referring to the ComEd Smart Ideas for Your Business Program as the PROGRAM and we will be referring to the installation of …<%MEASUREx> as the MEASURE. I will repeat this from time to time during the interview as your organization may have installed more than one measure through more than one program.*

I am going to ask you to rate the importance of the ComEd Smart Ideas for Your Business  in influencing your decision to recommend this <%MEASUREx> to …<%CUSTOMER>.. Think of the degree of importance as being shown on a scale with equally spaced units from 0 to 10, where 0 means not at all important and 10 means very important, so that an importance rating of 8 shows twice as much influence as a rating of 4.

V2. Using this 0 to 10 scale where 0 is NOT AT ALL IMPORTANT and 10 is EXTREMELY IMPORTANT, how important was the ComEd Smart Ideas for Your Business Program, including incentives as well as program services and information, in influencing your decision to recommend that ...<%CUSTOMER>... install the energy efficiency <%MEASUREx> at this time?

| | | |
|---|---|---|
| # | Record 0 to 10 score (_____) | V3 |
| 88 | Refused | V3 |
| 99 | Don't know | V3 |

V3. And using a 0 to 10 likelihood scale where 0 is NOT AT ALL LIKELY and 10 is EXTREMELY LIKELY, if the ComEd Smart Ideas for Your Business Program, including incentives as well as program services and information, had not been available, what is the likelihood that you would have recommended this specific <%MEASUREx> to ...<%CUSTOMER>?

| | | |
|---|---|---|
| # | Record 0 to 10 score (_____) | V4 |
| 88 | Refused | V4 |
| 99 | Don't know | V4 |

V4. Approximately, in what percent of projects did you recommend this <%MEASUREx> before you learned about the ComEd Smart Ideas for Your Business Program?

| | | |
|---|---|---|
| % | Record PERCENTAGE | V5 |
| 88 | Refused | V5 |
| 99 | Don't know | V5 |

V5. And approximately in what percent of projects  do you recommend this <%MEASUREx> now that you have worked with the ComEd Smart Ideas for Your Business Program?

| | | |
|---|---|---|
| % | Record PERCENTAGE | V6a |
| 88 | Refused | V6a |
| 99 | Don't know | V6a |

V6a. In what other ways has the ComEd Smart Ideas for Your Business Program influenced your recommendation that a customer install <%MEASUREx>?

| | | |
|---|---|---|
| 1 | Record FIRST mention | V6aa |
| 2 | Record SECOND mention | V6aa |
| 3 | Record THIRD mention | V6aa |
| 4 | No other way | V7b |
| 88 | Refused | V7b |
| 99 | Don't know | V7b |

IF V6a=1 THEN ASK, ELSE V6ab
V6aa. Using a 0 to 10 scale, how important was <%FIRST_MENTION_IN_V6A > in your recommendation that a customer install <%MEASUREx>?

| | | |
|---|---|---|
| # | Record 0 to 10 score (_____) | V6a |
| 88 | Refused | V6a |
| 99 | Don't know | V6a |

IF V6a=2  THEN ASK, ELSE V6ac
V6ab. Using a 0 to 10 scale, how important was <%SECOND_MENTION_IN_V6A > in your recommendation that a customer install <%MEASUREx>?

      #      Record 0 to 10 score (_____)   V6ac
      88     Refused           V6ac
      99     Don't know          V6ac

IF V6a=3 THEN ASK, ELSE V7b
V6ac. Using a 0 to 10 scale, how important was <%THIRD_MENTION_IN_V6A > in your recommendation that a customer install <%MEASUREx>?
      #      Record 0 to 10 score (_____)   V7b
      88     Refused           V7b
      99     Don't know          V7b

V7b. And how important was the information provided by the ComEd website in your recommendation that a customer install this MEASURE?
      #      Record 0 to 10 score (_____)   V7c
      88     Refused           V7c
      99     Don't know          V7c

V7c. And how important was your firm's past participation in an incentive or study-based program sponsored by ComEd in your recommendation that a customer install this MEASURE?
      #      Record 0 to 10 score (_____)   V8
      88     Refused           V8
      99     Don't know          V8

IF VENDOR ALSO STOCKS AND SELLS PROGRAM QUALIFYING <%MEASURE> (if A3a=1) THEN ASK V8. ELSE SKIP TO V15.
V8. Approximately, what percentage of your sales over the last 12 months of <%MEASUREx>s installed in ComEd's service territory are energy efficient models, that qualify for incentives from the program?
      %      Record PERCENTAGE      V9
      88     Refused           V9
      99     Don't know          V9

V9. In what percent of sales situations do you encourage your customers in ComEd's service territory to purchase program qualifying <%MEASUREx>s?
      %      Record PERCENTAGE      V9a
      88     Refused           V10
      99     Don't know          V10

IF V9 < 100% THEN ASK. ELSE SKIP TO V10.
V9a. In what sales situations do you NOT encourage your customers to purchase program qualifying <%MEASUREx>s?  And why is that?
      77     RECORD VERBATIM   V10
      88     Refused        V10
      99     Don't know      V10

V10. Of those installations of <%MEASUREx>s in ComEd's service territory that qualify for incentives, approximately what percentage do not receive the incentive?
      %      Record PERCENTAGE  V11

88        Refused        V12

99        Don't know        V12


IF V10 > 0%

V11. Why do you think they do not receive the incentive?

        77        RECORD VERBATIM   V12

        88        Refused        V12

        99        Don't know        V12


V12. Do you also recommend <%MEASUREx>s in areas where customers do not have access to incentives for energy efficient models?

        1        Yes        V13

        2        No        V14

        88        Refused        V14

        99        Don't know        V14


V13. About what percent of your sales of program-qualifying <%MEASUREx>s are represented by these areas where incentives are not offered?

        %        Record PERCENTAGE  V14

        88        Refused        V14

        99        Don't know        V14


V14. Have you changed your stocking practices of <%MEASUREx>s as a result of ComEd's Program?
[IF NEEDED: BY STOCKING PRACTICES, I MEAN THE TYPES OF EQUIPMENT YOU SUPPLY AND SELL IN COMED'S SERVICE TERRITORY.]

        1        Yes        V15

        2        No        V15

        88        Refused        V15

        99        Don't know        V15


IF V12=1

V15. Do you promote energy efficient equipment, such as <%MEASUREx>, equally in areas with and without incentives??

        1        Yes        V16

        2        No        V16

        88        RefusedV16

        99        Don't know        V16


V16. Do you know of any other vendors that worked with <%CUSTOMER> during their implementation and/or installation of <%MEASUREx>?  For example engineers or designers?

        1        Yes        V16a

        2        No        V17

        88        RefusedV17

        99        Don't know        V17


V16a. Do you have their business name?

        77        RECORD Business name and contact's name and phone number(s)     V17

88      RefusedV17

99      Don't know    V17

**END LOOP – MEASURE 1-3**

<u>**PROCESS MODULE**</u>

V17    And finally, for verification purposes only, may I please have your first name?

77      RECORD VERBATIM   END

END    Those are all the questions I have for you today. Thank you very much for your time.

END OF SURVEY