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Smart Ideas for Your Business
Custom Program
EPY5 Evaluation Report

Final

Energy Efficiency / Demand Response Plan:
Plan Year 5
(6/1/2012-5/31/2013)

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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 EPY5 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. Note that the EPY5 Data Centers Efficiency program was also evaluated as part of the Custom program evaluation. The new Data Centers Efficiency program provides incentives for installing energy efficiency measures in both new and existing data centers. Both the Custom program and the Data Centers efficiency program pay an incentive of $0.07/kWh saved for eligible projects. Incentives for both programs cannot exceed 50% of the total project cost and 100% of the incremental project cost.

E.1. Program Savings

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

Table E-1. EPY5 Total Program Electric Savings

Savings Category †	Energy Savings (kWh)	Peak Demand Savings (kW)
Ex Ante Gross Savings	57,306,512	4,351
Verified Gross Savings	51,071,508	6,061
Verified Net Savings	28,600,044	2,788

Source: Utility tracking data and Navigant analysis.
† See the Glossary in the Appendix for definitions

Based on the gross impact sample size of 20 projects in EPY5, the evaluation results yielded an energy gross realization rate of 0.89 and a peak demand gross realization rate of 1.39. The relative precision for the gross impact results at one-tailed 90% confidence level is ± 6% for the kWh Realization Rate and ±39% for the kW Realization Rate. The primary factor that contributed to the relatively low precision for kW Realization Rate is that only 15 projects from the total of 20 sampled projects reported non-zero ex ante kW savings estimates, resulting in less sample-based coverage for the demand realization rate. Additionally, the wide range of EPY5 project gross kW realization rates that varied from 0 to 17.27 also affected the precision around the peak demand results.

For EPY5, the evaluation verified NTGR of 0.56 for energy savings is a deemed value derived from EPY3 evaluation results as defined through a consensus process through SAG as documented in a spreadsheet.[1]

[1] http://ilsagfiles.org/SAG_files/Meeting_Materials/2013/August 5-6, 2013 Meeting/ComEd PY5-PY6 Proposal Comparisons with SAG.xls, which is to be found on the IL SAG web site at http://ilsag.info.

E.2. Impact Estimate Parameters

In the course of estimating verified gross and net savings, the evaluation used a variety of parameters in its calculations. Some of those parameters were deemed for this program year and others were adjusted based on evaluation research. The key parameters used in the analysis are shown in Table E-2.

Table E-2. Impact Estimate Parameters

Parameter	Data Sources	Deemed or Evaluated
NTG	SAG Spreadsheet †	Deemed
Gross Energy RR	EM&V Analysis	Evaluated
Gross Peak Demand RR	EM&V Analysis	Evaluated

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

E.3. Impact Estimate Parameters For Future Use

In the course of our EPY5 research, the evaluation did 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 Table E-3.

Table E-3. Impact Estimate Parameters for Future Use

Parameter	kWh Value	kW Value	Data Source
Net-to-Gross Ratio (NTGR)	0.61	0.53	Evaluation Results

Source: Evaluation Team analysis

E.4. Participation Information

A total of 148 projects were completed in EPY5. Out of the 148 tracking records, 137 were custom and 11 were data center tracking records. The total of 148 tracking records for Custom and Data Center programs consist of 112 unique Custom participants and 7 unique Data Center participants. Table E-4 presents the number of completed projects, along with ex ante gross kWh claimed and ex ante gross kW claimed in EPY5.

Table E-4. EPY5 Primary Participation Detail

Sampling Strata	Ex Ante kWh Impact Claimed	Ex Ante kW Impact Claimed	Tracking Records
Custom	46,652,108	2,848	137
Data Center	10,654,404	1,503	11
Total	57,306,512	4,351	148

Source: Evaluation Team Analysis

E.5. Conclusions and Recommendations

The following provides insight into key program findings and recommendations:

Demand Savings Estimates

Finding 1. Overall the program peak demand calculations were not as consistent or accurately modeled as the program energy savings calculations. Program peak kW estimates were set to zero for four sampled projects for which evaluation found non-zero savings. The wide range of variation in the evaluated project level gross peak demand realization rates also affected the precision around the peak demand results. For two projects the gross demand realization rate was particularly high: the realization rate for project #16105 is 6.58 and project #11473 is 17.27

Recommendation 1.a. The program should calculate peak kW savings for all projects and ensure that the estimated savings meet PJM peak demand calculation requirements. Program peak kW savings calculations should be based on the actual verified site specific operating conditions of the installed measure.

Recommendation 1.b. Program calculations should not report low peak kW savings using a conservative calculation method without a strong technical basis. The program should provide a solid technical rationale in support of the conservative calculation method used for estimating peak kW savings.

Improvements to Custom Ex-Ante Savings Calculations

Finding 2. For small lighting projects, the programs' estimation of operating hours was found to be inaccurate (e.g., Projects #17772 and #15224).

Recommendation 2. Given the large number of lighting projects in the program, it is critical that the methods used by the program for estimating customer self-reported operating hours are thorough. For small lighting projects, where no measurements are performed for estimating operating hours, interviews with multiple facility staff should be conducted to verify customer self-reported operating hours. The source for the estimated lighting operating hours should be clearly reported within each project file.

Finding 3. For compressed air projects, the individual air compressor curves or the compressed air system curves used for estimating savings were not representative (e.g., Projects #16105, #18405 and #18197).

Recommendation 3. The program calculations should ensure the individual air compressor curves or the compressed air system curves used are consistent with operating air compressors and controls. The program should conduct in-depth reviews to verify the accuracy of the savings calculation models. Use more rigorous quality control methods such as senior engineers performing reality checks to verify reasonability or technical feasibility of the estimated savings to reduce errors in ex ante calculations.

Improvements to Data Centers Ex-Ante Savings Calculations

Finding 4. For estimating savings, the program developed regression models were not representative and had low correlations (e.g., #15494, #15610 and #17153).

Recommendation 4. When regression models are being developed the correlation between independent variables and the dependent variable should have an R^2 value better than 0.75, consistent with IPMVP guidelines. Establish the correlation between IT load and power (kW) usage for savings normalization.

Program Marketing

Finding 5. Custom program customers rated ComEd's program marketing somewhat low (a 5.8 on a scale of 10).

Recommendation 5. ComEd should continue, if not increase, email marketing to customers as well as outreach to customers through the ComEd account managers.

Early Commitment Offering

Finding 6. Only three customers took advantage of the new "Early Commitment" (EC) option in EPY5. The majority of customers are unaware of the EC option. Indeed, eight out of nine Custom participants that were asked about the EC option were unaware of it.

Recommendation 6. In addition to increasing general marketing through email and ComEd account managers, as mentioned earlier, ComEd should specifically focus on increasing awareness of the EC offering among both trade allies and customers.

The EPY5 gross energy realization rate of 0.89 is higher than the EPY4 level of 0.80, which is a significant increase. The EPY5 energy gross realization rate of 0.89 is a very good result for a Custom program. Achieving such results for a Custom program is typically challenging since it involves complex calculations, challenging baseline selection issues and analysis of complex and/or emerging technologies. Therefore, EPY5 result the program achieved is very impressive since these challenging program aspects were addressed proficiently.

The primary reason for the significant improvement in gross energy realization rate for the EPY5 Custom program was due to the consistent baseline selection by the program. Baseline selection is typically the most challenging issue for a Custom program and this issue affected the program results in the previous program years. In EPY5, there were no baseline adjustments made for any of the evaluated projects by the evaluation team, which shows a very adept effort by the program and contributed significantly to the improved program results. These results demonstrate that the program M&V methods have improved since EPY4.

There were four projects sampled from the Data Centers program and the EPY5 gross energy realization for the Data Centers program is 1.01. This shows that the Data Centers program is off to a very good start and should continue using solid M&V practices for next program year where the measures and projects mix are expected to be more complex.

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.

The new Data Centers Efficiency program provides incentives for installing energy efficiency measures in both new and existing data centers. Similar to the Custom program, the data centers efficiency program pays an incentive of $0.07/kWh saved for eligible projects. The Custom and Data Centers Efficiency programs also provided an early commitment incentive option to the 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 both programs cannot exceed 50% of the total project cost and 100% of the incremental project cost.

1.2 Evaluation Objectives

The evaluation will seek to meet and report on the following objectives:

1.2.1 Impact Objectives

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

1.2.2 Process Objectives

1. Examine program design and implementation changes in EPY5.
2. Describe program strengths and weaknesses.
3. Identify barriers to participation.
4. Evaluate participant satisfaction.
5. Determine the effect of the introduction of segmented (market-based) program elements on Custom program.
6. Analyze the introduction of "Early Commitment Option".
7. Examine the overall operational effectiveness of the program due the shift in engineering review "in-house".

2. Evaluation Approach

Program Year 5 represents the fifth full-scale year of implementation for the Custom program. For the EPY5 impact evaluation, gross program impact results were developed based on detailed M&V analysis for 20 projects. The net-to-gross ratio (NTGR) used to calculate an EPY5 impact was deemed by SAG[2] and the NTGR deemed value was derived from EPY3 evaluation results. The verified gross savings estimates were multiplied by the deemed NTGR to calculate the verified net energy and peak demand savings. Five research activities were conducted in support of EPY5 process evaluation.

2.1 Primary Data Collection

2.1.1 Overview of Data Collection Activities

The core data collection activities included on-site audits and detailed M&V analysis in support of gross impact analysis, and telephone surveys in support of NTG and Process analysis. The full set of data collection activities is shown in Table 2-1 below.

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

Table 2-1. EPY5 Data Collection Activities

N	What	Who	Target Completes	Completes Achieved	When	Comments
Impact Assessment						
1	Onsite M&V Audit	Projects	20	20	May – November 2013	Sampled projects from Custom (Stratum 1,2, 3) and Data Centers
2	Telephone Survey	Custom Participants	30	30	May – November 2013	Data collection supporting NTG analysis.
3	Telephone Survey	Data Centers Participants	Census (8 Participants)	5	May – November 2013	Data collection supporting NTG analysis.
Process Assessment						
5	Telephone Survey	Custom Participants	30	26	May – November 2013	Data collection supporting process analysis.
3	Telephone Survey	Data Centers Participants	Census (7 Participants)	4	May – November 2013	Data collection supporting process analysis.
6	In Depth Interviews	Program Manager/Implementer Staff	4	4	May – November 2013	Includes staff for both Custom and Data Centers program.
7	Telephone Survey	Program partner /Trade ally	60	60	May – November 2013	Leveraged from cross-cutting process evaluation activities
8	Telephone Interviews	ComEd Engineering Staff	4	4	May – November 2013	
8	Telephone Interviews	Early Commitment Option Participants	Census (3 Participants)	1	May – November 2013	

Source: Evaluation Team

2.1.2 Verified Savings Parameters

Table 2-2 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.

Table 2-2. Verified Gross and Net Savings Parameter Data Sources

Input Parameters	Data Source	Deemed or Evaluated?
Gross Energy Savings Realization Rate	EPY5 Analysis	Evaluated
Gross Peak Demand Savings Realization Rate	EPY5 Analysis	Evaluated
NTG Ratio	SAG Agreement	Deemed
Net Energy Savings	EPY5 Analysis	Evaluated
Net Peak Demand Savings	EPY5 Analysis	Evaluated

Source: Evaluation Team

2.1.3 Verified Gross Program Savings Analysis Approach

The objective of the gross program savings evaluation is to verify the veracity and accuracy of the EPY5 ex ante gross savings estimates in the Custom program tracking system. To support the gross impact evaluation objectives, the EPY5 evaluation activities included on-site visits and detailed M&V for 20 projects. The savings reported in ComEd's online tracking system were evaluated using the following M&V steps:

1. Develop a site-specific M&V plan for a representative sample of program projects. Each M&V plan details the data collection and analysis approach to be undertaken, following a careful review of relevant documents stored in ComEd's online tracking system, including the Final Application submittal and the application-based calculations. Sometimes the plans are further refined based on a brief interview with the customer representative over the telephone.

2. Implement a site-specific data collection approach for each sampled project. The focus of the data collection was to verify and/or update the assumptions that feed into engineering algorithms of measure level savings. Data collection also included verification of measure installation and that the systems are functioning and operating as planned, and if not then in what way(s) there is variance.

3. Perform on-site measurement or obtain customer-stored data to support downstream M&V calculations. Measurement data obtained from the sites are used to calibrate the analyses, as measured parameters typically have the least uncertainty of any of the data elements collected. Measurement includes spot measurements, run-time hour data logging, and post-installation interval metering. Customer-supplied data from energy management systems (EMS) or supervisory control and data acquisition (SCADA) systems are often used when available. Furthermore, measured data are obtained when available from the PA.

4. Complete evaluation engineering-based estimates of gross annual energy (kWh) and summer peak demand (kW) impact for each sampled project. A site specific analysis is performed for each point in the impact sample. The engineering analysis methods and degree of monitoring will vary from project to project, depending on the complexity of the measures installed, the size of the associated savings and the availability, and the reliability of existing data. Gross impact calculation methodologies are generally based on IPMVP protocols, Options A through D. At a minimum, the evaluation impact evaluation incorporates the following

additional information that may not have been feasible to incorporate in Final Application submittal:

a. Verification that measures are installed and operational, and whether or not the as-built condition will generate the predicted level of savings;
b. Observed post-installation operating schedule and system loading conditions;
c. A thorough validation of baseline selection, including appropriateness of a retrofit vs. replace on burnout claim; and
d. Development of stipulated and measured engineering parameters that contribute to the impact calculations.

5. Prepare a detailed, site-specific impact evaluation report for each sampled site.
6. Carry out a quality control review of the evaluation impact estimates and the associated draft site reports and implement any necessary revisions.

A verified gross realization rate (e.g., the ratio of the Research Findings gross savings-to-reported tracking savings) was then estimated for the sample, by sampling stratum, and applied to the population of reported tracking savings, using sampling-based approaches that are described in greater detail in Section 3 below. The result is evaluation verified gross savings estimate for the Custom program

2.1.4 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 net-to-gross ratio (NTGR). In EPY5, the NTGR estimates used to calculate the Net Verified Savings were based on past evaluation research and defined through a consensus process through SAG as documented in a spreadsheet.[3]

2.1.5 Process Evaluation

Five research activities were conducted in support of the process evaluation: (1) interviews with the program manager and program implementer, (2) in-depth interviews with customers that participated in the "Early Commitment" option, (3) telephone surveys with participating Custom and Data Center customers, (4) in-depth interviews of ComEd engineering staff, and (5) we also leveraged the cross-cutting process evaluation activities where feasible, by adding questions about the Custom program to the cross-cutting trade ally survey.

2.2 Sampling

2.2.1 Profile of Population

Table 2-3 presents each of three strata and data center projects developed for sampling within the Custom Program, which consists of a total of 148 tracking records for Custom and Data Center programs comprising of 136 unique Custom projects and 11 unique Data Center projects. For Custom program, lighting projects contributed about 31% of the total ex ante energy savings in PY5. The number of records is presented by strata, along with ex ante gross kWh claimed, ex ante gross kW claimed, and the amount of incentive paid.

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

Table 2-3. EPY5 Custom Program Participation by Sampling Strata

Sampling Strata	Ex Ante kWh Impact Claimed	Ex Ante kW Impact Claimed	Tracking Records
1	10,808,947	562	3
2	21,157,423	1,058	23
3	14,685,739	1,228	111
TOTAL	46,652,108	2,848	137
Data Center	10,654,404	1,503	11
TOTAL	**57,306,512**	**4,351**	**148**

Source: Evaluation Team analysis

2.2.2 Gross Impact (M&V) Sample

The gross impact (M&V) sampling was conducted in two waves. For Wave 1, ComEd's tracking database extract dated April 9, 2013 (referred to as 4/9/2013) was used to select seven M&V sample points. Using the 4/9/2013 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. Data Centers were grouped in their own stratum, separately from the Custom measures. When the August 2, 2013 (referred to as 8/2/2013) extract became available for Wave 2 sampling, the strata boundaries defined on 4/9/2013 were preserved. This ensured that the Wave 1 sample remained representative of the projects installed before 4/9/2013, and that it could be easily combined with the additional Wave 2 sample to estimate EPY5 results. Thirteen additional M&V sample points were selected from the incremental projects installed between 4/9/2013 and 8/2/2013, 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 EPY5 evaluation plan.

The sampling strategy was designed to ensure that the number of Data Center projects in the M&V sample was proportional to the amount of savings from Data Centers in EPY5. Based on the EPY5 savings for the Custom program and the Data Centers program, the evaluation team selected 16 M&V points from the Custom program, and the remaining four M&V points from the Data Centers program. The Wave 1 sample consists of six M&V Custom points, one Data Center point, as well as backup points for contingency. The Wave 2 sample consists of 10 M&V Custom points, three Data Centers, as well as backup points for contingency.

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 Custom program population. Shown is the resulting sample that was drawn, which consists of 20 applications. These applications make up 26.8 million kWh of the ex ante impact claim, which represents 47% of the ex ante impact claim for the program population. Also shown is the ex ante-based kWh sample weights for each of three strata.

Table 2-4. EPY5 Custom Program Gross Impact Sample by Strata

Custom Population Summary				Impact Sample		
Sampling Strata	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	3	10,808,947	0.19	3	10,808,947	100%
2	23	21,157,423	0.37	7	7,374,007	35%
3	111	14,685,739	0.26	6	1,525,782	10%
TOTAL	137	46,652,108	-	16	19,708,736	42%
Data Centers	11	10,654,404	0.19	4	7,111,844	67%
TOTAL	**148**	**57,306,512**	**-**	**20**	**26,820,580**	**47%**

Source: Evaluation Team analysis

2.2.3 Telephone Surveys

Per the evaluation plan, the target for the participant surveys was 30 complete interviews for the Custom program and a census attempt for Data Center program in support of the evaluation verified net impact estimates and the process evaluation.

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 (or project components if the project yielded both Prescriptive and Custom savings). Because fewer Custom projects were completed compared to the Prescriptive Program, Custom projects were given preference over Prescriptive ones.

For Custom telephone surveys, 15 sample points were selected using the 4/9/2013 database extract, and 15 additional sample points were selected using the 8/2/2013 database extract. The telephone survey was conducted for the two waves yielding a total of 30 completed interviews. Also, an attempt was made to complete telephone surveys for all (20) EPY5 gross M&V sample points, yielding a nested sample of 12 points. All Data Centers participants (census attempt) were contacted for telephone surveys.

Profile of the Telephone Survey Sample

Table 2-5 summarizes the telephone interviews completed for Custom program and the Data Centers program in support of the EPY5 NTG and process analysis. The completed interviews represent 29.7 million kWh of ex ante impact claim, which is 52% of the ex ante impact claim of the total (Custom and Data Centers) program population.

Table 2-5. Profile of the EPY5 Telephone Survey Sample by Strata

Program Population Summary				Completed Interviews		
Sampling Strata	Number of Tracking Records (N)	Ex Ante kWh Impact Claimed	kWh Weights by Strata	Number of Tracking Records (n)	Ex Ante kWh	Sampled % of Population kWh
1	3	10,808,947	0.23	3	10,808,947	100%
2	23	21,157,423	0.45	8	7,556,067	36%
3	111	14,685,739	0.31	19	3,300,198	22%
TOTAL	137	46,652,108	-	30	21,665,211	46%
Data Centers	11	10,654,404	-	5	8,044,756	76%
TOTAL	**148**	**57,306,512**	**-**	**35**	**29,709,967**	**52%**

Source: Evaluation Team analysis

3. Gross Impact Evaluation

The evaluation team reviewed ComEd's tracking data extract to determine reported EPY5 ex ante gross savings. The Verified gross program impacts for the evaluation for the Custom program were developed based on the on-site visits and detailed M&V analysis for 20 projects.

3.1 Tracking System Review

To support the impact evaluation, the evaluation team was given direct access to ComEd's on-line tracking system and data. 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, while removing a step that commonly impedes evaluation progress: A data request for the very information that ComEd made available in the tracking database itself. This level of access and documentation is highly commendable and represents best practice in this area for a custom program.

The evaluation team worked off of a copy of the tracking system extract data uploaded by ComEd to their secure SharePoint site on a periodic basis. While working with the database, the most important issue for the evaluation team is consistency of the data.

Key findings include:

1. The Custom tracking database included projects from other programs; in many cases it was not immediately clear to which programs a given record belonged.
2. ComEd should ensure the measure field (Measure Number) within the tracking database identifies the program name so that the evaluation team and the program staff can clearly identify the projects from the Custom program vs. projects from other programs.

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 and detailed M&V analysis for 20 projects.

The EM&V team conducted research to validate the parameters that were not specified in the TRM. The results are shown in Table 3-1.

Table 3-1. Verified Gross Savings Parameters

Input Parameters	Value	Deemed or Evaluated?
Energy Savings Realization Rate	0.89	Evaluated
Peak Demand Savings Realization Rate	1.39	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.[4] 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.

The separate ratio estimation technique was used to estimate verified gross kWh savings for the Custom program. The separate ratio estimation technique follows the steps outlined in the California Evaluation Framework[5] 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 kWh. The results are summarized in Table 3-2, Table 3-3, and Table 3-4 below.

3.4 Verified Gross Program Impact Results

Based on the gross impact sample size of 20 projects in EPY5, the evaluation results yielded energy gross realization rate of 0.89 and demand gross realization rate of 1.39. The EPY5 program results are summarized in Table 3-2 and the results of each project are summarized in Table 3-3.

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	10,808,947	11,294,069	1.04	562	761	1.35
2	21,157,423	17,124,978	0.81	1,058	1,530	1.45
3	14,685,739	11,926,579	0.81	1,228	2,739	2.23
TOTAL	46,652,108	40,345,626	0.86	2,848	5,030	1.77
Data Centers	10,654,404	10,725,882	1.01	1,503	1,031	0.69
TOTAL	**57,306,512**	**51,071,508**	**0.89**	**4,351**	**6,061**	**1.39**

Source: Evaluation Team analysis

The EPY5 gross energy realization rate of 0.89 is higher than the EPY4 level of 0.80 which is a significant increase. The EPY5 energy gross realization rate of 0.89 is a very good result for a Custom program. Achieving such results for a Custom program is typically challenging since it involves complex calculations, challenging baseline selection issues and analysis of complex and/or emerging technologies. Therefore, EPY5 result the program achieved is very impressive since these challenging program aspects were addressed proficiently.

The primary reason for the significant improvement in gross energy realization rate for the EPY5 Custom program was due to the consistent baseline selection by the program. Baseline selection is typically the most challenging issue for a Custom program and this issue affected the program results in the previous program years. In EPY5, there were no baseline adjustments made by the evaluation

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

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

team for any of the evaluated projects, which shows a very adept effort by the program and contributed significantly to the improved program results. This was particularly demonstrated by the effort program made for project #12450 which involved a very unique industrial measure. For this project, the program conducted extensive research and also involved the evaluation team at an early stage and completed all the necessary steps requested before accepting the project application. The evaluation team also conducted independent research and found similar results and determined that the program effort was comprehensive for baseline selection. The evaluation team also found that the program is continuing to make similar efforts to select baselines for project involving new and complex technologies in EPY6.

EPY5 gross realization rate (RR) results indicate that stratum 2 (medium sized custom projects) and stratum 3 (smallest sized custom projects), which each have a RR of 0.81realized a lower proportion of the ex ante claims than stratum 1 (largest sized custom projects) with a RR of 1.04 and data centers stratum projects with a RR of 1.01. The lower realization rate for stratum 2 and stratum 3 is due to the program M&V activities being less rigorous and also because these lower strata were comprised of complex compressed air projects which pose greater challenge for accurate savings estimates.

Note that the evaluated sample size for EPY5 was 20 projects compared to the EPY4 sample size of 33 projects. The evaluation team believes the reduced sample size did not have any significant impact on the overall program results. The EPY5 projects evaluated were a good mix with a variety of end uses. The results across all the end uses have been good except for compressed air (RR = 0.58).

There were four projects sampled from the Data Centers program and the EPY5 gross energy realization for the Data Centers program is 1.01. This shows that the Data Centers program is off to a very good start and should continue using solid M&V practices for next program year where the measures and projects mix are expected to be more complex. Note that the Custom program EPY5 gross energy realization rate without the Data Centers program is 0.86 which still a very good result.

The EPY5 demand realization rate of 1.39 is significantly higher than the EPY4 level of 0.92. However, note that only 15 out of 20 projects in the impact sample had non-zero ex ante claimed savings. The estimation of program demand realization rate and precision around the peak demand realization rate is based on non-zero kW estimates. This led to less sample-based coverage for demand realization rate estimates in comparison with energy realization rate coverage and also affected the precision around the peak demand results at the project level. The EPY5 peak demand savings realization rate results ranged from 0.48 to 17.27 which show a very large variation in realization rates across projects. For 12 out of the 15 projects, the gross peak demand RR was different from 1.0: nine projects had greater than 1.0 and three projects had less than 1.0. For two projects the RR was particularly very high: the realization rate for project #16105 is 6.58 and project #11473 is 17.27 which indicate program peak demand savings estimates were inaccurately modeled for these projects (the energy gross RR for project #16105 is 0.48 and project #11473 is 0.96). Without these two projects the RR ranged from 0.48 to 1.69. Overall the peak demand calculations were not as consistent or accurately modeled as the energy savings calculations. The wide range of variation in the evaluated gross peak demand realization rates also affected the precision around the peak demand results.

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
10990	3,873,639	0	1	0.36	4,435,055	0.00	1.14	-	1.04	1.35
14357	3,223,191	320	1	0.30	3,161,590	352.20	0.98	1.10		
12450	3,712,117	242	1	0.34	3,697,424	408.65	1.00	1.69		
8692	751,852	0	2	0.10	655,728	19.60	0.87	-	0.81	1.45
11473	1,606,106	12	2	0.22	1,540,130	207.20	0.96	17.27		
17932	513,406	59	2	0.07	513,406	58.60	1.00	1.00		
15941	654,698	27	2	0.09	612,028	27.12	0.93	1.00		
18197	533,472	46	2	0.07	424,071	51.20	0.79	1.11		
18405	1,231,693	141	2	0.17	776,617	90.46	0.63	0.64		
13870	2,082,779	132	2	0.28	1,446,597	162.78	0.69	1.24		
15506	33,691	0	3	0.02	44,214	14.30	1.31	-	0.81	2.23
15268	412,036	0	3	0.27	394,931	43.90	0.96	-		
15224	120,583	10	3	0.08	107,211	14.57	0.89	1.46		
17930	481,918	58	3	0.32	465,311	58.09	0.97	1.00		
16105	456,881	4	3	0.30	220,962	26.90	0.48	6.58		
17772	20,674	0	3	0.01	6,489	3.00	0.31	-		
11355	1,616,411	188	DC	0.23	1,465,117	170.50	0.91	0.90	1.01	0.69
15610	3,512,587	983	DC	0.49	3,176,728	473.30	0.90	0.48		
17153	565,718	65	DC	0.08	689,289	93.40	1.22	1.45		
15494	1,417,128	162	DC	0.20	1,828,422	221.20	1.29	1.37		
TOTAL	**26,820,580**	**2,448**	**-**	**NA**	**25,661,320**	**2,497**	**NA**	**NA**	**0.89**	**1.39**

Source: Evaluation Team analysis

The relative precision for the gross impact results at one-tailed 90% confidence level is ± 6% for the kWh Realization Rate and ± 39% for the kW Realization Rate. The evaluation kWh Realization Rate precision of ± 6% is better than the evaluation targeted kWh Realization Rate precision of ± 10% at one-tailed 90% confidence level. From the five projects for which the program reported zero kW savings, evaluation found savings for four projects, assuming that the kW savings were reported for these four projects, the kW Realization Rate precision would have been 14%.

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

Stratum	Relative Precision ± %	Low	Mean	High
Stratum 1	0%	1.04	1.04	1.04
Stratum 2	8%	0.74	0.81	0.88
Stratum 3	20%	0.65	0.81	0.97
Custom kWh RR	7%	0.81	0.86	0.92
Data Centers	9%	0.91	1.01	1.10
EPY5 kWh RR	**6%**	**0.84**	**0.89**	**0.94**

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%	1.35	1.35	1.35
Stratum 2	40%	0.86	1.45	2.03
Stratum 3	83%	0.39	2.23	4.07
Custom kW RR	47%	0.94	1.77	2.59
Data Centers	21%	0.54	0.69	0.83
EPY5 kW RR	**39%**	**0.85**	**1.39**	**1.94**

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:

- For lighting Projects #15224, and #17772, evaluation findings for hours of operation differed substantially from ex ante estimates, which reduced the realized savings.

- For compressed air projects #18405, #18197 and #16105, the evaluation calculations adjusted the errors and the incorrect assumptions identified in the ex ante calculations which resulted in reduction of realized savings.
- For project #13870, the floating head pressure control measure was claimed to be installed as part of the project, but the evaluation team found that the measure was not installed. Therefore, there were no savings associated with floating head pressure controls measure which reduced total project savings.
- For project #11473 and #16105, the peak demand savings in the ex ante analysis were incorrectly estimated. The ex post analysis estimated the peak demand savings consistent with the PJM requirements which led to significant increase in realized savings (the kW Realization Rates for Project #16105 is 6.58 and Project #11473 is 17.27).
- The evaluation energy savings were affected due to errors identified in the program calculations for Project #10990. The primary cause of the discrepancy is that the ex ante calculations inadvertently missed the baseline energy usage kWh for the month of November. This error was corrected in the evaluation calculations which led to an increase in realized savings.
- For project #8692, the evaluation savings were reduced due to a change in baseline conditions. It was discovered that the equipment in place during at the time of the pre retrofit metering period did not match the equipment in place at the time of the ex ante verification.
- For project #15506, the primary reason for the difference between energy savings kWh for the ex post and ex ante results is the difference in assumed lighting interactive savings.
- For projects #8692, #17930 and #11355, the evaluation found there were changes in operation conditions compared to ex ante analysis reported operating conditions which affected the realized savings.
- For process cooling projects #11473 and #8692, production data was not collected to verify the accuracy of the ex-ante savings.
- For Data Center projects #17153, and #15610, regression analysis was not accurately modeled. The R^2 value of an acceptable regression model should be above 0.75 and even then the model should be reviewed for technical reasonability.
- For Data Center project #15494, the ex ante analysis estimated savings assuming that a correlation exists between IT load usage and fan power usage without performing regression analysis. The evaluation team performed regression analysis and found that no correlation exists between IT load usage and fan power usage. Therefore, evaluation calculations estimated fan power savings independent of the IT load usage which led to an increase in the realized savings.

4. Net Impact Evaluation

As discussed previously, the EPY5 energy NTGR value used to calculate evaluation verified savings are deemed values, derived from the EPY3 evaluation as defined through a consensus process through SAG as documented in a spreadsheet.[6] The EPY5 demand NTGR value is also derived from the EPY3 evaluation results and the evaluation team believes it is a reasonably representative value. The EPY3 energy saving NTGR is 0.56 and demand savings NTGR is 0.46.

Table 4-1. Verified Net Savings Parameters

Input Parameters	Value	Deemed or Evaluated?
Energy Savings NTGR	0.56	Deemed
Peak Demand Savings NTGR	0.46	Evaluated (derived from EPY3 evaluation results)

Source: Evaluation Team analysis.

4.1.1 Evaluation Verified Net Program Impact Results

Net program impacts were derived by multiplying EPY5 Evaluation Research Findings Gross program savings by the deemed EPY5 Net-to-Gross Ratio (NTGR). Table 4-2 and Table 4-3 provide the program-level Evaluation-Verified net impact results for the EPY5 Industrial Systems Study 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 0.89, and the realization rate for demand is 1.39.

Table 4-2. Program-Level Evaluation Net kWh Impacts for EPY5

Sampling Strata	Ex Ante Gross kWh	Evaluation Verified Gross kWh	kWh RR	Evaluation Verified Net kWh	Deemed NTGR
1	10,808,947	11,294,069	1.04	6,324,679	0.56
2	21,157,423	17,124,978	0.81	9,589,988	0.56
3	14,685,739	11,926,579	0.81	6,678,884	0.56
TOTAL	46,652,108	40,345,626	0.86	22,593,550	0.56
Data Centers	10,654,404	10,725,882	1.01	6,006,494	0.56
TOTAL	**57,306,512**	**51,071,508**	**0.89**	**28,600,044**	**0.56**

Source: Evaluation Team analysis

[6] http://ilsagfiles.org/SAG_files/Meeting_Materials/2013/August 5-6, 2013 Meeting/ComEd PY5-PY6 Proposal Comparisons with SAG.xls, which is to be found on the IL SAG web site at http://ilsag.info.

Table 4-3. Program-Level Evaluation Net kW Impacts for EPY5

Sampling Strata	Ex Ante Gross kW	Evaluation Verified Gross kW	kW RR	Evaluation Verified Net kW	NTGR[7]
1	562	761	1.35	350	0.46
2	1,058	1,530	1.45	704	0.46
3	1,228	2,739	2.23	1260	0.46
TOTAL	2,848	5,030	1.77	2,314	0.46
Data Centers	1,503	1,031	0.69	474	0.46
TOTAL	**4,351**	**6,061**	**1.39**	**2,788**	**0.46**

Source: Evaluation Team analysis

[7] The EPY5 demand NTGR value is derived from the EPY3 evaluation results.

5. Process Evaluation

The process evaluation of the EPY5 Custom and Data Centers programs assessed process changes, including changes to how custom projects are evaluated from an engineering standpoint, and a new offer allowing customers to receive a guaranteed incentive. The evaluation explored the impact of ComEd bringing the engineering review of custom projects in-house from the perspective of program administration staff, engineering staff, and customers. We reviewed custom program data and talked to customers about their knowledge of or experience with the "Early Commitment" incentive option that offers customers a lower incentive in exchange for a guarantee that it will not change after the final application review (provided the customer does not change the scope of the project). We also reviewed the Data Center program operations from the perspective of customers and program staff. Data sources for the process evaluation include Custom program participant surveys (n=26[8]), Data Center participant interviews (n=4[9]), ComEd program manager interviews (n=2), implementation contractor interviews (n=2), in-depth interviews of ComEd engineering staff (n=3), and in-depth interviews with customers that participated in the "Early Commitment" option (n=1). In addition, we leveraged the cross-cutting process evaluation activities where feasible, by adding questions about the Custom program to the cross-cutting trade ally survey (n=60[10]).

5.1 Process Changes from EPY4 to EPY5

One of the challenges facing customers in the Smart Ideas Custom offering is that the final incentive is determined at the time of project completion. Customers do receive a reservation letter at the start of the project, but the amount of funding they receive is subject to change at the engineering review completed during the final application stage. Occasionally customers will receive a much lower incentive than what was in the original reservation letter, and this can lead to program dissatisfaction. Two recent process changes were initiated, in part, to address this issue. First, ComEd brought the project engineering review in-house to be completed by ComEd engineers, as opposed to implementation contractors. Second, ComEd began offering an "Early Commitment" incentive. This is a slightly lower incentive that is guaranteed not to change between the reservation and final application stage, provided the customer does not change the project scope.

[8] The participant surveys completed for Custom program included 30 interviews. Of those, interviews with the four largest customers (stratum 1 projects) were conducted by senior staff. For the four large customer interviews, customers were asked about the strengths and weaknesses of the program instead of receiving the entire process battery due to prioritization of net impact findings. Twenty-six participants received the process battery.

[9] The participant surveys completed for the Data Center program included 5 interviews. Of those, interviews with the one largest customer (stratum 1) was conducted by senior staff. This customer was asked about the strengths and weaknesses of the program instead of receiving the entire process battery due to prioritization of net impact findings. Four participants received the process battery.

[10] A total of 60 trade allies were interviewed, of those 14 reported completing custom projects. All 60 were asked about their knowledge of the custom program.

5.2 Customer Satisfaction

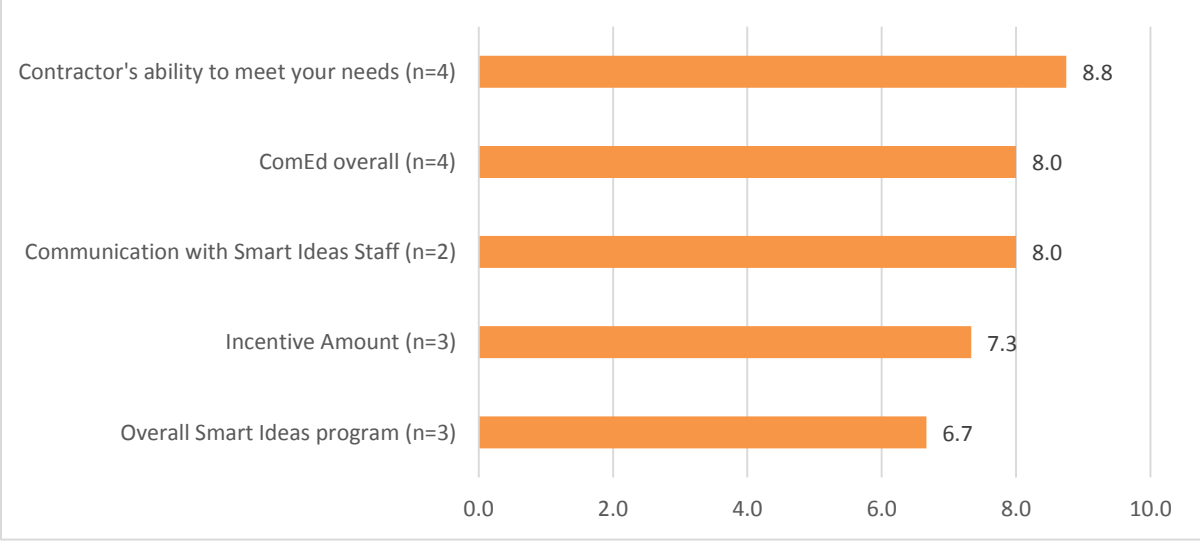
Customers are highly satisfied with the Custom program. Figure 5-1 shows customer satisfaction with various elements of the Custom program; contractors scored the highest (8.6 on a 0-10 point scale), and the Call Center scored the lowest, with a mean score of 6.8. Most Custom participants (77%) indicated that they plan to participate again in the future.

Figure 5-1. Custom Participant Satisfaction with Program Elements

Source: Customer survey

Figure 5-2 shows the satisfaction levels for the four Data Center program participants we interviewed.

Figure 5-2. Data Center Participant Satisfaction with Program Elements

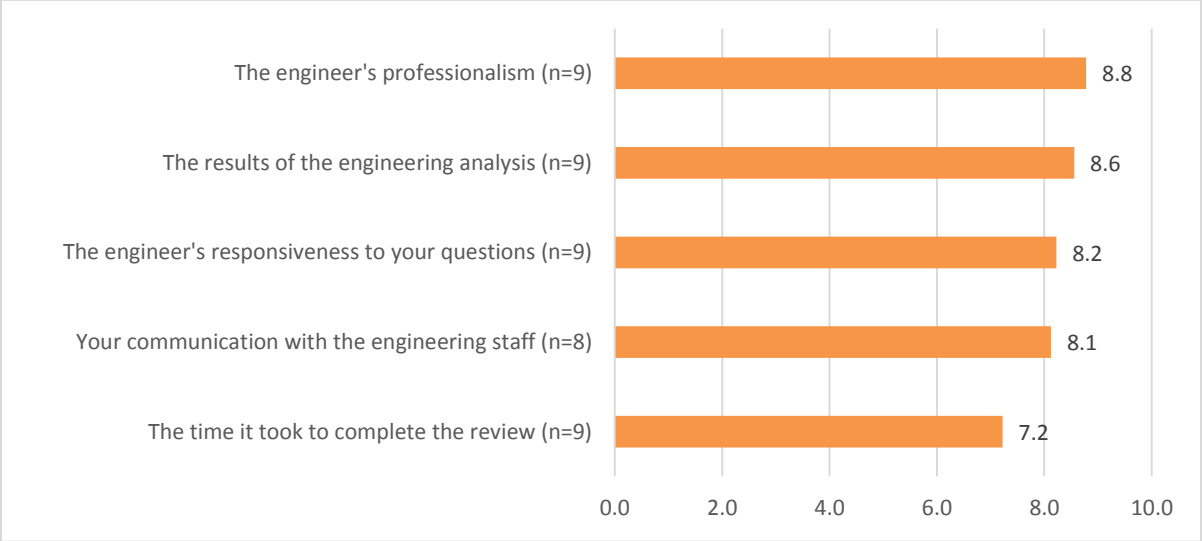


Source: Customer survey

Customers who said they worked with a Smart Ideas engineer (n=9) in EPY5 reported high levels of satisfaction with the engineering review. The highest-scoring aspect was the engineer's

professionalism (8.8 on a 0-10 scale), and the lowest-scoring element was the time it took to complete the review (7.2 on a 0-10 scale). Figure 5-3 below shows the full satisfaction scores related to the engineering review.

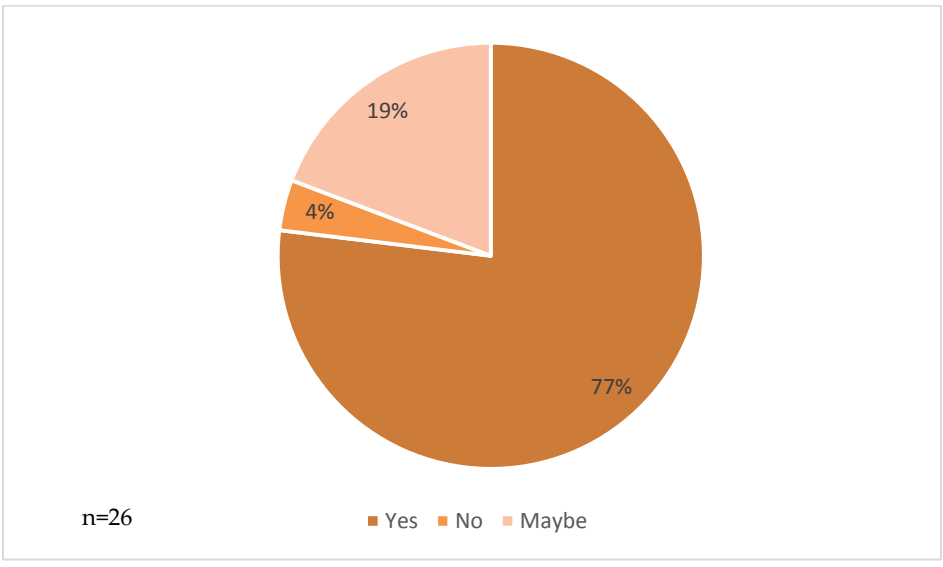
Figure 5-3. Participant Satisfaction with Engineering Review (Custom Participants)*



Source: Customer survey
** Only includes participants that indicated they worked with a program engineer*

Most Custom participants (77%) indicated that they plan to participate again in the future (see Figure 5-4).

Figure 5-4. Do You Plan to Participate in the Custom Program in the Future?

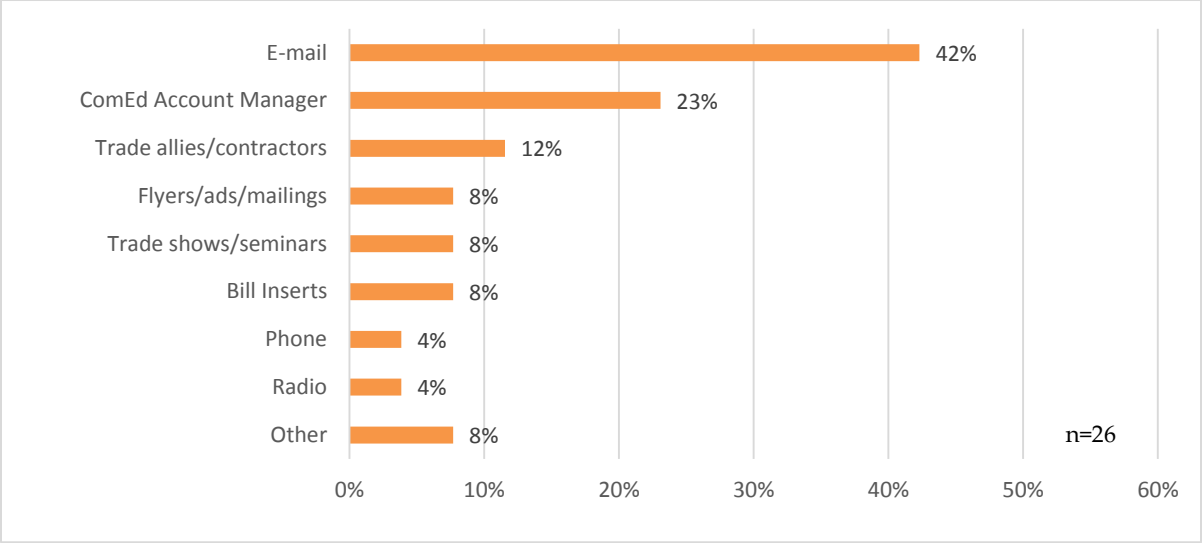


Source: Customer survey

5.3 Program Marketing

Participants most commonly reported email (42%), ComEd account managers (23%), and trade allies and contractors (12%) as the best ways to reach them about energy efficiency opportunities, as shown in Figure 5-5. The majority (61%) of customers found marketing related to the Smart Ideas program to be somewhat useful. Usefulness of program marketing received an average rating of 5.8 on a 0-10 scale which does leave room for improvement.

Figure 5-5. Best Ways to Reach Customers (Custom Participants)



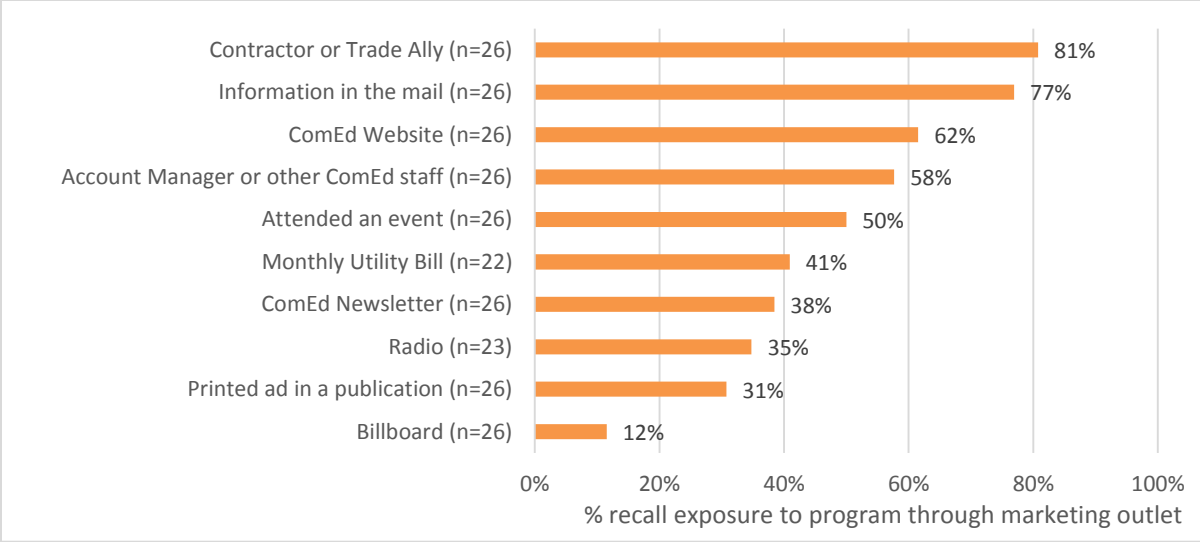
Source: Customer survey

Only three customers took advantage of the Early Commitment Option in EPY5. We were able to interview one of these customers, and he reported not being aware of the decision to opt for the lower incentive, and speculated that the trade ally who filled out the paperwork actually made the decision. Indeed, eight out of nine Custom participants that were asked about the Early Commitment Option were unaware of it.

5.4 Trade Allies

ComEd works with trade allies to identify and funnel projects into the appropriate Smart Ideas project categories. Trade allies are an important driver of program participation across all of the Smart Ideas program elements. As shown in Figure 5-6, 81% of the Custom participants we interviewed reported hearing about Smart Ideas from their contractor or trade ally.

Figure 5-6. Participant familiarity with Smart Ideas marketing (custom participants)

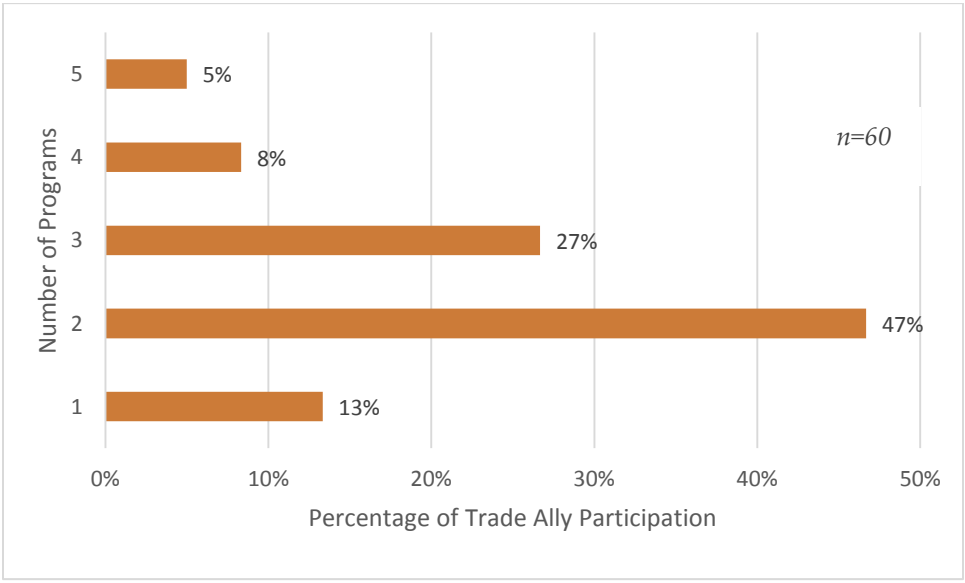


Source: Customer survey

All of the Data Center participants reported discussing the program with their trade ally or vendor, and three of the four mentioned their ComEd account manager.

Trade allies tend to participate in multiple programs as demonstrated in Figure 5-7 below. Almost half of the trade allies report participating in two or more program elements, and 40% report participating in three or more.

Figure 5-7. Count of programs in which Trade Allies participate



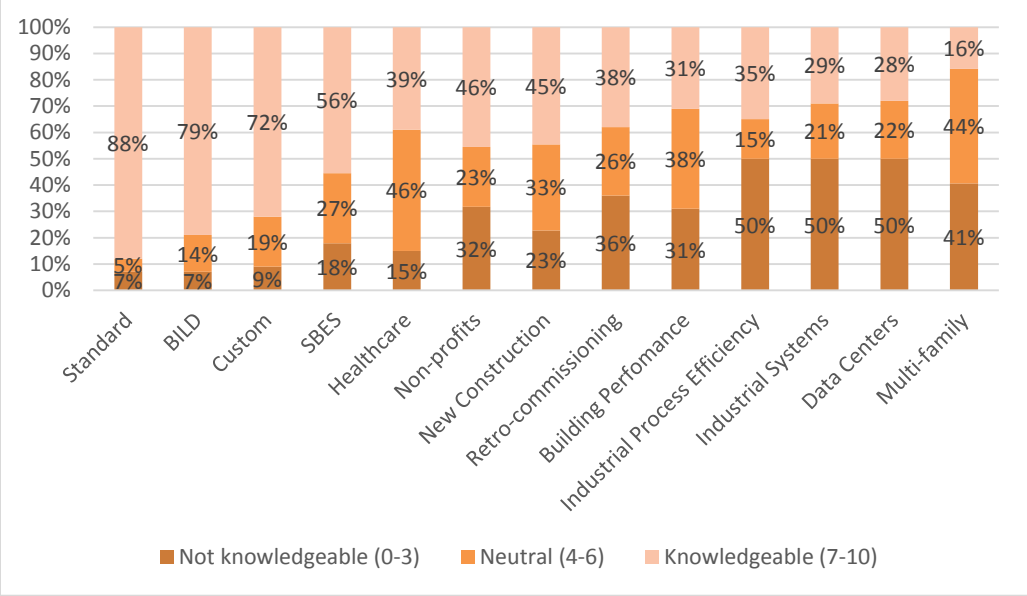
Source: Trade ally survey

ComEd has multiple program implementers, and each implementer manages its own trade ally network. For Custom and for Data Center program projects, the trade ally network is essentially

"open," meaning customers do not have to use a prequalified ally. For data centers, customers can also apply for a data center assessment to identify energy-saving opportunities. These assessments must be provided by qualified "technical service providers" (TSPs) that are selected by Willdan through a competitive RFP process.

The Custom program element was launched in EPY1, and trade allies ranked it third in terms of awareness, with 72% of trade allies indicating they are knowledgeable about the Custom program (see Figure 5-8). Only 28% of trade allies said they were knowledgeable about the Data Center program offering.

Figure 5-8. Trade Allies' level of knowledge of Smart Ideas program elements



Source: Trade ally survey

6. Conclusions and Recommendations

The EPY5 gross energy realization rate of 0.89 is higher than the EPY4 level of 0.80 which is a significant increase. The EPY5 energy gross realization rate of 0.89 is a very good result for a Custom program. Achieving such results for a Custom program is typically challenging since it involves complex calculations, challenging baseline selection issues and analysis of complex and/or emerging technologies. Therefore, EPY5 result the program achieved is very impressive since these challenging program aspects were addressed proficiently.

The primary reason for the significant improvement in gross energy realization rate for the EPY5 Custom program was due to the consistent baseline selection by the program. Baseline selection is typically the most challenging issue for a Custom program and this issue affected the program results in the previous program years. In EPY5, there were no baseline adjustments made for any of the evaluated projects by the evaluation team which shows a very adept effort by the program and contributed significantly to the improved program results. These results demonstrate that the program M&V methods have improved since EPY4.

There were four projects sampled from the Data Centers program and the EPY5 gross energy realization for the Data Centers program is 1.01. This shows that the Data Centers program is off to a very good start and should continue using solid M&V practices for next program year where the measures and projects mix are expected to be more complex.

The EPY5 demand realization rate of 1.39 is significantly higher than the EPY4 level of 0.92. However, note that only 15 out of 20 projects in the impact sample had non-zero ex ante claimed savings. The estimation of program demand realization rate and precision around the peak demand realization rate is based on non-zero kW estimates. This led to less sample-based coverage for demand realization rate estimates in comparison with energy realization rate coverage and also affected the precision around the peak demand results at the project level.

Key evaluation findings and recommendations include the following:

Demand Savings Estimates

Finding 1. Overall the program peak demand calculations were not as consistent or accurately modeled as the program energy savings calculations. For two projects the gross demand realization rate was particularly high: the realization rate for project #16105 is 6.58 and project #11473 is 17.27 (the energy gross RR for project #16105 is 0.48 and project #11473 is 0.96) which indicate program peak demand savings estimates were inaccurately modeled for these projects. The wide range of variation in the evaluated project level gross peak demand realization rates also affected the precision around the peak demand results.

Recommendation 1.a. The program should estimate peak kW savings based on the actual verified site specific operating conditions for the installed measure.

Recommendation 1.b. Program calculations should not report low peak kW savings using a conservative calculation method without a strong technical basis. The program should provide a solid technical rationale in support of the conservative calculation method used for estimating peak kW savings.

Finding 2. Program peak kW estimates were set to zero for four sampled projects for which evaluation found non-zero savings. Additionally, the peak kW calculations were not always consistent with PJM requirements (e.g. Project #15506).

Recommendation 2. Calculate peak kW savings for all projects and ensure that the estimated savings meet PJM peak demand calculation requirements for weather and non-weather dependent projects.

Improvements to Custom Ex-Ante Savings Calculations

Finding 3. For small lighting projects, the programs' estimation of operating hours was found to be inaccurate (e.g., Projects #17772 and #15224).

Recommendation 3. Given the large number of lighting projects in the program, it is critical that the methods used by the program for estimating customer self-reported operating hours are thorough. For small lighting projects, where no measurements are performed for estimating operating hours, interviews with multiple facility staff should be conducted to verify customer self-reported operating hours. The source for the estimated lighting operating hours should be clearly reported within each project file.

Finding 4. For compressed air projects, the individual air compressor curves or the compressed air system curves used for estimating savings were not representative (e.g., Projects #16105, #18405 and #18197).

Recommendation 4. The program calculation should ensure the individual air compressor curves or the compressed air system curves used are consistent with operating air compressors and controls. The program should conduct in-depth reviews to verify the accuracy of the savings calculation models. Use more rigorous quality control methods such as senior engineers performing reality checks to verify reasonability or technical feasibility of the estimated savings to reduce errors in ex ante calculations.

Production Data Collection and Analysis

Finding 5. The program did not collect production data for process equipment (e.g., process cooling and compressed air) in support of the savings calculations. Without the production data for the pre-metering period, post-metering period and annual observed production, some related amount of uncertainty in the final savings estimates is expected.

Recommendation 5. The program should collect production data for process equipment. Since production data is a critical parameter that impacts savings calculations for process equipment, gathering production data for each completed project would significantly increase the accuracy of savings estimates.

Improvements to Data Centers Ex-Ante Savings Calculations

Finding 6. For estimating savings, the program-developed regression models were not representative and had low correlations (e.g., #15494, #15610 and #17153).

Recommendation 6. When regression models are being developed the correlation between independent variables and the dependent variable should have an R^2 value better than 0.75 consistent with IPMVP guidelines. Establish the correlation between IT load and power (kW) usage for savings normalization.

Finding 7. The program estimated savings due to the interactive effects using an assumed system efficiency that was not a conservative estimate (e.g., #11355).

Recommendation 7. The program should use the main cooling equipment efficiency such as chiller efficiency for estimating savings due to the interactive effects. If plant efficiency is

used then it should be verified that the auxiliary equipment savings (e.g., fans, pumps) actually exist. Typically plant efficiency is not easily verifiable so the conservative approach would be to use the main cooling unit efficiency instead of plant efficiency. The auxiliary equipment savings due to the installed measure if verified (e.g., reduced pump flows) should be claimed separately.

Program Marketing

Finding 8. Custom program customers rated ComEd's program marketing somewhat low (a 5.8 on a scale of 10).

Recommendation 8. ComEd should continue, if not increase, email marketing to customers as well as outreach to customers through the ComEd account managers.

Early Commitment Offering

Finding 9. Only three customers took advantage of the new "Early Commitment" (EC) option in EPY5. The majority of customers are unaware of the EC option. Indeed, eight out of nine Custom participants that were asked about the EC option were unaware of it.

Recommendation 9. In addition to increasing general marketing through email and ComEd account managers, as mentioned earlier, ComEd should specifically focus on increasing awareness of the EC offering among both trade allies and customers.

Program Satisfaction

Finding 10. Program satisfaction is high among participants, with 77% reporting that they plan to participate in the program again in the future. The lowest-ranking program element related to the Call Center's ability to answer questions (6.8 on a 0-10 scale). This could be because Custom projects can be somewhat more complicated than others, and questions related to Custom projects may require an engineer.

Recommendation 10. We recommend that Call Center staff be trained to identify Custom projects and pass them to engineering staff as soon as possible.

Custom In-House Engineering Review

Finding 11. Under the new EPY5 application review process, ComEd engineers are responsible for both the initial pre-approval and the final assessment of each project incented by the program. Customers in EPY5 reported high levels of satisfaction with the engineering review. The highest-scoring aspect was the engineer's professionalism (8.8 on a 0-10 scale), and the lowest-scoring element was the time it took to complete the review (7.2 on a 0-10 scale). One reviewing engineer interviewed suggested smaller projects that produce less savings for the program often require just as much engineering, and smaller customers are often less responsive.

Recommendation 11. ComEd can consider prioritizing resources for reviewing projects by their size and complexity such that more resources are spent for reviewing large/mid-size projects compared to the smaller projects.

Trade Ally Participation

Finding 12. Only 28% of trade allies said they were knowledgeable about the Data Center program offering. Although not all trade allies will work with Data Center customers, it is important that they be aware of the program.

Recommendation 12. ComEd should increase marketing of the Data Center program to trade allies.

7. Appendix

7.1 Glossary

High Level Concepts

Program Year

- EPY1, EPY2, etc. Electric Program Year where EPY1 is June 1, 2008 through May 31, 2009, EPY2 is June 1, 2009 through May 31, 2010, etc.
- GPY1, GPY2, etc. Gas Program Year where GPY1 is June 1, 2011 through May 31, 2012, GPY2 is June 1, 2012 through May 31, 2013.

There are two main tracks for reporting impact evaluation results, called Verified Savings and Impact Evaluation Research Findings.

Verified Savings composed of

- Verified Gross Energy Savings
- Verified Gross Demand Savings
- Verified Net Energy Savings
- Verified Net Demand Savings

These are savings using deemed savings parameters when available and after evaluation adjustments to those parameters that are subject to retrospective adjustment for the purposes of measuring savings that will be compared to the utility's goals. Parameters that are subject to retrospective adjustment will vary by program but typically will include the quantity of measures installed. In EPY5/GPY2 the Illinois TRM was in effect and was the source of most deemed parameters. Some of ComEd's deemed parameters were defined in its filing with the ICC but the TRM takes precedence when parameters were in both documents.
Application: When a program has deemed parameters then the Verified Savings are to be placed in the body of the report. When it does not (e.g., Business Custom, Retrocommissioning), the evaluated impact results will be the Impact Evaluation Research Findings.

Impact Evaluation Research Findings composed of

- Research Findings Gross Energy Savings
- Research Findings Gross Demand Savings
- Research Findings Net Energy Savings
- Research Findings Net Demand Savings

These are savings reflecting evaluation adjustments to any of the savings parameters (when supported by research) regardless of whether the parameter is deemed for the verified savings analysis. Parameters that are adjusted will vary by program and depend on the specifics of the research that was performed during the evaluation effort.
Application: When a program has deemed parameters then the Impact Evaluation Research Findings are to be placed in an appendix. That Appendix (or group of appendices) should be labeled Impact Evaluation Research Findings and designated as "ER" for short. When a program does not have deemed parameters (e.g., Business Custom, Retrocommissioning), the Research Findings are to be in the body of the report as the only impact findings. (However, impact findings may be summarized in the body of the report and more detailed findings put in an appendix to make the body of the report more concise.)

Program-Level Savings Estimates Terms

N	Term Category	Term to Be Used in Reports‡	Application†	Definition	Otherwise Known As (terms formerly used for this concept)§
1	Gross Savings	Ex-ante gross savings	Verification and Research	Savings as recorded by the program tracking system, unadjusted by realization rates, free ridership, or spillover.	Tracking system gross
2	Gross Savings	Verified gross savings	Verification	Gross program savings after applying adjustments based on evaluation findings for only those items subject to verification review for the Verification Savings analysis	Ex post gross, Evaluation adjusted gross
3	Gross Savings	Verified gross realization rate	Verification	Verified gross / tracking system gross	Realization rate
4	Gross Savings	Research Findings gross savings	Research	Gross program savings after applying adjustments based on all evaluation findings	Evaluation-adjusted ex post gross savings
5	Gross Savings	Research Findings gross realization rate	Research	Research findings gross / ex-ante gross	Realization rate
6	Gross Savings	Evaluation-Adjusted gross savings	Non-Deemed	Gross program savings after applying adjustments based on all evaluation findings	Evaluation-adjusted ex post gross savings
7	Gross Savings	Gross realization rate	Non-Deemed	Evaluation-Adjusted gross / ex-ante gross	Realization rate
1	Net Savings	Net-to-Gross Ratio (NTGR)	Verification and Research	1 – Free Ridership + Spillover	NTG, Attribution
2	Net Savings	Verified net savings	Verification	Verified gross savings times NTGR	Ex post net
3	Net Savings	Research Findings net savings	Research	Research findings gross savings times research NTGR	Ex post net
4	Net Savings	Evaluation Net Savings	Non-Deemed	Evaluation-Adjusted gross savings times NTGR	Ex post net
5	Net Savings	Ex-ante net savings	Verification and Research	Savings as recorded by the program tracking system, after adjusting for realization rates, free ridership, or spillover and any other factors the program may choose to use.	Program-reported net savings

‡ "Energy" and "Demand" may be inserted in the phrase to differentiate between energy (kWh, Therms) and demand (kW) savings.

† **Verification** = Verified Savings; **Research** = Impact Evaluation Research Findings; **Non-Deemed** = impact findings for programs without deemed parameters. We anticipate that any one report will either have the first two terms or the third term, but never all three.

§ Terms in this column are not mutually exclusive and thus can cause confusion. As a result, they should not be used in the reports (unless they appear in the "Terms to be Used in Reports" column).

Individual Values and Subscript Nomenclature

The calculations that compose the larger categories defined above are typically composed of individual parameter values and savings calculation results. Definitions for use in those components, particularly within tables, are as follows:

Deemed Value – a value that has been assumed to be representative of the average condition of an input parameter and documented in the Illinois TRM or ComEd's approved deemed values. Values that are based upon a deemed measure shall use the superscript "D" (e.g., delta watts^{D}, HOU-Residential^{D}).

Non-Deemed Value – a value that has not been assumed to be representative of the average condition of an input parameter and has not been documented in the Illinois TRM or ComEd's approved deemed values. Values that are based upon a non-deemed, researched measure or value shall use the superscript "E" for "evaluated" (e.g., delta watts^{E}, HOU-Residential^{E}).

Default Value – when an input to a prescriptive saving algorithm may take on a range of values, an average value may be provided as well. This value is considered the default input to the algorithm, and should be used when the other alternatives listed for the measure are not applicable. This is designated with the superscript "DV" as in X^{DV} (meaning "Default Value").

Adjusted Value – when a deemed value is available and the utility uses some other value and the evaluation subsequently adjusts this value. This is designated with the superscript "AV" as in X^{AV}

Glossary Incorporated From the TRM

Below is the full Glossary section from the TRM Policy Document as of October 31, 2012[11].

Evaluation: Evaluation is an applied inquiry process for collecting and synthesizing evidence that culminates in conclusions about the state of affairs, accomplishments, value, merit, worth, significance, or quality of a program, product, person, policy, proposal, or plan. Impact evaluation in the energy efficiency arena is an investigation process to determine energy or demand impacts achieved through the program activities, encompassing, but not limited to: *savings verification*, *measure level research*, and *program level research*. Additionally, evaluation may occur outside of the bounds of this TRM structure to assess the design and implementation of the program.

Synonym: **Evaluation, Measurement and Verification (EM&V)**

> **Measure Level Research**: An evaluation process that takes a deeper look into measure level savings achieved through program activities driven by the goal of providing Illinois-specific research to facilitate updating measure specific TRM input values or algorithms. The focus of this process will primarily be driven by measures with high savings within Program Administrator portfolios, measures with high uncertainty in TRM input values or algorithms (typically informed by previous savings verification activities or program level research), or measures where the TRM is lacking Illinois-specific, current or relevant data.
>
> **Program Level Research**: An evaluation process that takes an alternate look into achieved program level savings across multiple measures. This type of research may or may not be

[11] IL-TRM_Policy_Document_10-31-12_Final.docx

specific enough to inform future TRM updates because it is done at the program level rather than measure level. An example of such research would be a program billing analysis.

Savings Verification: An evaluation process that independently verifies program savings achieved through prescriptive measures. This process verifies that the TRM was applied correctly and consistently by the program being investigated, that the measure level inputs to the algorithm were correct, and that the quantity of measures claimed through the program are correct and in place and operating. The results of savings verification may be expressed as a program savings realization rate (verified ex post savings / ex ante savings). Savings verification may also result in recommendations for further evaluation research and/or field (metering) studies to increase the accuracy of the TRM savings estimate going forward.

Measure Type: Measures are categorized into two subcategories: custom and prescriptive.

Custom: Custom measures are not covered by the TRM and a Program Administrator's savings estimates are subject to retrospective evaluation risk (retroactive adjustments to savings based on evaluation findings). Custom measures refer to undefined measures that are site specific and not offered through energy efficiency programs in a prescriptive way with standardized rebates. Custom measures are often processed through a Program Administrator's business custom energy efficiency program. Because any efficiency technology can apply, savings calculations are generally dependent on site-specific conditions.

Prescriptive: The TRM is intended to define all prescriptive measures. Prescriptive measures refer to measures offered through a standard offering within programs. The TRM establishes energy savings algorithm and inputs that are defined within the TRM and may not be changed by the Program Administrator, except as indicated within the TRM. Two main subcategories of prescriptive measures included in the TRM:

Fully Deemed: Measures whose savings are expressed on a per unit basis in the TRM and are not subject to change or choice by the Program Administrator.

Partially Deemed: Measures whose energy savings algorithms are deemed in the TRM, with input values that may be selected to some degree by the Program Administrator, typically based on a customer-specific input.

In addition, a third category is allowed as a deviation from the prescriptive TRM in certain circumstances, as indicated in Section 3.2:

Customized basis: Measures where a prescriptive algorithm exists in the TRM but a Program Administrator chooses to use a customized basis in lieu of the partially or fully deemed inputs. These measures reflect more customized, site-specific calculations (e.g., through a simulation model) to estimate savings, consistent with Section 3.2.

7.2 Detailed Net Impact Results

7.2.1 Free-Ridership

The evaluation calculated the free ridership rate using self-report surveys with EPY5 participants. The calculation of the program's Net-to-Gross Ratio (NTGR) is a multi-step process. The NTGR was assessed using a customer self-report approach using data collected during participant phone surveys. The survey covers a battery of questions used to assess the net-to-gross ratio for a specific project. Responses from the survey are used to calculate a Program Components score, a Program Influence score and a No-Program score for each project covered through the survey. 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. Furthermore, telephone surveys were completed for a total of 35 projects to address evaluation process and net-to-gross objectives in EPY5. An attempt was made to complete telephone surveys for all (20) EPY5 gross M&V sample points, yielding a nested sample of 12 points. The EPY5 project-specific NTGRs are shown in Table 7-1.

Table 7-1. EPY5 NTGR Results for the Selected Custom Sample

Project ID*	Sampling stratum	Project Specific NTGR	Sample-Based Research Findings kWh NTGR	Sample-Based Research Findings kW NTGR
EPY5 – 01**	1	0.80	0.68	0.63
EPY5 – 02**	1	0.64		
EPY5 – 03**	1	0.60		
EPY5 - 04	2	0.59	0.65	0.57
EPY5 – 05**	2	0.13		
EPY5 – 06**	2	0.92		
EPY5 - 07	2	0.50		
EPY5 - 08	2	0.10		
EPY5 – 09**	2	0.81		
EPY5 – 10**	2	0.67		
EPY5 – 11**	2	0.88		
EPY5 – 12**	3	0.57	0.61	0.51
EPY5 - 13	3	0.63		
EPY5 - 14	3	0.72		
EPY5 - 15	3	0.05		
EPY5 - 16	3	0.50		
EPY5 - 17	3	0.53		
EPY5 - 18	3	0.88		
EPY5 - 19	3	0.70		
EPY5 - 20	3	0.67		
EPY5 - 21	3	0.97		
EPY5 - 22	3	0.70		
EPY5 - 23	3	0.40		
EPY5 - 24	3	0.08		
EPY5 - 25	3	0.78		
EPY5 - 26	3	0.83		
EPY5 - 27	3	0.30		
EPY5 - 28	3	0.54		
EPY5 - 29	3	0.92		
EPY5 - 30	3	0.75		
EPY5 – 31**	Data Centers	0.53	0.48	0.49
EPY5 – 32**	Data Centers	0.08		
EPY5 – 33**	Data Centers	0.61		
EPY5 - 34	Data Centers	0.63		
EPY5 - 35	Data Centers	0.40		
TOTAL	**NA**	NA	0.61	0.53

Source: Evaluation Team analysis

** Actual Project IDs are not provided to protect customer confidentiality*

***Overlaps with gross impact sample*

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 7-2 (kWh impacts) and in Table 7-3 (kW impacts).

The spillover effects were examined in this evaluation and their magnitude was found to be quite small as discussed below in the spillover section. Therefore, a quantification of spillover was not included in the calculation of NTGR for EPY5.

Table 7-2. kWh NTGR and Relative Precision at 90% Confidence Level

Sampling Strata	Relative Precision ± %	Low NTGR	Mean NTGR	High NTGR
1	0%	0.68	0.68	0.68
2	20%	0.52	0.65	0.78
3	16%	0.51	0.61	0.71
TOTAL	10%	0.58	0.64	0.71
Data Centers	18%	0.39	0.48	0.57
TOTAL	**12%**	**0.54**	**0.61**	**0.69**

Source: Evaluation Team analysis

Table 7-3. kW NTGR and Relative Precision at 90% Confidence Level

Sampling Strata	Relative Precision ± %	Low NTGR	Mean NTGR	High NTGR
1	0%	0.63	0.63	0.63
2	28%	0.41	0.57	0.73
3	16%	0.43	0.51	0.60
TOTAL	12%	0.49	0.56	0.63
Data Centers	44%	0.27	0.49	0.70
TOTAL	**21%**	**0.42**	**0.53**	**0.64**

Source: Evaluation Team analysis

The Evaluation Research Findings EPY5 kWh NTGR for Custom projects of 0.64 is higher than the EPY4 NTGR of 0.61. The NTGR scores for the three custom sampling strata are 0.68 for stratum 1 (large sized projects), 0.65 for stratum 2 (medium sized projects), and 0.61 for stratum 3 (small sized projects) which indicates the free-ridership levels for the three different sizes of projects are relatively similar. Data Center projects had relatively higher free-ridership with a NTGR of 0.48. The Evaluation Research Findings EPY5 kWh NTGR for Custom and Data Center projects combined is 0.61.

Significant free-ridership (above 40%) was found in 15 out of 35 evaluated projects, of which five projects had a resulting NTGR below 0.30. All five projects with substantial free-ridership had very low Program Influence[12] and No-Program[13] scores resulting in the NTGR of 0.03.

[12] A Program Influence score reflects the degree of influence the program had on the customer's decision to install the specified measures.

[13] A 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.

Projects with the lowest No-Program scores tend to have lower NTG ratios, while those with higher No-Program scores have NTG ratios that are among the highest. For example, all projects with No-Program scores of three or lower have NTG ratios that are somewhat low, at or below 0.5. The average NTGR across all of these projects is 0.25. In contrast, the mean NTGR in the group with a No-Program score of eight or greater is 0.82.

Relatively high and relatively low NTG scores in the sample are not directly affected to the same extent by the Program Influence and Program Components[14] score. That is, the correlation between the Program Influence and Program Components scores and resulting NTG is not as significant as is the correlation with the No-Program score.

Program influence was low for a number of different reasons. In a few cases (for two out the 35 evaluated projects), participants report that program implementers arrived late in the decision making process and offered incentives for projects that had already been decided upon. We also found several cases (eight out the 35 evaluated projects) where the customer reported that they would have installed the same equipment at the same time in the absence of the program incentives.

7.2.2 Spillover

Spillover effects were addressed qualitatively in the EPY5 evaluation, based on responses to a battery of spillover questions in the telephone survey. The evidence of spillover for the Custom program is presented in Table 7-4 below.

[14] A Program Components 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.

Table 7-4. Evidence of Spillover in EPY5

Spillover Question	Evidence of Spillover
Since your participation in the ComEd program, did you implement any additional energy efficiency measures at this facility that did NOT receive incentives through any utility or government program?	Of the 35 surveyed customers that responded to this question, 8 said "Yes" (23%). These 8 respondents implemented a total of 11 energy efficiency measures.
What type of energy efficiency measure was installed without an incentive?	(4) Lighting Measures (2 LED lamps, 1 CFL, 1 Building sign) (2) HVAC measures (1 AC units, 1 VFDs on HVAC motors) (1) Lighting Controls (1 occupancy sensors/photocells) (1) Injection molding machines (1) Battery chargers (1) Compressed air conservation (1) Ammonia refrigeration system
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 11 implemented measures: (8) Rating between 0 and 3 (3) Rating between 4 and 6 (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 11 implemented measures: (5) Rating between 0 and 3 (0) Rating between 4 and 6 (6) 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 11 implemented measures: (6) Not aware of a program that offers this measure (4) Rebate program was too complicated/Wasn't worth the time (1) Were going to install anyway

Source: Evaluation Team analysis

These findings suggest that spillover effects for EPY5 are relatively small. While participating customers are installing other energy efficiency improvements outside of the program, they attribute little influence to the program in their decision to install these additional measures and further state that these actions generally would have been implemented regardless of their program participation experiences. In addition, the respondents indicated that they did not pursue rebates through the ComEd program due to the lack of a program offering for the measure they installed or that the

rebate process was too complicated. The evaluation team will likely collect spillover data in this same manner for the EPY6 evaluation. The decision to conduct additional evaluation activities to quantify spillover in EPY6 will be examined as part of the evaluation planning effort.

7.2.3 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 7-5 and Table 7-6 provide the program-level Evaluation Research Findings net impact results for the EPY5 Custom program. The Research Findings gross realization rate for energy savings is 0.89, while the realization rate for demand is 1.39 is based on the M&V analysis conducted for the projects in the sample. The Evaluation Research Findings NTGR for energy savings is 0.61 and for demand savings is 0.53, and is based upon responses from each contributing participant in the sample (and other sources) and the use of kWh-based weights.

Table 7-5. Program-Level Evaluation Research Findings Net kWh Impacts for EPY5

Sampling Strata	Ex Ante Gross kWh	Research Findings Gross kWh	Research Findings kWh RR	Research Findings Net kWh	Research Findings NTGR
1	10,808,947	11,294,069	1.04	7,734,126	0.68
2	21,157,423	17,124,978	0.81	11,119,337	0.65
3	14,685,739	11,926,579	0.81	7,268,885	0.61
TOTAL	46,652,108	40,345,626	0.86	26,122,347	0.64
Data Centers	10,654,404	10,725,882	1.01	5,178,650	0.48
TOTAL	57,306,512	51,071,508	0.89	31,300,997	0.61

Source: Evaluation Team analysis

Table 7-6. Program-Level Evaluation Research Findings Net kW Impacts for EPY5

Sampling Strata	Ex Ante Gross kW	Research Findings Gross kW	Research Findings kW RR	Research Findings Net kW	Research Findings NTGR
1	562	761	1.35	476	0.63
2	1,058	1,530	1.45	877	0.57
3	1,228	2,739	2.23	1,405	0.51
TOTAL	2,848	5,030	1.77	2,758	0.56
Data Centers	1,503	1,031	0.69	500	0.49
TOTAL	4,351	6,061	1.39	3,258	0.53

Source: Evaluation Team analysis

7.2.4 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.

For EPY5, 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 7-7.

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 EPY5 but no significant spillover activity was reported by participants, and therefore, quantification was not warranted.

Table 7-7. Basic Net-to-Gross Scoring Algorithm for the EPY5 Custom Program

Scoring Element	Calculation
Program Components 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: A. Availability of the program incentive B. Technical assistance from utility or program staff C. Recommendation from utility or program staff D. Information from utility or program marketing materials E. Endorsement or recommendation by a utility account rep	Maximum of A, B, C, D, and E
Program Influence score. "If you were given a TOTAL of 100 points that reflect the importance in your decision to implement the <ENDUSE>, and you had to divide those 100 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 (divided by 10) 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?" 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 (Program Components, Program Influence, No-Program)/30
PY4 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

7.3 Detailed Process Results

This section describes in detail the changes made to the custom program in EPY5 including the changes to the project review process as well as the early commitment offer.

7.3.1 Custom Project Review

The project approval structure has recently been brought in-house. Under the new process, ComEd engineers are responsible for both the initial pre-approval and the final assessment of each project incented by the program. Typically, these engineers oversee the same project from beginning to end, and are assigned to six to eight projects at any given time. In the past, all project engineering was done by implementation contractor staff.

ComEd engineers walk through the project with the customer and verify the calculations the customers have submitted, as well as review the measurement and verification process the project will have to go through once completed. They then set the incentive amount that the customer should expect to get paid following post-installation review. Following this, participating customers install the measures, and the engineering team evaluates post-installation data to confirm savings.

The QA/QC process involves peer review where one engineer analyzes the data from a project and calculates the estimated savings and incentive size. Their work is then reviewed by another engineer and adjustments are made, if warranted. This process appears to be working well, and the team considers it an important component of the process.

The engineers universally reported that the program was running well. Their feedback was that the current structures, practices, and team members were producing good results. One engineer suggested that project prioritization could be improved. He suggested reviewing the costs and benefits of the review process itself, i.e., the trade-off due to the investment of considerable time and effort on projects that don't save as much, but are complicated to evaluate, versus larger projects that save more and are straightforward. He noted that, "It seems like the smaller ones bog us down more." He also noted that customers with smaller projects also tended to be less responsive, which hurt the engineers' productivity.

According to ComEd engineers, the program minimizes the potential for client disappointment by conducting a thorough QA/QC process of the project's expected energy savings during the pre-approval process (before the project is initiated). In this way, most clients' expectations on what size incentive they will receive is based on data reviewed by the ComEd engineers, before the project is implemented. Previously, the more rigorous review happened after the project was completed, which on occasion, lead to decreased incentives and reduced energy savings from what was expected.

7.3.1 Early Commitment Option

As mentioned earlier, ComEd added the "Early Commitment" option in EPY5 to lessen the risk that the incentive will change after the funds have been reserved. This option offers customers a lower incentive rate ($.06/kwh) for projects in return for a guarantee that the incentive would not go down between the reservation and the final application phase[15]. To qualify for this option, customers must

[15] The custom incentive rate is normally $0.07/kWh.

complete the pre-approved project exactly as scoped, and the improvements must be projected to save at least 500,000 kWh. Only three customers took advantage of this option in EPY5. "Early Commitment" applications are separate from regular Custom incentive applications, and require that the customer submit more-detailed information about the facility and proposed project impacts, including energy savings and economic analysis. This provides for a more rigorous engineering review earlier in the application cycle, which mitigates ComEd's risk that the full energy savings might not be realized.

7.4 Data Collection Instruments

Participant Telephone Survey

COMED SMART IDEAS FOR YOUR BUSINESS PROGRAM
PARTICIPANT SURVEY – CUSTOM PROJECTS
PY5 Final

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, 2011 and May 31, 2012 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 A2=1, ask to be transferred to that person. If not available, thank and terminate. If available, go back to A1]

[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)
<TECH_ASSIST> (If participant conducted Feasibility Study, Audit, or received Technical Assistance through the program; from program tracking database)
<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?
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 <ENDUSE> you installed through the 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 a rebate 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]

[ASK IF <TECH_ASSIST>=1, ELSE SKIP TO N3d]

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 100 points that reflect the importance in your decision to implement the <ENDUSE>, and you had to divide those 100 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 100. If response is not <OTHERPTS> ask INC1]

INC1 The last question asked you to divide a TOTAL of 100 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>69 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 OR<TECH ASSIST>=0]

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<31 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 the 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 **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:

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

[ASK N5a-d IF N3b=8,9,10 AND N5=7,8,9,10]

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 that you gave a rating of <N3B RESPONSE> or change your rating on the likelihood you would install the same equipment without the incentive which you gave a rating of <N5 RESPONSE> and/or 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)

[ASK IF N5b=1,3]

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]

[ASK IF N5b=2,3]

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-N10e 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 rebate 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)

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)

N14 Had that policy caused you to adopt energy efficient <ENDUSE> at other facilities before participating in the ComEd's energy efficiency Program?
1 (Yes)
2 (No)
8 (Don't know)
9 (Refused)

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

N15 Did you 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 (<PROGRAM> 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 SPILLOVER MODULE]
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)

ASK IF ER1=98ER1a. 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)

[ASK IF ER3=1]
EMAIL. Can you please provide your email address so that we might contact you and obtain the invoice.
[OPEN END]

IF N00=2, THEN ASK,
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)

IF N00=3, THEN ASK,
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)

IF N00=4, THEN ASK,
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?
1Increasing

2Decreasing
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. 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 functional, and without significant issues
02. Existing equipment was fully functioning, but with significant issues
03. Existing equipment had failed or did not function.
04. Existing equipment was obsolete
05. Existing equipment was fully functioning with minor issues

96. Not applicable, ancillary equipment (VSD, EMS, controls, etc.)
X 00. Other (RECORD VERBATIM)
98 (Don't know)
99 (Refused)

IF N00=7, THEN ASK,
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)

IF N00=8, THEN ASK,
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)

IF N00=9, THEN ASK,
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)

PY5 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 your participation in the Smart Ideas for your Business program, 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 SP2-SP7i IF SP1=1, ELSE SKIP TO S0]

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 S0 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. Why did you not receive an incentive for this measure?
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?

SP5f. Was this measure specifically recommended by a program related audit, 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 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. Why do you give it this rating? [OPEN END]

SP5i. If you had not participated in the Smart Ideas for Your Business 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 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 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 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 BusinessSmart 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 SP6-SP7i 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. Why did you not receive an incentive for this measure?
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?

SP6f. Was this measure specifically recommended by a program related audit, 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]

[SKIP SP6h IF SP6g = 98, 99]

SP6h. Why do you give it this rating? [OPEN END]

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

[ASK CC2a IF SP6g=0,1,2,3 AND SP6i =0,1,2,3]

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 had you not participated in the Smart Ideas for Your Business 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 CC2b IF SP6g=8,9,10 AND SP6i =8,9,10]

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 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 SP7 – SP7i IF SP4=96, 98, 99]

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

a. Why did you not receive an incentive for this measure?
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?

SP7f. Was this measure specifically recommended by a program related audit, 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]

[SKIP SP7h IF SP7g = 98, 99]

SP7h. Why do you give it this rating? [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

[ASK CC3a IF SP7g=0,1,2,3 AND SP7i =0,1,2,3]

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 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)

[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)

PROCESS MODULE

I'd now like to ask you a few general questions about your participation in the Smart Ideas for Your Business program.

Program Processes and Satisfaction

S1a Did YOU fill out the application forms for the project? (Either the initial or the final program application)

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

[ASK S1c IF S1a=1 ELSE SKIP TO S1e]

S1c How would you rate the application process? Please use a scale of 0 to 10 where 0 is "very difficult" and 10 is "very easy". [SCALE 0-10; 98=Don't know, 99=Refused]

[ASK S1d IF S1c<4]

S1d Why did you rate it that way?

1. (Difficult to understand)
2. (Long process)
00. (Other, specify)
98. (Don't know)
99. (Refused)

[ASK S1e IF S1a=2]

S1e Who filled out the application forms for the project?

1. (Someone else at the facility)
2. (Someone else at the company)
3. (Trade Ally)
4. (Contractor)
5. (Supplier/Distributor/Vendor)
6. (Engineer)
7. (Consultant)
00. (Other, specify)
98. (Don't know)
99. (Refused)

[ASK S4b IF V1=1, else skip to S11A]

S4b You previously mentioned that you used a contractor for this project. Was the contractor you used affiliated with the Smart Ideas program? (IF NEEDED: Was the contractor REGISTERED with the Smart Ideas program?)

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

S7 When implementing an energy efficiency project, how important is it to you that the contractor is affiliated with the Smart Ideas Program? Please use a scale from 0 to 10, where 0 is "not at all important" and 10 is "very important"? [SCALE 0-10; 98=Don't know, 99=Refused]

S11 On a scale of 0 to 10, where 0 is very dissatisfied and 10 is very satisfied, how would you rate your satisfaction with… [SCALE 0-10; 96=not applicable, 98=Don't know, 99=Refused]

a. the incentive amount
b. the communication you had with the Smart Ideas program staff
c. the call centers ability to answer your questions
d. the overall Smart Ideas program
e. your contractors ability to meet your needs
f. ComEd overall

[ASK IF S11 a, b, c, d, e, f <4 or S11 a, b, c, d, e, f >7]

S12a. Why did you rate it this way? [OPEN END; 98=DK; 99=ref]]

S10a Did you experience any problems during the application process? (IF NEEDED: Other than what we have already talked about)

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

[ASK S10b IF S10a=1]

S10b What problems did you experience?

1. (Process takes too long)
2. (Inconsistent information)
3. (Low incentives/rebates)
4. (Program ran out of money)
00. (Other, specify)
98. (Don't know)
99. (Refused)

Engineering Review

ER1 Did you work with a Smart Ideas engineer to review your application?

1. (Yes)
2. (No)

8. (Don't know)
9. (Refused)

[If ER1= 2, 98 or 99 skip to Marketing and Outreach]

ER2 On a scale from 0 to 10 where 0 is dissatisfied and a 10 is very satisfied, how would you rate your satisfaction with:

a. The engineer's professionalism
b. The engineer's responsiveness to your questions
c. The results of the engineering analysis
d. Your communication with the engineering staff
e. The time it took to complete the review

[ASK IF ER2 a, b, c, d <4]
ER3 Why did you rate it this way? [OPEN END; 98=DK; 99=ref]]

Early Commitment Option

[IF ECO=1 ASK, ELSE SKIP TO MARKETING AND OUTREACH]
ECO1. Our records show that your company chose to participate in the Early Commitment Option that offered a slightly lower incentive in exchange for a guarantee that the final incentive will be the same as the reserved amount. Can you please explain why your company chose this option?

[IF ECO=0 ASK, ELSE SKIP TO MARKETING AND OUTREACH]
ECO2. Our records indicate that your company did not participate in ComEd's Early Commitment Option that offers a slightly lower incentive in exchange for a guarantee that the final incentive will be the same as the reserved amount. Is this correct?

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

ECO3. Where you aware of the Early Commitment Option when you submitted your pre-application for the project?

1. (Yes)
2. (No) [GO TO MARKETING AND OUTREACH]
8. (Don't know)
9. (Refused)

[IF ECO3=1 ASK, ELSE SKIP]
ECO4. Why did you chose not to participate in the Early Commitment Option?
[OPEN END, 98. DON'T KNOW 99. REFUSES]

Marketing and Outreach

MK0 I'm now going to ask you about several specific ways in which you might have seen or heard information about the Smart Ideas for Your Business program. Have you ever… [1=Yes, 2=No, 8=(Don't know), 9=(Refused)]

a. Seen a printed ad in a publication?
b. Heard a radio commercial?
c. Seen a program billboard?
d. Received information about the program in your monthly utility bill?
e. Attended an event where the program was discussed?
f. Discussed the program with a ComEd Account Manager or other ComEd staff?
g. Discussed the program with a Contactor or Trade Ally?
h. Seen information about the program on the ComEd Website?
i. Received information about the program in an Email?
j. Read about the program in a ComEd Newsletter?

MK01 Have you heard about the Smart Ideas for Your Business program through any other means?

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

MK1b On a scale of 0-10 where "0" is "Not at all useful" and 10 is "Very useful", how useful were the program's marketing materials?
[NUMERIC 0-10, 98 Don't know, 99 Refused]

[ASK MK1c IF MK1b=3,4]

MK1c What would have made the materials more useful to you? [MULTIPLE RESPONSE, UP TO 3]

1. (More detailed information)
2. (Where to get additional information)
00. (Other, specify)
98. (Don't know)
99. (Refused)

MK2 In general, what is the best way of reaching companies like yours to provide information about energy efficiency opportunities like the Smart Ideas for Your Business program? [MULTIPLE RESPONSE, UP TO 3]

1. (Bill inserts)
2. (Flyers/ads/mailings)
3. (e-mail)
4. (Telephone)
5. (ComEd Account Manager)
8. (Trade allies/contractors)
00. (Other, specify)
98. (Don't know)
99. (Refused)

Benefits and Barriers

B1a What do you see as the main benefits to participating in the Smart Ideas for Your Business program? [MULTIPLE RESPONSE, UP TO 3]

1. (Energy Savings)
2. (Good for the Environment)
3. (Lower Maintenance Costs)
4. (Better Quality/New Equipment)
5. (Rebate/Incentive)
9. (Able to make improvements sooner)
10. (Saves money on utility bill)
00. (Other, Specify)
96. (No benefits)
98. (Don't know)
99. (Refused)

B1b What do you see as the drawbacks to participating in the program? [MULTIPLE RESPONSE, UP TO 3]

1. (Paperwork too burdensome)
2. (Incentives not high enough/not worth the effort)
3. (Program is too complicated)
4. (Cost of equipment)
5. (No drawbacks)
6. (Poor Communication)
7. (Time Consuming)
00. (Other, specify)
98. (Don't know)
99. (Refused)

B2 Why do you think are the main barriers to companies participating in the program? [MULTIPLE RESPONSE, UP TO 3]

1. (Lack of awareness of the program)
2. (Financial reasons)
4. (Not aware of savings/don't realize the savings)
5. (Difficulty of Application/Paperwork)
00. (Other, specify)
96. (None/no reasons)
98. (Don't know)
99. (Refused)

Feedback and Recommendations

R1 Do you plan to participate in the Smart Ideas for Your Business program again in the future?

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

R2 How could the Smart Ideas for Your Business Program be improved? [MULTIPLE RESPONSE, UP TO 4]

1. (Higher incentives)
2. (More measures)
3. (Greater publicity)
4. (Better Communication/Improve Program Information)
8. (Simplify application process)
11. (Quicker processing times)
00. (Other, specify)
96. (No recommendations)
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)