

**Energy Efficiency / Demand Response
Plan: Plan Year 3 (6/1/2010-5/31/2011)**

**Evaluation Report:
Smart Ideas for Your Business
Business Prescriptive Program**

Presented to

Commonwealth Edison Company

May 16, 2012

Presented by

Randy Gunn
Managing Director

Navigant Consulting
30 S. Wacker Drive, Suite 3100
Chicago, IL 60606

phone 312.583.5700
fax 312.583.5701

www.navigant.com



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ODC
OPINION DYNAMICS
CORPORATION

Michaels
engineering



Submitted to:

ComEd
Three Lincoln Centre
Oakbrook Terrace, IL 60181

Submitted by:

Navigant Consulting, Inc.
30 S. Wacker Drive, Suite 3100
Chicago, IL 60606
Phone 312.583.5700
Fax 312.583.5701

Contact:

Randy Gunn, Managing Director
312.938.4242
Randy.Gunn@Navigant.Com

Jeff Erickson, Director
608.497.2322
Jeff.Erickson@Navigant.Com

Prepared by:

Kevin Grabner
Navigant Consulting
608.497.2323
Kevin.Grabner@Navigant.com

Antje Flanders
Opinion Dynamics Corporation
617.492.1400
Aflanders@opiniondynamics.com

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Section E. Executive Summary

E.1 Evaluation Objectives

The Commonwealth Edison Company (ComEd) Smart Ideas for Your Business program provides incentives for business customers who upgrade their facilities with energy efficient equipment. There were two program elements that were available to ComEd customers during program year 3: a Custom program and a Prescriptive program. The Prescriptive and Custom programs have evaluation results reported separately. The goal of this report is to present the results from the evaluation of the Program Year 3 Business Prescriptive program¹.

The primary objectives of the Prescriptive evaluation are to quantify gross and net impacts and to determine key process-related program strengths and weaknesses and identify ways in which the program can be improved. Elements of the Prescriptive program that factored into the PY3 evaluation include the following:

- The Business Prescriptive program provides an expedited incentive application approach targeting retrofit and replacement opportunities in lighting, HVAC equipment, variable speed drives, refrigeration, motors, and food service equipment. The PY3 Prescriptive program did not significantly exceed planned levels of participation prior to year end and accepted applications throughout the program year.
- Higher “bonus” incentives for select lighting measures were offered between October 25, 2010 and April 30, 2011 to encourage conversion of T12 fluorescent lighting and to increase participation for new T8 or T5 fluorescent fixtures and occupancy sensors.
- Relationships with trade allies are a key strategy for promoting prescriptive incentive availability to customers. Bonus incentives for trade allies were offered for a limited time in PY3 for submission of projects on a larger scale.
- In the second half of PY3, ComEd expanded its offering for Prescriptive variable speed drives by adding a new application form providing incentives for HVAC pumps, fans, and chillers, process pumps and fans, compressed air, and “other” fans and pumps.

ComEd introduced the Midstream Incentive Pilot program in the second half of PY3. This pilot worked with prequalified distributors to offer their customers a discounted price on CFL purchases. Due to the limited scale of the pilot offering in PY3, pilot evaluation was conducted as a sub-task under the Business Prescriptive evaluation. Reporting is compiled as Appendix

¹ The Program Year 3 (PY3) program year began June 1, 2010 and ended May 31, 2011.

5.4. Unless specifically noted, Midstream Incentive Pilot impacts are *not* included in tables summarizing Business Prescriptive results.

E.2 Evaluation Methods

The key evaluation activities to assess gross and net impacts of the Prescriptive program were:

- Reviewed tracking data and default savings assumptions used by the program.
- Implemented a stratified random sampling design on the population of 3,794 Prescriptive project applications with three strata of roughly equal ex ante energy savings allocation. Conducted a random selection of 90 projects, 30 from each stratum.
- Conducted on-site visits and measurement and verification (M&V) activities on a sample of 36 Prescriptive projects selected randomly from the 90 projects to support gross impact evaluation. An engineering review of project files and energy savings estimates was conducted on the remaining 54 projects from the sample of 90 projects.
- Completed computer assisted telephone interviews (CATI) with 108 Prescriptive project contacts to support the net impact approach.
- Questions in the CATI survey were asked regarding installed measures, removed equipment, and lighting hours of use, but responses were only considered for gross impact adjustments for projects in engineering file review sample.

Six research activities were conducted in support of the Prescriptive process evaluation: (1) interviews with program and implementation staff, (2) in-depth interviews with participating market actors, (3) in-depth interviews with ComEd Account Managers, (4) a quantitative telephone survey with 109 participating customers, (5) a quantitative telephone survey with 70 non-participating customers, and (6) a literature review and utility staff interviews regarding upstream bonuses for trade allies. These activities are further described in the main report.

Evaluation activities for the Midstream Incentive Pilot are described in the Appendices.

E.3 Key Impact Findings and Recommendations

As shown in Table E-1 and Table E-2, the PY3 Prescriptive evaluation found that verified gross energy savings were 1 percent higher than savings in ComEd's tracking system, as indicated by the realization rate (realization rate = verified gross / tracking system gross), while peak demand impacts were 11 percent lower. These realization rates are lower than PY2, where the energy realization rate was estimated to be 1.21 and peak demand was 0.99. The verified net-to-gross ratio (NTGR) for PY3 of 0.72 was slightly lower than the PY2 value of 0.74.

Table E-1. Prescriptive Program-Level Evaluation-Adjusted Net kWh Impacts for PY3

Segment	Ex Ante Gross kWh	Ex Post Gross kWh	kWh RR	Ex Post Net kWh	NTGR (ex post gross)
Prescriptive	258,385,882	260,236,777	1.01	188,462,660	0.72
Midstream	1,133,258	1,246,109	1.10	916,159	0.74
Total	259,519,140	261,482,886		189,378,819	

Source: Prescriptive: Analysis of tracking savings from ComEd online tracking system, August 3, 2011. Midstream: Analysis of tracking data from ComEd, provided August 12, 2011. The values displayed for RR and NTGR are rounded.

Table E-2. Prescriptive Program-Level Evaluation-Adjusted Net Peak kW Impacts for PY3

Segment	Ex Ante Gross kW	Ex Post Gross kW	kW RR	Ex Post Net kW	NTGR (ex post gross)
Prescriptive	52,300	46,553	0.89	33,713	0.72
Midstream	NA	236	NA	173	0.74
Total	NA	46,789		33,886	

Source: Prescriptive: Analysis of tracking savings from ComEd online tracking system, August 3, 2011. Midstream: Analysis of tracking data from ComEd, provided August 12, 2011. The values displayed for RR and NTGR are rounded.

The relative precision at a 90% confidence level for the Prescriptive projects in the sample is $\pm 9\%$ for the kWh realization rate and $\pm 7\%$ for the kW realization rate. The relative precision at a 90% confidence level for the program NTG ratio is $\pm 5\%$.

The Prescriptive realization rate for peak demand was 0.89, reflecting primarily the impact of relatively lower demand realization rates for some sampled variable speed drive measures, the removal of HVAC interaction factors on some sampled lighting projects that were not installed in conditioned spaces as assumed in the default values, and baseline adjustments applied to several projects that received on-site verification.

The primary factors lowering the demand realization rates also resulted in lower energy realization rates on individual projects. The primary factor that raised the Prescriptive energy realization to 1.01 was a common finding, through on-site verification and telephone interviews, of longer hours of use than assumed in the default savings. Longer hours of use has a disproportionately greater impact on energy than demand – for example, if an industrial plant is found to operate continuously throughout the year, the energy realization rate will increase by 104% over the default value (8,760 ex post hours / 4,290 ex ante hours), whereas the peak demand realization rate will only increase the coincident-diversity factor by 1% (1.00 ex post / 0.99 ex ante).

Impacts for the Midstream Incentive Pilot program show that the gross realization rate on energy is 10 percent higher than ComEd claimed savings because the evaluation team included

an HVAC interaction factor for energy impacts. ComEd did not provide an ex ante estimate for peak demand, so we could not estimate a gross impact realization rate on peak demand. The evaluation analysis method of calculating demand reduction for each CFL model resulted in a total connected load reduction of 257 kW for the Midstream program, compared with a value of 263 kW total connected load reduction from ComEd’s delta watts assumptions, for a ratio of 0.98. This is due to minor differences in assumed incandescent wattage replaced, where the evaluation team used actual lumen values from product literature for specific CFL model numbers to select an incandescent base wattage. The net-to-gross ratio (NTGR) for PY3 of 0.74 was assumed based on results for lighting-only measures in the Business Prescriptive program.

Table E-3 below provides an overview of planned, reported ex ante, and evaluation-adjusted net savings impacts for the combined PY3 Prescriptive and Custom programs, including the Midstream pilot. Together, the Prescriptive and Custom programs exceeded ComEd’s revised target for net MWh savings.

Table E-3. Comparison of Evaluation Findings to Program Goals for the Custom and Prescriptive Programs, Including Midstream Incentive Pilot Results

Net Savings Estimates	MWH
ComEd Revised PY3 Target	182,106
ComEd Reported for PY3 (ex ante)	219,759
Total PY3 Evaluation-Adjusted Net Savings (ex post)	215,813

Source: Revised Target and Reported: Communication from ComEd.

Table E-4 below provides an overview of gross impacts, net impacts, and other results that illustrate program accomplishments over the first three years of implementation. From PY2 to PY3, customer project count doubled and the share of non-lighting energy savings was substantially increased.

Table E-4. Prescriptive Program Results from PY1, PY2, and PY3

Program Result	PY1	PY2	PY3	Total
Ex Ante Gross MWhs	90,571	213,522	258,386	562,479
Ex Post Gross MWhs	120,550	259,093	260,237	639,879
Realization Rate (MWhs)	1.33	1.21	1.01	1.14
Ex Post Net MWhs	80,932	191,896	188,463	461,290
Net-to-Gross Ratio	0.67	0.74	0.72	0.72
Number of Projects	455	1,739	3,794	5,988
Percent of Ex Ante Gross MWh Savings from Lighting	92%	94%	85%	89%
Unique Contractors	156 ²	325	503	736

Source: Evaluation reports and ComEd tracking system. Values shown have been rounded.

ComEd should consider conducting a detailed review and testing of the implementation of the tracking system’s handling of variable speed drive (VSD) projects. The ex ante impacts for variable speed drives did not match expected values in many instances, and contributed to significant deviations between ex ante and ex post findings on a project by project basis even when the evaluation team agreed with ComEd on the project details. Since there were a number of evaluator recommendations regarding VSDs in PY3 and ComEd has acted upon some of them since closing out PY3 projects, the evaluation team will assist ComEd in this effort in PY4 by producing updated recommendations and guidance for addressing VSD applications.

ComEd should consider working with the evaluation team to review PY3 site M&V and telephone survey data to identify potential refinements to default values that may be applied to PY5. Measures that weight baseline scenarios of wide variation into a single average, such as permanent lamp removal, contributed to significant deviations between ex ante and ex post findings even when default values were properly applied.

ComEd should consider placing tight restrictions on new construction projects admitted into the Prescriptive program, such as restricting maximum motor horsepower size for VSD measures. On four of nine variable speed drive measures claimed in a sampled new construction project (those involving larger motors 50 horsepower and above) the evaluation team concluded that system design and final control strategy as implemented by the customer

² It should be noted that the contractor used was identified as “unknown” for 23 of the 455 PY1 projects.

did not produce savings beyond code requirements. This resulted in a significant reduction in energy and demand impacts for the project.

When ComEd is adding a new end-use or new measure types to an existing end use, consider alerting the evaluation team who may need to revise data handling routines.

During PY4, prior to closing out year-end ex ante savings estimates, ComEd should consider working with the evaluation team to review multiple factors that can affect ex ante savings.

The evaluation team can review default lookup values coded into the tracking system and check the values against the default values documentation, and advise ComEd on any differences. The evaluation team could also review the output of changes to ex ante calculations that are made in the tracking system.

ComEd should consider investigating customer satisfaction with light levels and consider strategies to reduce under-lit designs if dissatisfaction is common. Seven of 79 respondents in the CATI survey reported that they installed additional lighting fixtures in the same space at a later time to increase the amount of lighting. ComEd indicates they have taken steps to identify potential under-lit designs in the pre-approval stage and contact those customers to make them aware of the potential for lighting level reductions.

ComEd should consider discussing their experiences with potential spillover candidates and projects with the evaluation team. The Prescriptive evaluation team will be conducting an enhanced effort to identify potential spillover candidates and quantify spillover in PY4. If participant spillover can be reliably characterized and quantified, it may be possible for ComEd to develop strategies to encourage it.

For CFLs installed through the Midstream Incentive, the evaluation team recommends that ComEd consider including energy and demand interaction factors with the HVAC system when estimating claimed savings. If additional measures are added to the Midstream delivery approach, ComEd should consider including HVAC interaction factors, depending on the measure type.

E.4 Key Process Findings and Recommendations

Program Participation

Consider removing or increasing project incentive caps. Given the increasing program goals and the decreasing average project size, increasing project incentive caps may be beneficial in bringing in larger Prescriptive projects. ComEd has raised the per-premise cap from \$400,000 in PY3 to \$1,000,000 in PY4.

Consider special offerings for sectors with limited participation but high savings potential. The medical and lodging sectors have experienced stagnant participation growth, but they have

had relatively high per project savings. Further research might be required to identify industries to target for special promotions and identify their specific barriers to participation.

Consider offering special promotions for non-lighting measures. While lighting projects will continue to be critical to the success of the program, the program should consider offering special promotions for non-lighting measures to further encourage their implementation.

Trade Ally Network

Consider attempting to enhance and better communicate the benefits of becoming a trade ally. While the program was not actively seeking to add more trade allies to its network, providing attractive benefits for trade allies and disseminating this information will be important in further strengthening the network.

Consider options for Basic Training that reduce the time-burden for trade allies. While most interviewed trade allies saw no problems with the new trade ally requirements, active non-trade allies most often cite the time burden (including travel) of attending training in person as the main reason for not becoming a trade ally. While ComEd offers Basic Training as a webinar in certain situations, they consider in-person training to be more effective. The program should consider options such as offering a limited number of trainings via a web portal (in-whole or in-part) or in locations other than the KEMA office in Wheaton.

Trade Ally Bonus

Consider increasing the promotion of the trade ally bonus. Knowledge of the bonus offering was not widespread amongst interviewed contractors.

Consider additional communication of the new two-tiered bonus structure and bonus timing. Additional research into bonuses offered by Ameren Illinois and other utilities found that apart from the bonus structure, strong communication and clear expectations are crucial to the success of such an effort. The program should strive to communicate the modified bonus program early and clearly to both trade allies and non-ally contractors, and provide sufficient lead time for contractors to increase their promotion and take advantage of the offering to the fullest extent.

Account Managers

Consider implementing a formal process for tracking leads. No formal process for tracking customer leads exists in the Smart Ideas Program, although ComEd indicates systems are under development. Interviewed Account Managers indicated that such a system would be a useful tool for Account Managers and Smart Ideas staff alike.

Marketing and Outreach

Consider offering new attractions for future Energy Efficiency Expos. The program should find ways to keep the Expo attractive for returning customers and reflect that in outreach efforts, or consider adjusting Account Manager goals with respect to Expo recruitment.

E.5 Summary

For PY3, ComEd set a goal to achieve 182,106 MWh of energy savings from the combined results of the Business Prescriptive and Custom programs. The Business Prescriptive program contributed to exceeding this energy savings goal by achieving evaluation verified gross energy savings of 260,237 MWh and net energy savings of 188,463 MWh. The PY3 program was delivered at a benefit-cost ratio of 1.05 using the Illinois Total Resource Cost test. The PY3 program was delivered effectively, as indicated by process evaluation findings that participants were satisfied with most aspects of the program. Satisfaction for the program overall was highest, with 95% of PY3 customer participants surveyed indicating that they are satisfied. Almost all contractors (22 of 25 interviewed) were satisfied with the program. ComEd should consider the impact and process-related recommendations in this evaluation report to improve upon these results in future years.

E.6 Cost-Effectiveness Summary

ComEd uses DSMore™ software for the calculation of the Illinois TRC test³. Table E-6 summarizes the unique inputs used in the DSMore model to assess the TRC ratio for the Business Prescriptive program in PY3. Most of the unique inputs come directly from the evaluation results presented previously in this report. Measure life estimates and program costs come directly from ComEd. All other inputs to the model, such as avoided costs, come from ComEd and are the same for this program and all programs in the ComEd portfolio.

³ Demand Side Management Option Risk Evaluator (DSMore) software is developed by Integral Analytics.

Table E-6. Inputs to DSMore Model for Business Prescriptive Program

Item	Value Used
Measure Life	12
Utility Administration and Implementation Costs	\$7,292,352
Utility Incentive Costs	\$20,178,985
Net Participant Costs	\$85,359,656

Based on these inputs, the Illinois societal TRC for this program is 1.05 and the program passes the Illinois TRC test.

Section 1. Introduction to the Program

This evaluation report covers the Prescriptive program element of the ComEd Smart Ideas for Your Business incentive program.

1.1 Program Description

The Commonwealth Edison Company (ComEd) Smart Ideas for Your Business program provides incentives for business customers who upgrade their facilities with energy efficient equipment. This incentive program is available to all eligible, nonpublic, commercial and industrial customers in ComEd's service territory. There were two specific program elements that were available to ComEd customers during program year three (PY3) under the ComEd Smart Ideas for Your Business incentives program:

- **Prescriptive Incentives** were available for energy-efficiency equipment upgrades and improvements including lighting, cooling, food service, refrigeration, and motors. Incentives were paid based on the quantity, size, and efficiency of the equipment. Incentives were provided for qualified equipment commonly installed in a retrofit or equipment replacement situation.
- **Custom Incentives** were available to customers for less common or more complex energy-saving measures installed in qualified retrofit and equipment replacement projects. Custom measure incentives were paid based on the first year energy (kWh) savings. All projects were required to meet ComEd's cost-effectiveness and other program requirements.

Measures that are available through the Prescriptive program are not eligible for custom incentives. However, the applicant has the option to apply for a custom incentive if the entire project involves a combination of prescriptive and custom measures.

Additional ComEd program offerings are provided under the Smart Ideas business program umbrella, including retrocommissioning and new construction services. The Illinois Department of Commerce and Economic Opportunity (DCEO) is responsible for delivering programs to ComEd customers targeted towards public nonresidential buildings such as government, municipal, and public schools.⁴ These ComEd and DCEO programs are evaluated and reported separately.

⁴ For more information on the DCEO programs please refer to (www.illinoisenergy.org).

The Smart Ideas for Your Business program is a key part of ComEd’s overall portfolio of programs approved by the Illinois Commerce Commission (ICC) as part of ComEd’s Energy Efficiency and Demand Response Plan, filed in November 2007 and approved in February 2008.⁵ The program is funded on an annual basis from June 1 to May 31 of each year.⁶ Funding in any given program year is limited to that year’s budgeted amount and, therefore, incentives are paid on a first-come, first-served basis until the program year’s incentive funds are exhausted. It should be noted, however, that no Custom applicants or Prescriptive applicants were wait-listed in PY3 based on available funding. Wait-listing was required for all Prescriptive measures in PY1 and for Prescriptive lighting measures for a limited time in PY2.

ComEd manages the energy savings goal and program budget on a combined basis for the Prescriptive and Custom programs. The original plan net MWh savings goal for the 2010 (PY3) Prescriptive and Custom incentives program are presented in Table 1-1.

Table 1-1. Smart Ideas for Your Business PY3 Planned Net Savings for Prescriptive and Custom Programs

Net Savings Estimates	MWH
ComEd Original Plan Target	262,857
ComEd Revised Target	182,106

Source: Original Plan target: Commonwealth Edison Company’s 2008 – 2010 Energy Efficiency and Demand Response Plan, Docket No. 07-0540, ComEd Ex. 1.0, November 15, 2007 that include a net-to-gross ratio of 0.8 and a gross realization rate of 0.95. Revised Target and Reported: Communication from ComEd.

1.1.1 Implementation Strategy

ComEd retained KEMA Services Inc. as its program administrator responsible for day-to-day operations. The Prescriptive program launched in June 2008. ComEd has provided the evaluation team with a detailed Operations Manual and a Policies and Procedures Manual that describe the details of program implementation.

Important aspects of PY3 program implementation are summarized below.

Incentive Caps: Incentives are subject to annual limits or caps that are set per facility premise per year, and these were modified for PY3. The Prescriptive incentive cap for PY3 was 100% of the calculated incentive up to \$100,000 per facility, plus 50% of the calculated incentive above \$100,000 up to a maximum Prescriptive incentive of \$200,000. The Custom incentive cap was \$200,000 per facility, and the combined cap was \$400,000 per facility.

⁵ Commonwealth Edison Company’s 2008 – 2010 Energy Efficiency and Demand Response Plan, Docket No. 07-0540, ComEd Ex. 1.0, November 15, 2007.

⁶ Program year 3 ran from June 1, 2010 through May 31, 2011.

Lighting Bonus: Higher “bonus” incentives for select lighting measures were offered between October 25, 2010 and April 30, 2011 to encourage conversion of T12 fluorescent lighting and to increase participation for new T8 or T5 fluorescent fixtures and occupancy sensors.

Trade Ally Bonuses: Relationships with trade allies are a key strategy for promoting prescriptive incentive availability to customers. Bonus incentives for trade allies were offered for a limited time in PY3 for submission of projects on a larger scale.

Variable Speed Drives: In the second half of PY3, ComEd expanded its offering for Prescriptive variable speed drives by adding a new application form providing incentives for HVAC pumps, fans, and chillers, process pumps and fans, compressed air, and “other” fans and pumps.

Wait List: Prescriptive projects were not wait-listed in PY3. Lighting projects placed on the PY2 wait list were offered the opportunity to participate in PY2 or in PY3.

Additions to Application Forms: As part of annual updates to forms, new forms were added for outdoor lighting, food service measures, and sensors and controls.

1.2 Evaluation Questions

The evaluation sought to answer the following key researchable questions. Some of the researchable questions can be addressed in Program Year 3.

The impact evaluation questions focused on the following key areas:

1. What are the gross impacts from this program?
2. What are the net impacts from this program?
3. Did the program meet its energy and demand goals? If not, why not?
4. What is the program’s benefit-cost ratio using the Illinois TRC test?

The process evaluation questions focused on the following key areas:

1. Program participation
2. Effectiveness of program design and implementation
3. Trade ally network
4. Marketing and outreach
5. Barriers to and benefits of participation
6. Participant satisfaction

The full list of researchable questions can be found in the Evaluation Plan.

Section 2. Evaluation Methods

This section describes the analytic methods and data collection activities implemented as part of the PY3 process and impact evaluation of the Prescriptive program, including the data sources and sample designs used as a base for the data collection activities.

The key evaluation activities to assess gross and net impacts of the Prescriptive program were:

- Reviewed tracking data and default savings assumptions used by the program.
- Implemented a stratified random sampling design on the population of 3,794 Prescriptive project applications with three strata of roughly equal ex ante energy savings allocation. Conducted a random selection of 90 projects, 30 from each stratum.
- Conducted on-site visits and measurement and verification (M&V) activities on a sample of 36 Prescriptive projects selected randomly from the 90 projects to support gross impact evaluation. An engineering review of project files and energy savings estimates was conducted on the remaining 54 projects from the sample of 90 projects.
- Completed computer assisted telephone interviews (CATI) with 108 Prescriptive project contacts to support the net impact approach.
- Questions in the CATI survey were asked regarding installed measures, removed equipment, and lighting hours of use, but responses were only considered for gross impact adjustments for projects in engineering file review sample.

Six research activities were conducted in support of the Prescriptive process evaluation: (1) interviews with program and implementation staff, (2) in-depth interviews with participating market actors, (3) in-depth interviews with ComEd Account Managers, (4) a quantitative telephone survey with 109 participating customers, (5) a quantitative telephone survey with 70 non-participating customers, and (6) a literature review and utility staff interviews regarding upstream bonuses for trade allies. These activities are further described in the main report.

The sections that follow provide a summary of the methods deployed, while full details may be found in Appendix 5.2.

2.1 Analytical Methods

2.1.1 Impact Evaluation Methods

Gross Program Savings

The objective of this element of the impact evaluation is to verify the veracity and accuracy of the PY3 ex ante gross savings estimates in the Prescriptive program tracking system. The savings reported in ComEd's online tracking system were evaluated using the following steps:

1. Engineering review at the measure-level for a sample of 90 project files, with the following subcomponents:
 - a. Engineering review and analysis of measure savings based on project documentation, default assumptions, and tracking data.
 - b. Review and application (if appropriate) of participant phone survey impact data (reported hours of use, reported baseline equipment, installation in non-air-conditioned space) to projects in the engineering review sample.
 - c. On-site verification audits at 36 project sites selected randomly from the sample of 90 projects. Performance measurements included spot measurements and run-time hour data logging for selected measures. On-site data collection was concentrated in the June 1 through August 31 summer peak period.
 - d. Calculation of a verified gross savings value (kWh and kW) for each project within the sample, based on measure-level engineering analysis.
2. Carry out a quality control review of the ex post impact estimates and the associated draft site reports and implement any necessary revisions.

A verified gross realization rate (which is the ratio of the ex post 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 Sections 2 and 3 below. The result is an ex post estimate of gross savings for the Prescriptive program.

Net Program Savings

The primary objective of the net savings analysis for the Prescriptive 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 (NTG) ratio that quantifies the percentage of the gross program impacts that can be reliably attributed to the program.

For PY3, the net program impacts were quantified from the estimated level of free-ridership. Quantifying free-ridership requires estimating what would have happened in the absence of the program. A customer self-report method, based on data gathered during participant telephone

interviews, was used to estimate the free-ridership for this evaluation. The existence of participant spillover was qualitatively examined by identifying spillover candidates through questions asked in the participant interviews. If response data provides sufficient detail to quantify participant spillover, those impacts are estimated.

Once free-ridership and participant spillover has been estimated the Net-to-Gross (NTG) ratio is calculated as follows:

NTG Ratio = 1 – Free-ridership Rate + Participant Spillover

Free ridership was assessed following a framework that was developed for evaluating net savings of California's 2006-2008 nonresidential energy efficiency programs. This method calculates free-ridership using data collected during participant telephone interviews concerning the following three items:

- A **Timing and Selection** score that reflected the influence of the most important of various program and program-related elements in the customer's decision to select the specific program measure at this time.
- A **Program Influence** score that captured the perceived importance of the program (whether rebate, recommendation, or other program intervention) relative to non-program factors in the decision to implement the specific measure that was eventually adopted or installed. This score is cut in half if they learned about the program after they decided to implement the measures.
- A **No-Program** score that 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. This score accounts for deferred free ridership by incorporating the likelihood that the customer would have installed program-qualifying measures at a later date if the program had not been available.

For projects that receive greater program funding levels in excess of \$50,000, an effort is made during the customer telephone interview to more completely examine project influence sources in order to allow for any adjustments to customer self-reported score.

The net-to-gross scoring approach is summarized in Table 2-1.

Table 2-1. Net-to-Gross Scoring Algorithm for the PY3 Prescriptive Program

Scoring Element	Calculation
<p>Timing and Selection score. The maximum score (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:</p> <ul style="list-style-type: none"> A. Availability of the program incentive B. Recommendation from utility program staff person C. Information from utility or program marketing materials D. Endorsement or recommendation by utility account manager E. Other factors (recorded verbatim) F. Information provided through technical assistance received from utility or KEMA field staff G. Vendor Score (when triggered) H. Account Manager Score (when triggered) 	<p>Basic Rigor: Maximum of A, B, C, D, and E</p> <p>Standard Rigor: Maximum of A, B, C, D, E, F, G, and H</p>
<p>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?”</p>	<p>Points awarded to the program (divided by 10)</p> <p>Divide by 2 if customer learned about program AFTER deciding to implement the measure that was installed</p>
<p>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?” The NTG algorithm computes the Likelihood Score as 10 minus the respondent’s answer (e.g., the likelihood score will be 0 if extremely likely to install exactly the same equipment if the program had not been available).</p> <p>Adjustments to “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.</p>	<p>Interpolate between Likelihood Score and 10 to obtain the No-Program score, where</p> <p>If “At the same time” or within 6 months then the No Program score equals the Likelihood Score, and if 48 months later then the No Program Score equals 10 (no free-ridership)</p>
<p>Project-level Free-ridership (ranges from 0.00 to 1.00)</p>	<p>1 – Sum of scores (Timing & Selection, Program Influence, No-Program)/30</p>
<p>“Our records show that <COMPANY> also received an incentive from <UTILITY> for a <different end use> project at <same ADDRESS>. Was the decision making process for the <different end use> project the same as for the <ENDUSE> project we have been talking about?”</p>	<p>If participant responds “same decision,” assign free-ridership score to other end-uses of the same project</p>
<p>“Our records show that <COMPANY> also received an incentive from <UTILITY> for <number> other <ENDUSE> project(s). Was it a single decision to complete all of those <ENDUSE> projects for which you received an incentive from <UTILITY> or did each project go through its own decision process?”</p>	<p>If participant responds “single decision,” assign free-ridership score to same end-use of the additional projects (projects with separate project ID’s)</p>
<p>PY3 Project level Net-to-Gross Ratio (ranges from 0.00 to 1.00)</p>	<p>1 – Project level Free-ridership + Project-Level Participant Spillover</p>

2.1.2 Process Evaluation Methods

Six research activities were conducted in support of the process evaluation: (1) interviews with program and implementation staff, (2) in-depth interviews with participating market actors, (3) in-depth interviews with ComEd Account Managers, (4) a quantitative telephone survey with 109 participating customers, (5) a quantitative telephone survey with 70 non-participating customers, and (6) a literature review and utility staff interviews regarding upstream bonuses for trade allies. These activities are further described in the next section.

2.2 Data Sources

Table 2-2 provides a summary of the principal data sources contributing to the evaluation of the PY3 Prescriptive Program. For each data element listed, the table provides the targeted population, the sample frame and design, the sample size, and the timing of data collection.

The interview guides and data collection instruments for telephone surveys are included in Appendix 5.1.

2.2.1 Tracking Data

The tracking data for this evaluation was extracted from a copy of the ComEd online database uploaded to the evaluation team SharePoint site on a periodic basis. The final ex ante tracking data used to provide program reported energy savings for this evaluation was uploaded on August 3, 2011.

Sampling was conducted from extracts produced earlier. For gross impact evaluation, a portion of sample projects were drawn from “population wave 1” of paid projects defined by the database extract dated March 22, 2011 to allow an early start of the impact efforts. The remaining sample projects were drawn from the population of projects paid after the March 22 extract: “population wave 2” as identified in a July 13, 2011 extract. The full Prescriptive phone survey sample was drawn from a database extract dated July 13, 2011.

2.2.2 Program and Implementation Staff Interviews

The evaluation team conducted one call with the Program Manager of the Prescriptive Program and other senior ComEd staff. This call covered key changes to the program design and implementation for PY3. We also conducted an interview with staff members at KEMA responsible for program implementation and marketing strategies.

Table 2-2. Principal Data Sources Contributing to the PY3 Evaluation

Data Collection Type	Targeted Population	Sample Frame	Sample Design	Sample Size	Timing
Tracking Data Analysis	Prescriptive Program Customers, Projects and Measures	Tracking Database, July 13, 2011 Extract	-	All	Ongoing
In-depth Telephone Interviews	ComEd Prescriptive Program Staff	Contact from ComEd	C&I Prescriptive Program Manager	1	April 2011
	Implementation Staff	Contact from ComEd	KEMA Manager	1	August 2011
	ComEd Account Managers	ComEd Account Manager List	Purposeful sample of Account Managers triggered by participant NTG responses; plus random sample of others	5	September/October 2011
	Participating Market Actors	ComEd Trade Ally List	Mix of active and inactive market actors, as well as those who completed projects but are not a registered trade ally	25	September/October 2011
	Program staff of utilities with trade ally bonus	Literature Review	Census Attempt (N=10)	7	August/September 2011
CATI Telephone Survey	Prescriptive Program Participants	Tracking Database	Stratified Random Sample of Prescriptive Program Participants	109	August/September 2011
CATI Telephone Survey	Non-Participating Customers	ComEd Database	Random sample, excluding small rate class	70	August/September 2011
Engineering File Review	Projects in the Prescriptive Program	Tracking Database, March 22, 2011 and July 13, 2011 Extracts	Stratified Random Sample of 90 by Prescriptive Project-Level kWh (3 Strata) Randomly Assigned to On-Site or File Review	54	June 2011-September 2011
On-Site Visit M&V				36	

2.2.3 Account Manager Interviews

We conducted interviews with five ComEd Account Managers as part of the PY3 evaluation of the Smart Ideas for Your Business Program. The interviews focused on program awareness and customer interest and participation. The five interviewed Account Managers represent a mix in

terms of the number of customers they represent and their customers' participation in the Smart Ideas for Your Business Program.

2.2.4 Market Actor In-Depth Interviews

We interviewed 25 market actors as part of the PY3 evaluation of the Prescriptive Program. The interviews focused on (1) how the Smart Ideas for Your Business Program has affected business practices and market trends, (2) net-to-gross questions for contractors identified by customers as having had a strong influence in the implementation of specific PY3 projects,⁷ (3) barriers to installation of energy efficient equipment and customer participation in the program, and (4) satisfaction with the program and participation processes.

Of the 25 interviewed market actors, nine have completed projects in the Prescriptive Program but are *not* a registered trade ally. The remaining 16 interviews represent a mix of high activity and low activity *registered* trade allies who participated in the Prescriptive Program in PY3.

2.2.5 Interviews with Program Staff of Utilities with Trade Ally Bonus

The evaluation team conducted interviews with seven individuals presenting utility programs that have employed a trade ally bonus. These programs were identified through a literature review and included both residential and business programs.

2.2.6 CATI Telephone Survey of Participating Customers

A Computer-Assisted Telephone Interviewing (CATI) survey was conducted with a stratified random sample of participants in the Prescriptive Program. The survey was directed toward unique customer contact names drawn from the tracking system for PY3 paid Prescriptive projects. This survey focused on three key areas: (1) questions to estimate net program impacts (quantitative assessment of free-ridership and qualitative assessment of spillover), (2) hours-of-use for lighting projects in support of the gross impact analysis, and (3) questions to support the process evaluation. All interviews were completed in August and September of 2011.

2.2.7 CATI Phone Survey of Non-Participating Customers

A CATI survey was conducted with a random sample of non-participating customers. The survey excluded customers in the small rate class (C28 – customers with demand less than 100 kW). The survey included questions about barriers to participation, program awareness, customer decision making processes, and general energy efficiency behaviors and attitudes. All interviews were completed in August and September of 2011.

⁷ Please refer to Section 2.1.1 on how these questions were used as an input to the NTG algorithm.

2.2.8 Project Application File Review

To support final application file review, project documentation in electronic format was obtained from the online tracking system for each sampled project and several others that were randomly inspected. Documentation included some or all of scanned files of hardcopy application forms and supporting documentation from the applicant (ex ante impact calculations, invoices, measure specification sheets, vendor proposals), pre-inspection reports and photos (when required), post inspection reports and photos (when conducted), a project summary report, and important email and memoranda.

2.2.9 On-Site Visits and Measurement

On-site surveys were completed for 36 of the applications sampled for M&V. During each on-site visit, data identified in the analysis plan is collected, including monitoring records (such as instantaneous spot watt measurements for relevant equipment, measured temperatures, data from equipment logs and EMS/SCADA system downloads), equipment nameplate data, system operation sequences and operating schedules, and a careful description of site conditions that might contribute to baseline selection.

2.3 Sampling

For gross impact evaluation, sampling was conducted in two waves to allow an early start of the impact efforts. The first wave of sampling was conducted on projects with a status of paid in a March 22, 2011 database extract. The second and final wave of sample projects were drawn from the end of year population of projects paid after the March 22 extract. The Prescriptive telephone sample for Net-to-Gross estimation and the process survey was drawn in one wave from a database extract representing the final population of projects.

Details of the sampling approach are provided in Appendix 5.2.

2.3.1 Gross Impact M&V Sample

For the PY3 program year, a statistically significant sample based on 90/10 confidence/precision level for program-level savings was drawn for the gross savings verification.

Table 2-3 provides a profile of the gross impact verification sample for the Prescriptive program in comparison with the Prescriptive program population. Shown is the resulting sample that was drawn, consisting of 90 projects, responsible for 26.5 million kWh of ex ante impact claim and representing 10% of the ex ante impact claim for the program population. Also shown are the ex-ante based kWh sample weights for each of three strata.

Table 2-3. Profile of the Gross Impact Sample by Strata

Prescriptive Population Summary				Impact Sample		
Sampling Strata	Number of Projects (N)	Ex Ante kWh Impact Claimed	kWh Weights	n	Ex Ante kWh	Sampled % of Population
1	139	88,442,741	0.342	30	19,205,786	22%
2	406	84,575,667	0.327	30	6,460,074	8%
3	3,249	85,367,474	0.330	30	845,031	1%
TOTAL	3,794	258,385,882	1.000	90	26,510,891	10%

Table 2-4 provides a comparison of the population profile to the sample analyzed by measure technology types that align with end uses. The sample reflects the dominance of lighting, somewhat over-represents variable speed drives, and provides some field M&V for refrigeration, HVAC cooling equipment, and premium efficiency motor measures.

Table 2-4. PY3 Prescriptive Sample End-Use Measure Technology Type Comparison

Consolidated End-Use Measure Technology Type	Ex-Ante Claimed Savings			
	Gross kWh, Population		Gross kWh, Sample	
LIGHTING	220,081,626	85%	21,040,421	79%
ALL VSDs	27,586,756	11%	4,966,909	19%
REFRIGERATION	7,132,166	3%	230,030	1%
HVAC EQUIPMENT	3,121,799	1%	205,560	1%
PREMIUM MOTORS	400,019	0%	67,971	<1%
FOOD SERVICE	63,516	0%	0	0%
Total	258,385,882	100%	26,510,891	100%

Source: Evaluation analysis of tracking savings from ComEd online tracking system, August 3, 2011.

Table 2-5 provides a comparison of the population profile to the sample analyzed by business type. The sample reflects the dominance of warehouses, although they are somewhat over-represented, as is medical. Industry is somewhat under-represented; however, the measures in industry and warehouses are commonly new T5/T8 fixtures and occupancy sensors, and both the population and sample have 50 percent of energy savings in these business types.

Table 2-5. PY3 Prescriptive Sample Business Type Comparison

Business Type	Ex-Ante Claimed Savings			
	Gross kWh, Population		Gross kWh, Sample	
Warehouse	56,019,530	22%	9,392,685	35%
Light Industry	46,374,552	18%	3,236,793	12%
Retail/Service	39,017,385	15%	3,871,977	15%
Office	26,315,976	10%	1,807,832	7%
Miscellaneous	26,076,783	10%	1,639,941	6%
Heavy Industry	24,774,149	10%	820,696	3%
Medical	20,740,511	8%	4,834,780	18%
Grocery	12,057,843	5%	534,865	2%
Hotel/Motel	3,397,208	1%	369,886	1%
College / University	2,189,815	1%	-	0%
Restaurant	735,230	0%	1,430	0%
K-12 School	686,900	0%	-	0%
Total	258,385,882	100%	26,510,891	100%

Source: Evaluation analysis of tracking savings from ComEd online tracking system, August 3, 2011.

Table 2-6 provides a profile of the 36 sites randomly selected from the impact sample for on-site M&V.

Table 2-6. Profile of the Gross Impact M&V On-Site Sample by Strata

On-Site Sample				
Sampling Strata	Number of Sites	Business Types	Ex Ante kWh Impact Claimed	Sampled % of Population
1	12	Warehouse, Light Industry, Medical, Retail/Service	7,361,557	8%
2	10	Warehouse, Light Industry, Heavy Industry, Office, Grocery, Miscellaneous, Retail/Service	1,955,561	2%
3	14	Warehouse, Light Industry, Office, Restaurant, Miscellaneous, Retail/Service	535,805	<1%
TOTAL	36		9,852,923	4%

2.3.2 CATI Telephone Survey for Participating Customers

A quantitative telephone survey was implemented with a stratified random sample of Prescriptive Program participants, resulting in 109 completed interviews.

The sampling unit for the CATI telephone survey was the unique program contact phone number. Overall, there were 1,853 unique phone numbers associated with 3,794 completed projects. Participants who completed both prescriptive and custom projects were also removed from the sample for the prescriptive survey (given the smaller population of custom projects, the custom program was given priority for calling overlapping project contacts). The resulting sample frame included 1,783 unique phone numbers.

We completed net-to-gross interviews with 109 participants, resulting in a precision level of +/- 5% (at a 90% confidence level).⁸ We completed process interviews with 104 participants, resulting in a precision level of +/-8% for process questions (at a 90% confidence level).^{9,10}

The highest number of survey respondents is from the light industry sector (19%), followed by the warehouse (17%) and office (16%) sectors. Both the warehouse and heavy industry sectors are somewhat overrepresented in the survey, compared to the population. This is not surprising given that the sampling strategy focused on projects with the highest savings, and projects in these sectors tend to be larger than projects in the other sectors.

On the other hand, the retail/service sector is underrepresented in the survey, and the restaurant sector is not represented at all. These two sectors have among the smallest per project savings and were therefore not as heavily targeted in the survey. Overall, however, the distribution of survey respondents is largely similar to that of the population of PY3 Prescriptive Program participants.

Table 2-7 presents the comparison of business sectors for survey respondents and the overall population of participants.

Details on survey disposition are provided in Appendix 5.2.

⁸ One of the 109 respondents did not answer enough of the net-to-gross questions to be scored.

⁹ After reaching the target number of interviews (104), we conducted an additional five impact-only interviews with participants with non-lighting projects. These interviews were added to improve the precision levels for non-lighting net impact estimates.

¹⁰ The difference in precision between net-to-gross questions and process questions is the result of net-to-gross findings being based on savings and process findings being based on respondents. Since larger projects were oversampled, precision levels are slightly higher for net-to-gross results.

Table 2-7. Business Sector of Participant Survey Respondents

Sector	Respondents (n=109)	Population* (N=1,783)
Light Industry	19%	19%
Warehouse	17%	13%
Office	16%	17%
Heavy Industry	14%	7%
Retail/Service	8%	19%
Grocery	3%	2%
Medical	2%	3%
Hotel/Motel	2%	1%
K-12 School	2%	1%
College / University	1%	1%
Restaurant	–	2%
Miscellaneous	17%	15%

**Note: The population is based on the sample frame and excludes contact phone numbers that were set aside for the Custom participant survey.*

Source: Program Tracking Database; results of CATI telephone survey.

2.3.3 CATI Telephone Survey for Non-Participating Customers

A quantitative telephone survey was implemented with a random sample of business customers who have not participated in the Smart Ideas for Your Business Program in the first three program years. This survey resulted in 70 completed interviews.

The sample of non-participants was based on the database of all business customers provided by ComEd. One of the objectives of the Smart Ideas for Your Business Program in PY3 was to generate more large projects. The non-participant survey therefore focused on delivery service classes for customers with medium and large energy demand. Excluded from the sample frame were customers with small energy demand.

Removing the small class customers resulted in 23,130 records in the sample frame. We also removed from the sample frame 11,272 records associated with customers who participated in the program, or submitted applications, in the first three program years. We then randomly selected 1,500 customers for the sample frame. After removing duplicate contacts, our final sample frame consisted of 1,439 unique contacts.

Surveyed non-participants come from a variety of business sectors. Sixteen percent classify their business as a government/public sector or non-profit entity, 11% as retail/service, and 10% as light industry. A majority of respondents (80%) own their facility. In addition, 44% of the businesses only operate at one location, 43% have several locations, and 10% are located at the headquarters of their company.

Section 3. Program Level Results

This section presents the Prescriptive program impact and process evaluation results.

3.1 Impact Analysis

3.1.1 Tracking System and Default Savings Review

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 Prescriptive program.

The evaluation team works off of copies of the tracking system data uploaded by ComEd to their secure SharePoint site on a periodic basis. ComEd's tracking system provides on-line access to standard reports developed for internal program reporting and management functions.

The Evaluation team produced an estimate of PY3 year end ex ante energy and peak demand impacts for the Prescriptive program, for comparison with ComEd internal reporting. The initial comparison of July 2011 revealed a minor difference of about 1 million kWh, less than 1% of total ex ante energy savings. After closer scrutiny by the Prescriptive and Custom evaluation teams, we found that the Prescriptive routine for creating datasets from the ComEd tracking extracts was missing the prescriptive measure savings from guest room energy management and food service measures (the only PY3 measure was hot food holding cabinets). These two prescriptive measures were assigned to the "Other" end use, which had been used only for custom measures. Correcting the Prescriptive routine resolved the discrepancy in Prescriptive claimed savings between ComEd and the evaluation team. After this correction, the estimate of combined Prescriptive and Custom claimed savings produced by the evaluation team also matched ComEd's combined estimate.

- ***Recommendation: When ComEd is adding a new end-use or new measure types to an existing end use, consider alerting the evaluation team who may need to revise data handling routines.***

Although this discrepancy was uncovered prior to the telephone survey and all PY3 projects were available for sampling for telephone verification, twelve projects that had only "other"

measures in the project were excluded from the sample frame for engineering review. However, both guest room energy management and hot food holding cabinets were measures represented in the impact sample frame because they were a part of larger multi-measure projects in the sample frame. We have concluded it is not necessary to apply weighting factors to the impact analysis to account for this minor factor.

Default Savings Review

The evaluation team reviewed ComEd's measure default savings for PY3 as documented in Appendix A of the Business Prescriptive program operations manual.¹¹ The PY3 review was less extensive than conducted in PY1 and PY2 because ComEd has addressed previous recommendations, and many measures and assumptions are unchanged.

To facilitate discussion and technical review, ComEd and the evaluation team met in the Wheaton offices of KEMA on November 3, 2010 for a full day discussion, focused on evaluation issues and default values used for PY3 and PY4. ComEd also created a SharePoint site dedicated to default savings where the extensive reference materials and supporting documentation for default savings could be made available to the evaluation team. This was very helpful.

Measures reviewed by the evaluation team in greater detail after the November 3 meeting for PY3 were refrigeration measures, food service measures, and variable speed drives. ComEd had made extensive updates to refrigeration measures for PY3 to factor local weather into the impact calculations. Based on secondary research conducted by KEMA, ComEd chose to drop door gaskets for refrigeration as a measure early in PY3. Projects implemented in PY3 were assigned zero savings by ComEd.

The refrigeration and food service default values were judged to be reasonable by the evaluation team. Results of variable speed drive default values review are described below.

Variable Speed Drive Tracking System and Default Value Review

In the second half of PY3, ComEd expanded its incentive offering for Prescriptive variable speed drives by adding a new customer application form targeting a broader range of VSD installations. The form continued Prescriptive incentives for HVAC pumps, fans, and chillers and added process pumps and fans, compressed air, and "other" fan and pump applications. ComEd set project size limits for Prescriptive projects, above which customers are instructed to take the Custom program path. ComEd also required a detailed variable speed drive information sheet on motors over 100 horsepower. The parameters describing HVAC VSD installations on the application form were greatly diversified to describe a range of fan and

¹¹ KEMA, *Appendix A - Prescriptive Measures*, (file provided: "ComEd Workpapers 6-1-10.doc"). This document is sometimes referred to as a Technical Reference Manual (TRM) or as "ComEd Workpapers June 1, 2010 version".

pump installation, equipment type, and control configurations, which greatly expanded the matrix of default savings values assigned.

As a result of this expanded offering, customer application forms, default values, and tracking system deployment changed throughout PY3. The evaluation team engaged with ComEd from November 2010 through March 2011 to review application materials, savings estimation methodologies, and default values.

Three sources for VSD ex ante savings estimates were reviewed by the evaluation team prior to deployment by ComEd in PY3:

- The default values documented in the ComEd Workpapers June 1, 2010 version.
- A spreadsheet based VSD savings calculation tool, described in a November 22, 2010 email attachment memo from ComEd that could be used to override programmed default values.¹²
- An expanded and updated variable speed drive savings workpaper describing the methodology and default values for ComEd's expanded offering.¹³

For impact evaluation on variable speed drive projects in our sample (12 projects, 62 measures), we utilized site M&V data when a site visit was conducted (4 projects), we verified the spreadsheet calculation tool if that was used by ComEd for ex ante (2 projects), and used the expanded workpaper of March 14, 2011 for engineering verification. The March 14, 2011 workpaper was used in our review of projects completed early in PY3 that used the June 1, 2010 workpapers as defaults, because we judged the updated workpaper as the better estimate.

Our review of ex ante savings in ComEd's tracking system revealed numerous inconsistencies with the values we were expecting to find. Our attempt to "back out" PY3 default savings values on completed projects found the following:

- HVAC VSDs in some office fan and pump projects had 241 kWh/hp – this is a default value from PY1 (PY3 defaults were 216 kWh/hp). The peak impact on the same projects did reflect PY3 defaults, which were unchanged since PY1.
- Similarly, some retail and industry projects were seen with default values used in PY1.
- Seven projects with a combined 13 measures had ex ante claimed savings, but the Prescriptive quantity installed and incentive was zero, and for several measures the horsepower size was also zero. It appears these measures were intended to be removed

¹² Attachment to a November 22, 2010 email from David Nichols of ComEd, *ComEd SIFYB, Variable Speed Drives – Prescriptive and Custom, Measure Update*.

¹³ Attachment to a March 14, 2011 email from Karen Maoz of KEMA, *Variable-Speed Drives for HVAC and Process Applications*, Filename: *VSD Workpaper 3_14_11 final.docx*.

from the Prescriptive program, but the Prescriptive impacts were not zeroed out. The total ex ante claim for this group was 260,073 kWh and 33.8 kW (Application numbers 4179, 5201, 5920, 6455, 7685, 8568, and 8570).

- One retail chain implementing similar projects at four locations had per unit ex ante impacts that ranged from 859 kWh/hp to 20,604 kWh/hp, suggesting a programming error in the tracking system (Application numbers 3769, 3770, 3771, and 3772).

Although we did not adjust gross impacts for projects and measures outside of our impact verification sample, we recommend that ComEd consider reviewing its implementation of variable speed drives in the tracking system.

- ***Recommendation: ComEd should consider conducting a detailed review and testing of the implementation of tracking system handling of variable speed drive projects.***

Tracking System Check for Default Values Implementation

ComEd’s tracking system extract contains measure lookup tables that identify per unit savings by measure type and business type. The evaluation team has previously checked lighting lookup tables. In PY3, the non-lighting measure lookup tables were checked against values documented in the *Appendix A - Prescriptive Measures* workpapers. Based on our review and understanding of the tracking system, it appears documented default values for some PY3 cooling and refrigeration measures do not match lookup values. Our comparison is attached in Appendix 5.3.

Since the program is already into PY4, we recommend that ComEd consider reviewing our PY3 comparison and check whether our assessment is correct, and if so, whether similar measures need revision in PY4 lookup values.

- ***Recommendation: During PY4, prior to closing out year-end ex ante savings estimates, consider providing the evaluation team with the default lookup values coded into the tracking system. The evaluation team will check the values against the default values documentation, and advise ComEd on any differences. As revisions to handling of ex ante calculations are made in the tracking system, consider alerting the evaluation team.***

3.1.2 Gross Program Impact Parameter Estimates

Ex post gross program impacts were developed for the Prescriptive program based on engineering file review, participant interviews, and site M&V for a sample of applications.

Gross Impact Adjustments Triggered by the Participant Phone Survey

A brief set of questions in the CATI survey was asked regarding installed measures, removed equipment, installation in non-air-conditioned space, and lighting hours of use to support the gross impact evaluation. Gross impacts were adjusted *only* for those projects in the engineering

file review group. Of the 109 completed phone interviews, 23 covered projects that were also in the engineering review sample for gross impact evaluation.

Table 3-1 identifies the survey question or issue that was addressed, the participant responses, and conclusions. The evaluation team only adjusted impacts based on participant responses when additional follow-up through engineering review of project files, conversations with site personnel, or on-site inspection could be conducted. Responses may be used to inform future adjustments to default savings and identify issues for PY4 M&V activities.

When the finding the seven of 79 respondents adding fixtures to increase lighting levels was brought to ComEd's attention, ComEd indicated they have taken steps to identify potential under-lit designs in the pre-approval stage and contact those customers to make them aware of the potential for lighting level reductions. ComEd indicated they will conduct a pre-inspection on projects where there are significantly fewer lighting fixtures installed than taken out. ComEd also indicated they will call the customer when there is a large reduction in the total lumens from the existing system to the installed system, and let the customer know that based on the lumen output of the installed system compared to the old system they can expect a reduction in lighting levels of "x%".

Table 3-1. Participant Responses to CATI Impact Questions

Survey Question	Participant Responses	EM&V Conclusion
After you completed the installation of the new fixtures, did you install additional lighting fixtures in that same space at a later time to increase the amount of lighting?	Yes: 7 of 79 respondents added fixtures. Respondents added an additional 26, 24, 15, 12, 8, 4, or 2 fixtures making a total of 91 additional "New T5/T8 fixtures"	In PY2, 1 of 27 respondents added fixtures, so the PY3 incidence is higher. ComEd should consider investigating customer satisfaction with light levels and consider strategies to reduce under-lit designs if this is an issue.
What types of linear fluorescent lights were removed?	Of 31 respondents: 5 reported standard performance T8; 20 reported T12 fixtures only; 4 reported "other" but did not specify; and 2 did not know any of removed fluorescent types	Four of five projects reporting existing T8s removed were allowable in baseline measure definition. One project reported removing standard T8s and installing high wattage CFLs, which is not an eligible retrofit.
If type of linear fluorescent lights removed were T12 fixtures: "What types of ballasts were in use on the linear fluorescent fixtures you removed?"	Of 20 respondents reporting T12s, 15 identified ballast type: (2) electronic, (13) magnetic ballast, (3) "other" but did not specify; (2) don't know	For the respondents that claimed electronic ballasts, installed measures allowed electronic ballasts in the baseline.
If you had not participated in the program, when would you have replaced your T-12 lighting?	There were 36 responses made by 30 respondents. Among responses, 23 (64%) were chosen as "Don't Know", while 11 (31%) were chosen as "2 or more years later". One was chosen as "within one year" and one was chosen "between one and two years".	This question was asked to obtain qualitative baseline feedback on whether the T12 systems being upgraded were early replacements or replacements due to failure. Only 2 of 36 (6%) of responses indicated intentions to replace a T12 lighting system within the next two years - the scenarios aligned a replacement that was required or imminent due to failing equipment. This is further explored in Section 3.1.4 of the net-to-gross analysis.
Placed lighting equipment in storage or installed lighting equipment at another location?	Yes: 1 of 94 respondents (placed 50% in storage), refused regarding other location	This project was in the on-site sample and ex post impacts reflect as found conditions. The project involved a storage warehouse, and the respondent may have been confused by that coincidence.
Was the new lighting equipment installed in air conditioned (cooled) space?	(30 yes, 32 no, 15 some was/some wasn't, 32 blank)	Adjust impacts for 7 projects in verification sample where respondent answered "no". For PY4, ComEd has factored prevalence of non-cooled space into HVAC interaction factors for warehouse and industry.
Type of exit sign removed	1 incandescent, 1 CFL	Sample too small to draw conclusions. Stated CFL baseline was not in impact review sample.

Table 3-2 below provides the un-weighted average annual equivalent full load hours (EFLH) of operation for lighting among all respondents (64) who provided complete responses to the lighting hours of operation questions.

Table 3-2. Participant Responses to Lighting EFLH Questions by Business Type

Business Type	Respondent Count	Un-weighted Average Annual Lighting EFLH
College / University	1	4,357
Grocery	2	7,053
Heavy Industry	12	6,850
K-12 School	1	3,855
Light Industry	18	4,830
Miscellaneous	11	4,592
Office	4	3,880
Retail/Service	6	4,200
Warehouse	9	4,873
Total	64	5,102

Realization Rates for the Prescriptive Program

There are two basic statistical methods for combining individual 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.¹⁴ 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 realization rates by stratum.

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

¹⁴ A full discussion and comparison of separate vs. combined ratio estimation can be found in [Sampling Techniques](#), Cochran, 1977, pp. 164-169.

Table 3-3. Gross Impact Realization Rate Results for the Prescriptive Sample

Sampling Strata	Sample-Based Ex Ante kWh Impact Claimed	Sample-Based Ex Ante kW Impact Claimed	Sample-Based Ex Post Gross kWh Impact	Sample-Based Ex Post Gross kW Impact	Sample-Based Ex Post Gross kWh Realization Rate	Sample-Based Ex Post Gross kW Realization Rate
1	19,205,786	3,451	18,478,833	2,962	0.96	0.86
2	6,460,074	1,241	6,496,780	1,158	1.01	0.93
3	845,031	181	889,266	159	1.05	0.88

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

Sampling Strata	Relative Precision ± %	Low	Mean	High
Stratum 1	15%	0.82	0.96	1.11
Stratum 2	8%	0.93	1.01	1.09
Stratum 3	20%	0.84	1.05	1.27
Total kWh RR	9%	0.92	1.01	1.10

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

Sampling Strata	Relative Precision ± %	Low	Mean	High
Stratum 1	12%	0.76	0.86	0.96
Stratum 2	6%	0.88	0.93	0.99
Stratum 3	15%	0.75	0.88	1.01
Total kW RR	7%	0.83	0.89	0.95

The realization rates analyzed by strata form the basis for estimating the overall realization rate applied to total ex-ante gross program savings at the stated confidence level and relative precision. Below we present additional summaries of the verification sample results by other factors, including M&V approach, business type, and end-use, to provide insight into the findings. Realization rates shown below are not statistically valid at the 90/10 level of confidence and relative precision. The results are summarized in Table 3-6, Table 3-7, and Table

3-8 below. A comparison of relative precision for the on-site M&V sample, the file review sample, and the combined sample is provided in Table 3-9 and Table 3-10.

Table 3-6. Gross Impact Realization Rate Results for the Prescriptive Sample – by M&V Approach and Strata

M&V Approach	Strata	Project Count	Sample-Based Ex Ante kWh Impact Claimed	Sample-Based Ex Ante kW Impact Claimed	Sample-Based Ex Post Gross kWh Impact	Sample-Based Ex Post Gross kW Impact	Sample-Based Ex Post Gross kWh Realization Rate	Sample-Based Ex Post Gross kW Realization Rate
On-Site	1	12	7,361,557	1,295	4,641,653	848	0.63	0.66
	2	10	1,955,561	349	1,808,554	328	0.92	0.94
	3	14	535,805	107	528,927	99	0.99	0.93
File Review	1	18	11,844,229	2,157	13,837,180	2,114	1.17	0.98
	2	20	4,504,513	892	4,688,226	830	1.04	0.93
	3	16	309,226	74	360,339	60	1.17	0.81
Total		90	26,510,891	4,873	25,864,879	4,279	0.98	0.88

Table 3-7. Gross Impact Realization Rate Results for the Prescriptive Sample – By End-use

End Use	Measure Count	Sample-Based Ex Ante kWh Impact Claimed	Sample-Based Ex Ante kW Impact Claimed	Sample-Based Ex Post Gross kWh Impact	Sample-Based Ex Post Gross kW Impact	Sample-Based Ex Post Gross kWh Realization Rate	Sample-Based Ex Post Gross kW Realization Rate
Lighting	202	21,040,421	3,917	21,336,135	3,530	1.01	0.90
VSD	62	4,966,909	725	4,057,361	520	0.82	0.72
Refrig.	7	230,030	17	231,225	17	1.01	1.01
HVAC	1	205,560	203	205,560	203	1.00	1.00
Motors	5	67,971	10	34,598	9	0.51	0.87
Total	277	26,510,891	4,873	25,864,879	4,279	0.98	0.88

Table 3-8. Gross Impact Realization Rates for the Prescriptive Sample – by Business Type

Business Type	Project Count	Sample-Based Ex Ante kWh Impact Claimed	Sample-Based Ex Ante kW Impact Claimed	Sample-Based Ex Post Gross kWh Impact	Sample-Based Ex Post Gross kW Impact	Sample-Based Ex Post Gross kWh Realization Rate	Sample-Based Ex Post Gross kW Realization Rate
Warehouse	22	9,392,685	1,666	10,045,048	1,368	1.07	0.82
Light Industry	13	3,236,796	791	2,942,210	791	0.91	1.00
Retail/Service	21	3,871,977	848	3,209,640	808	0.83	0.95
Office	14	1,807,832	277	1,852,421	257	1.02	0.93
Miscellaneous	7	1,639,942	304	1,855,233	274	1.13	0.90
Heavy Industry	3	820,696	207	1,297,385	175	1.58	0.85
Medical	5	4,834,782	666	3,609,881	486	0.75	0.73
Grocery	3	534,865	64	560,954	53	1.05	0.83
Hotel/Motel	1	369,886	50	490,229	66	1.33	1.32
College / University	0	-	-	-	-		
Restaurant	1	1,430	0	1,879	0	1.31	1.28
K-12 School	0	-	-	-	-		
Total	90	26,510,891	4,873	25,864,879	4,279	0.98	0.88

Table 3-9. Gross kWh Realization Rates and Relative Precision at 90% Confidence Level

Sampling Group	Strata	Relative Precision	Low	Mean	High
		± %			
On-Site M&V	1	36%	0.41	0.63	0.86
	2	14%	0.80	0.92	1.05
	3	29%	0.70	0.99	1.28
	Overall	17%	0.72	0.86	1.01
Engineering File Review	1	16%	0.98	1.17	1.36
	2	10%	0.94	1.04	1.14
	3	25%	0.88	1.17	1.45
	Overall	10%	1.01	1.12	1.23
Total kWh RR	Overall	9%	0.92	1.01	1.10

Table 3-10. Gross kW Realization Rates and Relative Precision at 90% Confidence Level

Sampling Group	Relative Precision	Low	Mean	High
	± %			
On-Site M&V	11%	0.76	0.85	0.95
Engineering File Review	9%	0.83	0.91	0.99
Total kW RR	7%	0.83	0.89	0.95

3.1.3 Gross Program Impact Results

Based on the gross impact parameter estimates described previously, gross program impacts were derived for the PY3 Prescriptive program. The results are provided in Table 3-11.

Table 3-11. Gross Parameter and Savings Estimates

Segment	kWh, Ex Ante	kWh, Ex Post	kWh RR	kW, Ex Ante	kW, Ex Post	kW RR
Total	258,385,882	260,236,777	1.01	52,300	46,553	0.89

Some general observations from the gross impact sample:

- The realization rate for kWh was 1.01 in PY3. Individual measures and projects had realization rates greater and less than 1.0, however the overall value of 1.01 is substantially lower than the value of 1.21 observed for PY2. A substantial factor in the decrease in realization rate between PY2 and PY3 was due to characteristics of participants. In PY3, lighting projects did not provide as large of an increase in ex post savings through adjustment for lighting hours of use. Compared with PY2, the PY3 population and sample ex ante energy savings had a lower percentage of industry and warehouse business types which in PY2 samples had implemented lighting projects with long hours of use. In PY2, industry and warehouse lighting projects comprised 75 percent of ex ante savings in the sample, and had a combined energy realization rate of 1.34 (unweighted). In PY3, industry and warehouse projects (primarily lighting) comprised 51 percent of ex ante savings in the sample, and had an unweighted energy realization rate of 1.06. Retail businesses comprised 11 percent of ex ante savings in the PY2 sample and had an energy realization rate of 0.94, while in PY3 retail comprised 15 percent of ex ante energy savings and had a realization rate of 0.83. Also, the PY3 program and sample had a greater percentage of non-lighting savings, and the energy realization rate for non-lighting savings was lower than for lighting.
- A factor that reduced both the kWh and kW realization rates was a finding that some projects in the 90 project sample had installed lighting measures in non-cooled spaces, and the ComEd default savings value for those measures in those building types included an HVAC interaction factor.

- Adjustment factors that increased or decreased ex post impacts, depending on the project, include quantity adjustments and baseline equipment not matching default assumptions. The overall impact of these adjustments on the energy realization rate was less than the hours of use adjustments.
- Longer hours of use have a disproportionately greater impact on energy than demand. For example, if an industrial plant is found to operate continuously throughout the year, the energy realization rate will increase by 104% over the default value (8,760 ex post hours / 4,290 ex ante hours), whereas the peak demand realization rate will only increase the coincident-diversity factor by 1% (1.00 ex post / 0.99 ex ante).
- The ex ante savings for variable speed drives in many cases did not match any of the three default savings methods for PY3 accepted by the evaluation team during interaction with ComEd during PY3. This resulted in substantial reductions and increases for ex post impacts even when the evaluation team agreed with ComEd on the project details.
- Default savings for measures that weight multiple variations into a single average, such as permanent lamp removal, contributed to significant deviations between ex ante and ex post findings, even though the ex ante estimate adhered to the default savings methodology.
- The realization rate for peak demand was 0.89, reflecting the impact of relatively lower demand realization rates for some variable speed drive measures, the removal of HVAC interaction factors on some lighting projects, and on-site verification at projects that received substantial reductions in peak demand savings: three warehouse projects with low baseline use of installed fixtures (hence low coincident-diversity factors), and a variable speed drive project in a new medical facility where four of the nine variable speed drive measures were judged to be code-required baseline.
- In the case of the variable speed drive project at the new medical building receiving a substantial reduction for ex post savings (Project Number 8527), the evaluation finding required detailed knowledge of the energy code and the final facility design and operating control strategy. On major building projects with long design and construction timelines, various code compliance options may be considered and dropped or altered for different building systems by the time of final completion. The Prescriptive program typically interacts with project actors within a short window of time, presenting a challenge for assessing new construction code compliance. In this particular case, ComEd indicates the customer was not aware of the ComEd New Construction program during the design phase, and the project was admitted into the Business Prescriptive program. The ComEd implementer performed a detailed post inspection and code compliance review and identified five variable speed drive

measures, implemented on smaller motors under 20 horsepower, where the evaluation agreed with the claim of energy savings beyond energy code. On four other measures, involving larger motors 50 horsepower and above, the evaluation concluded that system design and final control strategy, as implemented by the customer, did not produce savings beyond code requirements. ComEd should consider placing tight restrictions on new construction projects admitted into the Prescriptive program, such as restricting maximum motor horsepower size for VSD measures.

- As in PY1 and PY2, warehouses in PY3 were found to have an energy realization rate greater than 1.0. In PY3, the evaluation team was able to conduct on-site M&V at 11 warehouses. The on-site findings suggest the default value for coincident-diversity factor of 0.84 was too high. ComEd has reduced this to 0.70 for PY4, which is in line with PY3 findings.
- The mean energy realization rate for projects that were evaluated through on-site M&V (0.86) was substantially lower than projects that received an evaluation engineering file review (1.12), as shown in Table 3-9, however the overall relative precision of the on-site sample was low at ± 17 percent. In particular, the relative precision in stratum 1 for the on-site sample was quite low, at ± 36 percent. This reflects the high variability in realization rate for the twelve sites randomly selected for on-sites in stratum 1. For these twelve large projects, six received substantial reductions in energy savings, one a substantial increase, and the remaining five were closer to 1.0, above and below. The evaluation file review sample for stratum 1 also showed high variability, at ± 16 percent, suggesting random factors were an issue in the differences between the two verification approaches.
- The mean realization rates for demand were closer and had better relative precision, at 0.85 ($\pm 11\%$) for on-site versus 0.91 ($\pm 9\%$) for file review. Both impact evaluation methods resulted in realization rates that were higher and lower than 1.0 for individual projects. The primary factor for increases in energy realization rates in evaluation engineering file review projects, higher ex post hours of use, was also found in several site verified projects resulting in increased savings for those projects. The evaluation file review sample also experienced projects that had energy impacts lower than default values based on CATI responses.
- Beyond such differences due to random sampling, the on-site M&V approach identified issues that resulted in energy impact reductions on some stratum 1 projects that may not have been captured from the engineering file-review-only process employed in impact evaluation. Examples of issues identified through on-site M&V that might not be found during the evaluation file-review-only verification approach include the following:

- The VSD project in the new medical facility where the baseline for four of nine measures was judged to require a VSD for code compliance was based on a detailed examination of on-site conditions.
- The three warehouse projects with low usage of baseline and post-retrofit fixtures employed operating strategies that would potentially be captured by the telephone survey, but might have resulted in responses that could not be interpreted.
- A project involving time-clocks where the difference between pre-retrofit and post-retrofit hours of operation was much less than the default value used in the ex ante savings calculation, based on site verified operating strategies.
- We note that on-site M&V can identify numerous adjustments to impacts that will increase energy realization rates that are not possible to identify through file review. For example, site measurements can identify energy savings for occupancy sensors that are greater than default values, and this cannot be captured through file review or a telephone interview. For example, data collected on-site in PY1 on 57 measures at 16 on-sites resulted in a significant increase to verified gross savings (24,607 MWh ex post versus 15,708 MWh ex ante for the 16 sites, an energy realization rate of 1.57). In PY1, occupancy sensor measures evaluated at 8 sites had a combined gross realization rate of 1.40. Six of the measures provided higher savings, while two provided lower energy savings. In PY1, there were 14 HVAC VSD measures verified at four office sites, installed on fans and pumps. The combined gross realization rate for these measures was 2.76 (3,057 MWh ex post, 1,107 MWh ex ante). Only two of the 14 VSD measures in PY1 had impacts reduced.
- Consideration was given to weighting on-site results more heavily than engineering file reviewed projects, because a greater variety of adjustments can be identified through on-site verification. We concluded that not giving weighting preference to M&V methods was consistent with our original sample design for PY3, where the M&V approach was randomly assigned.
- In PY3, on-site verification provided 40% of our sample points (36 out of 90). Given the results of PY3, we conclude that the proportion of on-site verification audits in the PY4 sample should be increased relative to the overall sample size, especially in stratum 1 (large projects) that in PY3 exhibited high variability in realization rates. Increasing the proportion of on-site verification audits in our PY4 sample is consistent with our draft PY4 evaluation plan.

3.1.4 Net Program Impact Parameter Estimates

Once gross program impacts have been estimated, net program impacts are calculated by multiplying the gross impact estimate by the program Net-to-Gross (NTG) ratio. As mentioned

above, the NTG ratio for the PY3 Prescriptive program was estimated using a customer self-report approach supplemented by vendor and account manager interviews. This approach relied on responses provided by program participants during the CATI telephone survey to determine the fraction of measure installations that would have occurred by participants in the absence of the program (free-ridership).

For participants receiving more than \$50,000 of incentives in PY3, vendor interviews were attempted to assess program influence on vendors identified by the participant as influential the decision to install program measures. Account Manager interviews were triggered on projects that were managed accounts where the customer had not already assigned a maximum program influence score to one of the other program components.

If the customer has additional projects at other sites covering the same end-use, the survey asks whether the responses also apply to the other projects. If that is the case, the additional projects are given the same score and included in the sample.

The NTG ratio and relative precision at a 90% confidence level for the overall program is provided in Table 3-12.

Table 3-12. NTG Ratio and Relative Precision at 90% Confidence Level - Overall

Sample Strata	Population (N=3,794)	NTG Interviews (n=108)	NTG Sample (n=292)	Sample kWh Wgts.	Relative Precision ± %	Low	NTGR Mean	High
1	139	27	28	0.342	8%	0.68	0.74	0.79
2	406	40	47	0.327	6%	0.65	0.69	0.73
3	3,249	41	217	0.330	2%	0.73	0.74	0.75
Total	3,794	108	292	1.000	5%	0.69	0.72	0.76

Comparing PY2 and PY3, the mean NTG ratio decreased slightly from PY2 (0.74) to PY3 (0.72), but is essentially the same. Although the PY3 results experienced a large increase in the number of smaller projects and in multiple-site third party rebate aggregator activity, as seen in stratum 3, this did not have a dramatic impact on the NTG ratio relative to other strata or PY2 overall results.

Similar to PY2, the NTG ratio estimate for PY3 included a more complex “standard rigor” level of analysis conducted on larger projects, defined as those with incentives greater than \$50,000 for a single project or multiple projects under a single contact name. The expanded standard rigor analysis included additional questions regarding non-program influence factors and the possibility of triggering an interview with the vendor to determine the extent of program influence on the vendor, if the participant said the vendor was important to the decision to proceed with the project. For PY3, 30 of 108 respondents in our sample went through the

standard rigor approach, and two of the 30 standard rigor interviews had responses that triggered follow-up interviews with two different vendors. One vendor interview resulted in an increase in the NTG ratio for that project, the other did not. Three projects were triggered for an Account Manager interview, and one account manager described program influence not uncovered during the participant interview, and this resulted in a slightly higher score for the Timing and Selection component on one project. As in PY2, the impact on overall NTG ratio of follow-up interviews was small, about 1 percent.

No adjustments were made to increase or decrease free-ridership for non-program influences, based on a qualitative review of participant responses. Non-program influences were weighed against program influences in the Timing & Selection score on a project-by-project basis.

In PY3, the evaluation team examined NTG ratios for three other subgroups of the overall population: Lighting, non-lighting, and projects that received a bonus payment for one or more lighting measures.

The NTG ratio and relative precision at a 90% confidence level for projects with lighting energy savings, based only on the lighting portion of project-level savings, is provided in Table 3-13.

Table 3-13. NTG Ratio and Relative Precision at 90% Confidence Level - Lighting

Sample Strata	Population (N=3,003)	NTG Interviews (n=93)	NTG Sample (n=276)	Sample kWh Wgts.	Relative Precision ± %	Low	NTGR Mean	High
1	120	24	25	0.340	8%	0.69	0.75	0.81
2	358	35	42	0.339	5%	0.67	0.71	0.75
3	2,525	34	209	0.321	1%	0.73	0.75	0.76
Total	3,003	93	276	1.000	5%	0.70	0.74	0.77

The NTG ratio and relative precision at a 90% confidence level for projects with non-lighting energy savings, based only on the variable speed drive, HVAC equipment, or motors portion of project-level savings, is provided in Table 3-14 (no interviews were completed with participants regarding refrigeration projects).

Table 3-14. NTG Ratio and Relative Precision at 90% Confidence Level – VSD/HVAC/Motors

Sample Strata	Population (N=320)	NTG Interviews (n=15)	NTG Sample (n=16)	Sample kWh Wgts.	Relative Precision ± %	Low	NTGR Mean	High
1	19	3	3	0.435	39%	0.38	0.63	0.88
2	48	5	5	0.310	23%	0.43	0.56	0.69
3	253	7	8	0.255	24%	0.52	0.68	0.84
Total	320	15	16	1.000	30%	0.43	0.62	0.81

The NTG ratio and relative precision at a 90% confidence level for projects that received a bonus payment for a lighting measure is provided in Table 3-15.

Table 3-15. NTG Ratio and Relative Precision at 90% Confidence Level – Bonus Recipients

Sample Strata	Population (N=1,641)	NTG Interviews (n=60)	NTG Sample (n=191)	Sample kWh Wgts.	Relative Precision ± %	Low	NTGR Mean	High
1	72	14	15	0.332	7%	0.66	0.71	0.76
2	228	22	25	0.350	7%	0.68	0.74	0.79
3	1,341	24	151	0.318	1%	0.77	0.78	0.78
Total	1,641	60	191	1.000	5%	0.70	0.74	0.78

Comparing the NTG ratio for lighting versus non-lighting projects, the lighting-only projects have a NTG ratio above the mean (0.74 versus 0.72 for the mean). The NTG ratio for non-lighting measures is substantially lower than the overall mean, but the relative precision of that estimate is quite low because the available sample in strata 1 and 2 was exhausted after reaching eight completed interviews. The non-lighting NTG ratio is reflective almost entirely of variable speed drive projects. The No-Program scoring component of the non-lighting NTG ratio was especially low, 0.54, compared with the No-Program score for the overall population of 0.72. A low No Program score is indicative, in the extreme case, of customers that would have done exactly the same measure at exactly the same time.

The NTG ratio of bonus recipients implementing small projects provides the highest mean value in any strata, at 0.78. This suggests bonuses may be effective at inducing small lighting projects would not have been undertaken in the absence of the program.

The net-to-gross scores were also examined for the subgroup of 30 telephone survey respondents that identified T12 lighting as the baseline for one or more measures in their projects. As noted in Table 3-1, the impact survey questions found that only two respondents indicated an intention to replace their T12 lighting within the next two years, although many answered “don’t know” at that point early in the interview. The net-to-gross survey provided

more thorough questioning on the timing of these projects containing measures with T12 baselines. We found that the overall net-to-gross ratio for the 30 projects with T12 lighting baselines had an overall net-to-gross ratio of 0.71, when weighting scores by ex ante energy savings. This overall score is very close to the program mean NTG ratio of 0.72. The “No-program” scoring component of these projects, which asks “Without the program, when do you think you would have installed this equipment?” provides further insight into timing. We found that the “No-Program” score for the 30 projects with T12 lighting baselines had an average score of 0.69, when weighting scores by ex ante energy savings, which is very close to the overall “No Program” score of 0.72. Among respondent projects, 13 of the 30 indicated they would have replaced the lighting two or more years later, and an additional five were not asked timing because they indicated a score of zero likelihood that they would have done the project without the program (zero free-ridership).

Participant Spillover

The evidence of spillover from the CATI participant survey for the Prescriptive program is presented in Table 3-16 below. These findings suggest that participant spillover effects for PY3 are relatively small, with only three respondents pursuing five measures (two VSDs, two T5s, one CFLs) where a strong influence was indicated for the ComEd program. The three respondents were not in the impact sample and the potential savings could not be quantified from the responses. While participating customers are installing other energy efficiency improvements outside of the program, respondents to the telephone survey 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.

Table 3-16. Evidence of Spillover in PY3 Prescriptive from Participant Telephone Survey

Spillover Question	Evidence of Spillover
<p>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?</p>	<p>Of the 100 survey respondents that responded to this question, 23 said “Yes” (23%).</p>
<p>What type of energy efficiency measure was installed without an incentive?</p>	<p>(5) T5 or T8 lamps or Lighting upgrades (3) CFLs or LED lamps (5) VSD in HVAC (3) Efficient motors (1) Lighting controls (2) Unitary and room air conditioners (13) “Other” measures</p>
<p>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?</p>	<p>Fourteen respondents provided a score of zero regarding one or more measures, but 8 respondents provided a non-zero score on one or more measures: (1) Rating between 1 and 3 (4) Rating between 4 and 6 (3) Rating between 7 and 10</p>
<p>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?</p>	<p>Seventeen respondents provided a score of 10 regarding one or more measures, but for the 5 respondents who provided an answer less than 10: (2) Rating between 0 and 3 (2) Rating between 4 and 6 (1) Rating between 7 and 9</p>

3.1.5 Net Program Impact Results

Net program impacts were derived by multiplying gross program savings by the estimated NTG ratio. Table 3-17 and Table 3-18 provide the program-level evaluation-adjusted net impact results for the PY3 Prescriptive program. The NTG ratio is the same for energy and demand savings, 0.72, due to the use of the identical responses from each contributing participant (and other sources) and the nearly identical sample-based weights for both calculations.

Table 3-17. Program-Level Evaluation-Adjusted Net kWh Impacts for PY3

Segment	Ex Ante Gross kWh	Ex Post Gross kWh	kWh RR	Ex Post Net kWh	NTGR (ex post gross)
Total	258,385,882	260,236,777	1.01	188,462,660	0.72

Table 3-18. Program-Level Evaluation-Adjusted Net kW Impacts for PY3

Segment	Ex Ante Gross kW	Ex Post Gross kW	kW RR	Ex Post Net kW	NTGR (ex post gross)
Total	52,300	46,553	0.89	33,713	0.72

3.2 Process Evaluation Results

The process component of the Smart Ideas for Your Business Prescriptive Program evaluation focused on program participation, program design and implementation, the trade ally network, marketing and outreach, and barriers to and benefits of participation, and participant satisfaction. The primary data sources for the process evaluation included the telephone survey with 104 program participants, the survey with 70 non-participants, and the in-depth interviews with market actors and Account Managers. Please refer to Section 2 for more information on the primary research conducted in support of this evaluation.

3.2.1 Participant Profile

PY3 Participation by Sector

In PY3, 1,779 companies completed 3,794 projects that accounted for 258.4 GWh of ex ante gross savings. PY3 participants represent a range of business sectors. Key observations, by business sector, are:

- The retail/service sector accounts for the largest share of projects (37%) and participants (20%) but only for 15% of program energy and demand savings. Projects in this sector have among the smallest average energy savings of all sectors (28 MWh per project).
- Projects in the warehouse sector account for the most energy savings (22%). This sector had five of the 10 largest prescriptive projects in PY3.
- Light industry represents the largest share of demand savings (22%) and the second largest share of participants (19%) and energy savings (18%).
- The medical sector had the highest average ex ante gross energy savings (over 50 GWh per project), completing 103 projects in PY3. Three of the 10 largest PY3 prescriptive projects were completed in this sector.
- The grocery sector has the highest number of projects per participant (6.5). One grocery chain completed over 140 prescriptive projects in PY3.

Table 3-19 summarizes the distribution of PY3 participants, projects, and energy and demand savings by business sector.

Table 3-19. Participants, Projects, and Ex Ante Gross Savings by Business Sector

Sector	Projects		Participants		Projects / Part.	Ex Ante Gross Energy Savings		kWh / Project	Ex Ante Gross Demand Savings	
	#	%	#	%		kWh	%		kW	%
Retail/Service	1,415	37%	348	20%	4.1	39,017,385	15%	27,574	7,832	15%
Office	599	16%	299	17%	2.0	26,315,976	10%	43,933	6,493	12%
Light Industry	404	11%	334	19%	1.2	46,374,552	18%	114,788	11,396	22%
Warehouse	292	8%	221	12%	1.3	56,019,530	22%	191,848	9,898	19%
Grocery	195	5%	30	2%	6.5	12,057,843	5%	61,835	1,730	3%
Heavy Industry	156	4%	122	7%	1.3	24,774,149	10%	158,809	5,890	11%
Medical	103	3%	50	3%	2.1	20,740,511	8%	201,364	3,201	6%
Restaurant	61	2%	39	2%	1.6	735,230	0%	12,053	123	0%
College / University	38	1%	11	1%	3.5	2,189,815	1%	57,627	450	1%
Hotel/Motel	33	1%	26	1%	1.3	3,397,208	1%	102,946	457	1%
K-12 School	30	1%	24	1%	1.3	686,900	0%	22,897	155	0%
Miscellaneous	468	12%	275	15%	1.7	26,076,783	10%	55,720	4,675	9%
TOTAL	3,794		1,779		2.1	258,385,882		68,104	52,300	

Source: PY3 Program Tracking Database.

Participation Trends by Sector

Overall, PY3 program participation increased substantially compared to PY2, from 1,739 projects completed by 958 companies to 3,749 projects completed by 1,779 companies. Although participation levels doubled in PY3, the resulting energy savings only increased by 20%, from 213.5 GWh of ex ante gross savings in PY2 to 258.4 GWh in PY3. PY3 projects were, on average, much smaller than PY2 projects (68,104 kWh per project in PY3 compared to 122,784 per project in PY2). According to program staff, the smaller savings per project was the result of increased participation by chain accounts who often implement many projects but of smaller size. Although project size has decreased considerably in PY3, 11% of surveyed participants indicated that the scope of their project was limited by the incentive cap.

Key changes in participation over the three program years include:

- The retail/service sector had the largest increase in the number of projects, from 73 projects (or 16% of all PY1 projects) in PY1 to 462 projects (27%) in PY2 and 1,415 projects (37%) in PY3. This increase was largely driven by heavier involvement of

chain companies. However, because projects in this sector tend to be small, the overall impact on program savings is smaller than for other sectors.

- Warehouses accounted for the largest gain in energy savings from PY2 to PY3 (17 GWh). This was the result of the number of projects in this sector almost doubling between PY2 (157 projects) and PY3 (292 projects).
- Light and heavy industry, which had both experienced a substantial increase in energy savings in PY2, were the only two sectors that had lower ex ante gross energy savings in PY3 compared to PY2. In both sectors, the average project size decreased significantly compared to PY2.
- All sectors experienced a decrease in project size over the three-year period. In most sectors, the average project size decreased between 20% and 40% from PY2 to PY3.

The figures below compare the number of projects, participants, ex ante gross energy and demand saving, and average project size by business sector and program year.

Figure 3-1. Projects by Business Sector and Program Year

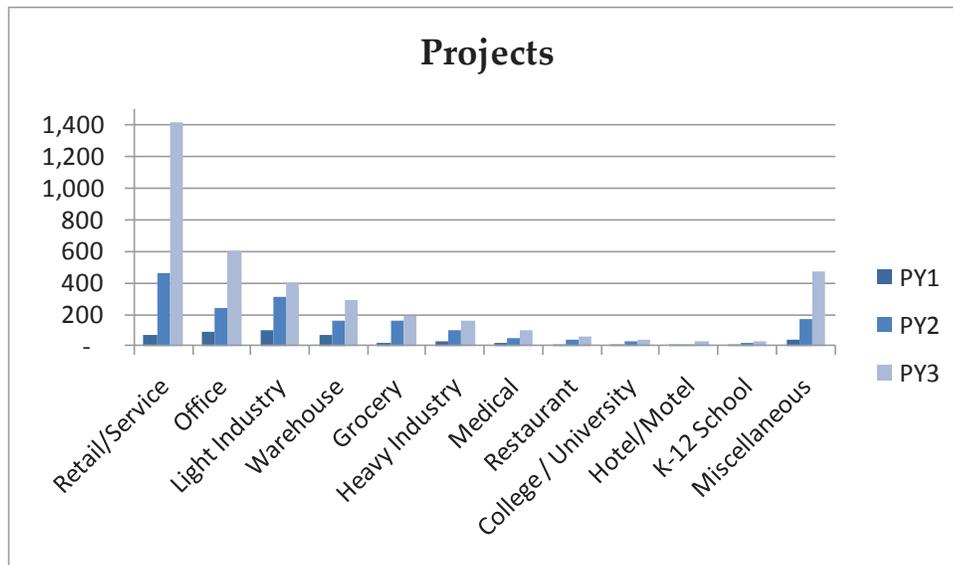


Figure 3-2. Participants by Business Sector and Program Year

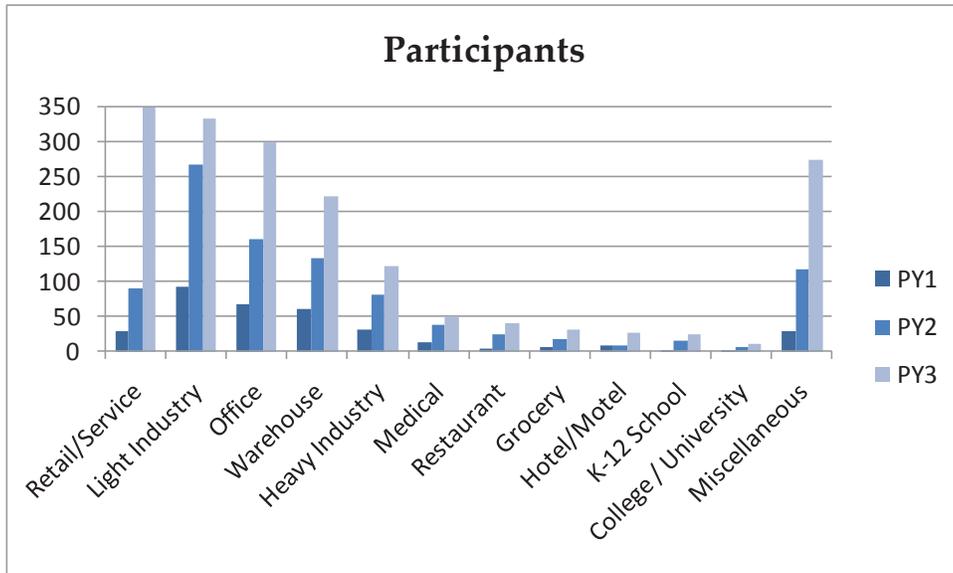


Figure 3-3. Energy Savings by Business Sector and Program Year

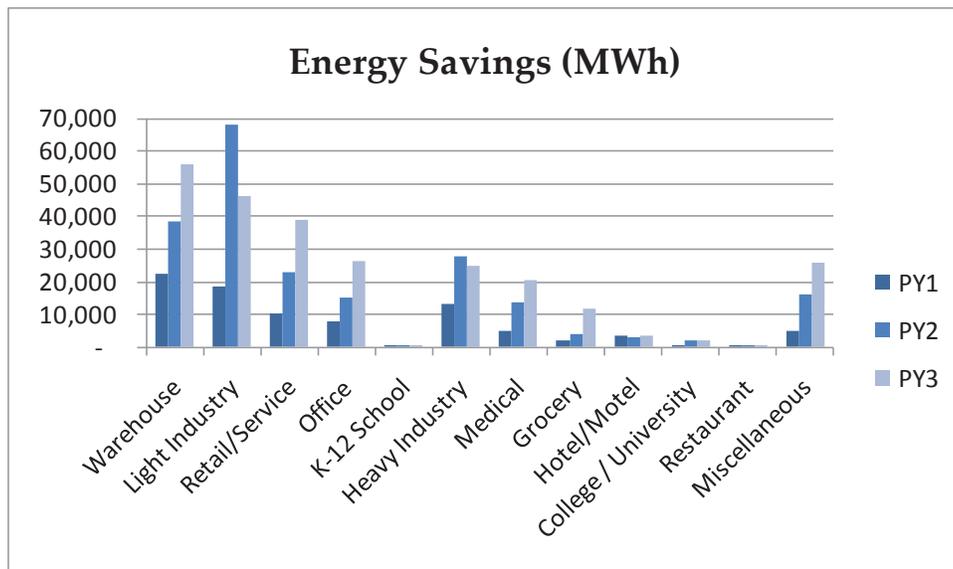


Figure 3-4. Demand Savings by Business Sector and Program Year

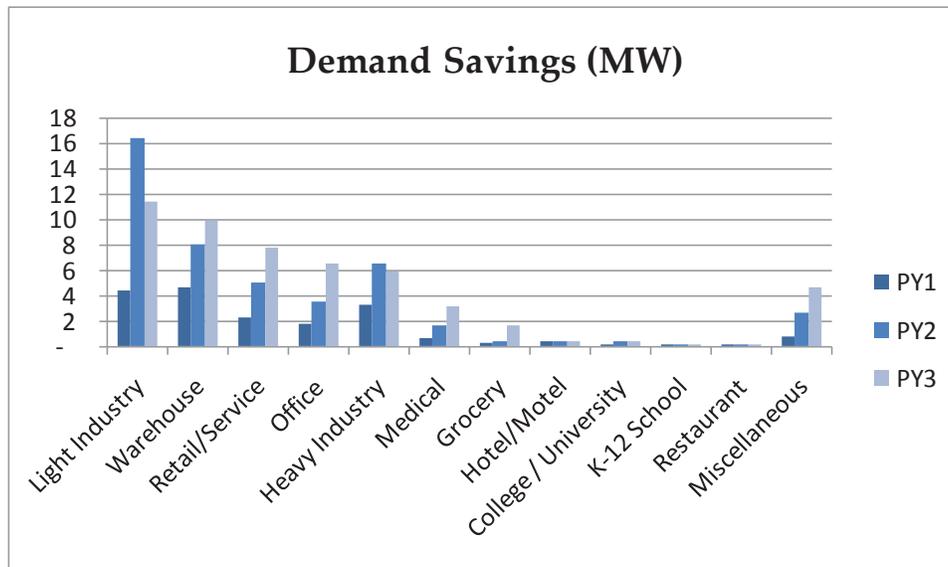
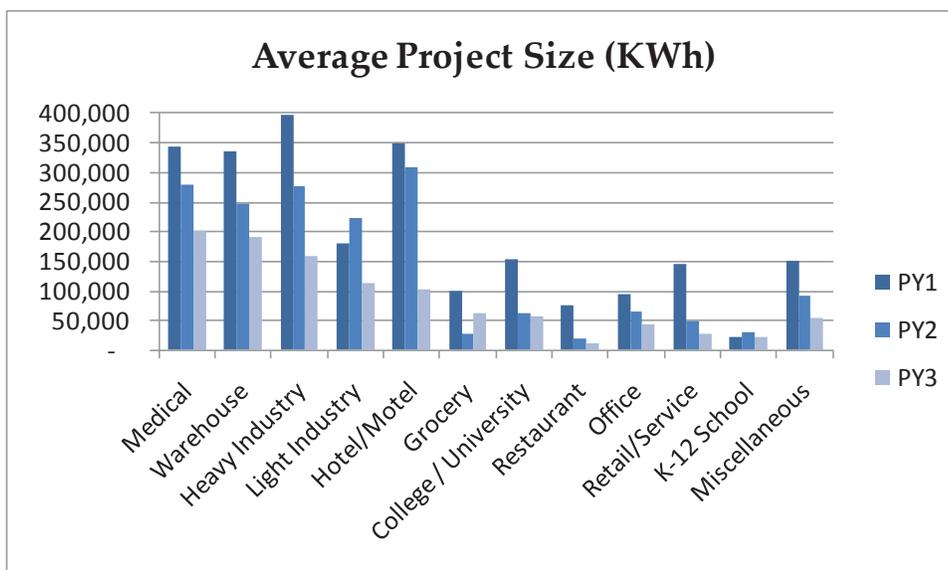


Figure 3-5. Average Project Size by Business Sector and Program Year



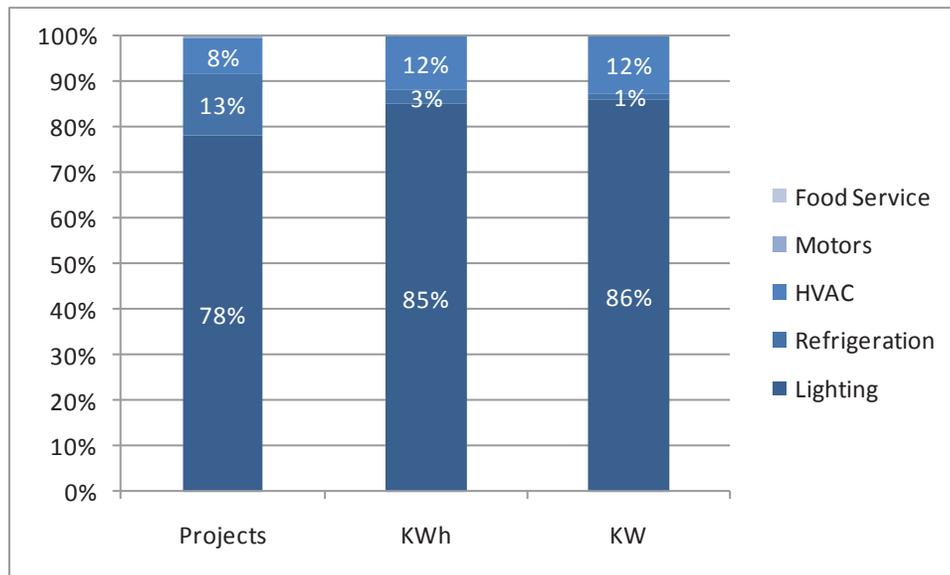
Source: PY3 Program Tracking Database.

PY3 Participation by End Use

In PY3, the vast majority of projects (78%), energy savings (85%), and demand savings (86%) were associated with the implementation of lighting measures. Although lighting still is a large part of the Prescriptive Program, the number of PY3 lighting projects and the percent of savings

associated with lighting measures decreased relative to PY2. This is to be expected as the portfolio of projects continues to diversify. In PY3, refrigeration measures accounted for 13% of projects, but only 3% of energy savings and 1% of demand savings. HVAC accounted for 8% of projects and 12% of energy and demand savings. Program staff noted that the increased number of projects implementing variable speed drives (VSD) had the most impact on driving HVAC energy savings; projects including a VSD accounted for 69% of all HVAC projects.

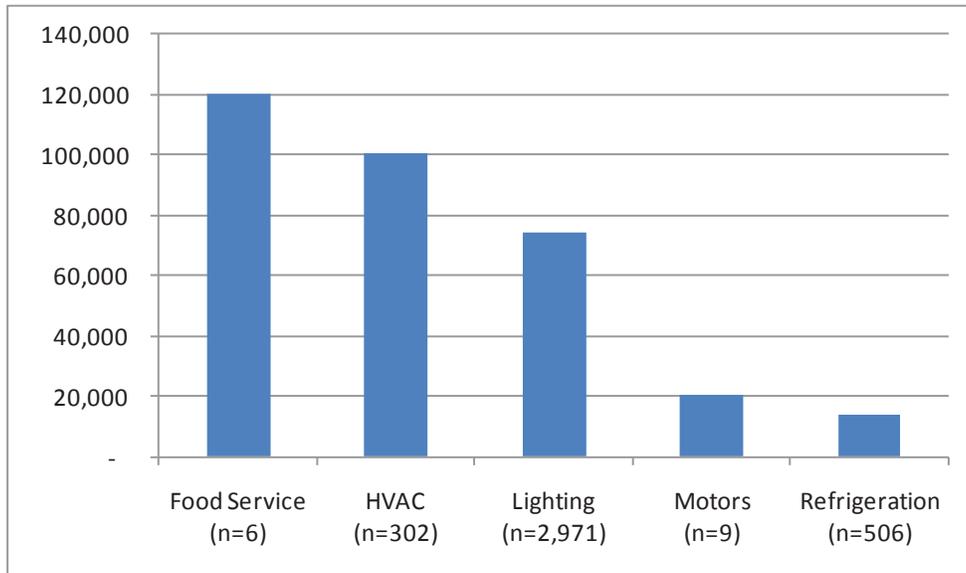
Figure 3-6: Distribution of Projects and Savings by End Use



Source: PY3 Program Tracking Database.

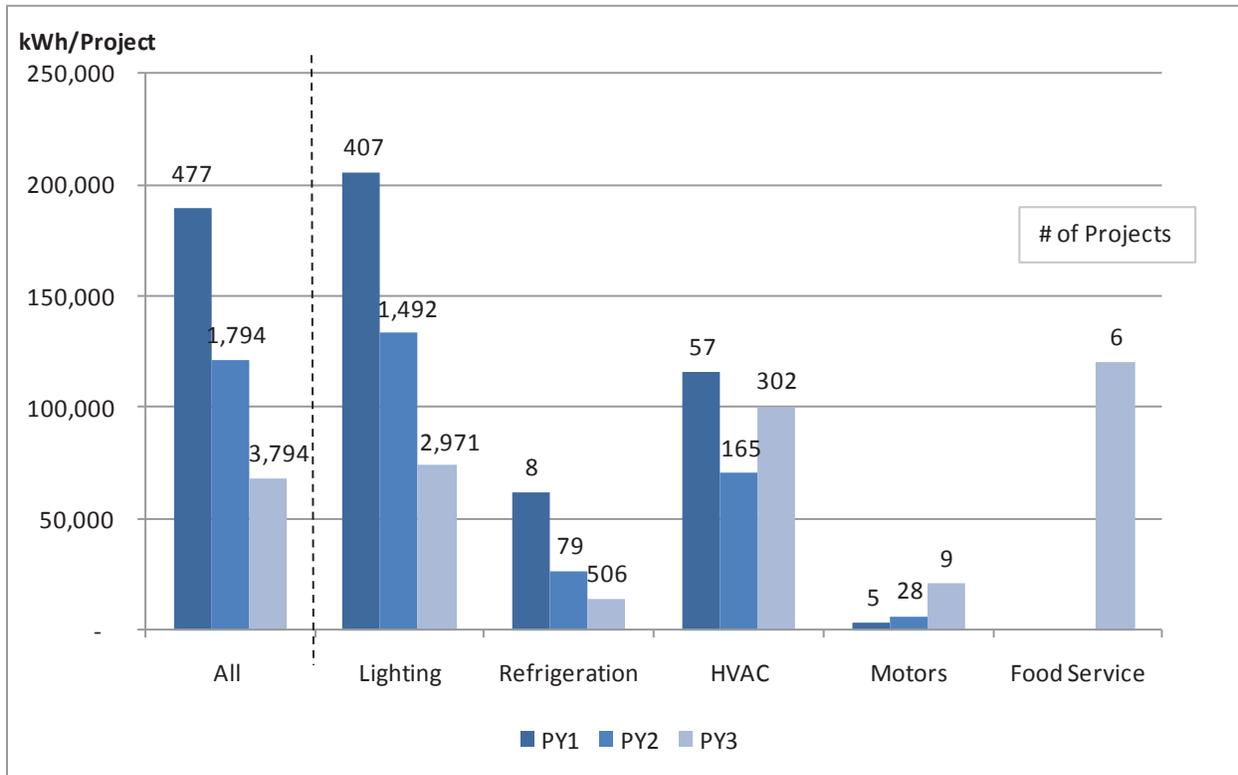
Projects that included food service equipment had the largest per project energy savings. However, food service equipment was newly introduced in PY3, and the number of projects (6) is too small to draw conclusions about the potential of this end use to be a driver in generating more large projects for the program. Refrigeration and motors, conversely, have low levels of savings per project.

Figure 3-7. Average Project Size by End Use (kWh/Project)



As noted above, the average projects size in PY3 was smaller than in the first two program years. A comparison by end use shows that lighting projects contributed most to this decline. In PY1, the average lighting project generated just above 200,000 kWh compared to less than 75,000 kWh in PY3.

Figure 3-8. Average Project Size by End Use and Program Year



3.2.2 Program Design and Implementation

ComEd’s Smart Ideas for Your Business Prescriptive Program offers incentives designed to encourage the implementation of energy-efficiency measures. The Prescriptive Program targets specific retrofits and replacement opportunities in lighting, HVAC, refrigeration, food service, and motor systems.

The participation process has not changed since PY2. Program implementers still have several project milestones at which they communicate with the participant, including a reservation letter following receipt of the pre-approval application, a reminder letter and phone call when it is getting close to the date of the reservation expiring, an extension letter when an extension is granted, a cancellation letter if the reservation expires, and a final letter with the rebate check to close out completed projects.

A majority of respondents filled out either the initial or final program application themselves (64%). Of these participants, most feel that the application forms clearly explain the program requirements and participation process (92%) and rate the application process as easy (75%).¹⁵ The share of participants who find the application form clear has increased since the inception of the Smart Ideas for Your Business Program, from 80% in PY1 to 87% in PY2 and 92% in PY3. The implementer has improved application clarity while substantially increasing the number of measures offered each program year. When participants do not fill out the applications themselves, this is most often done by a contractor (42%).

However, some participating contractors think that the application process is still rather onerous and time-consuming. As part of recommendations on how to improve the program, many cited that a streamlined application would be beneficial. As one contractor explained:

"I would simplify the application, the specifics of it. It seems like they have pages and pages on descriptions of types of fixture and stuff like that, it's not necessary"

Account Managers

In PY2, program staff began to more actively engage ComEd Account Managers. The program developed a toolkit for Account Managers and also began providing training opportunities and "Lunch and Learns." In PY3, program staff continued to work to improve the relationship between Account Managers and the Smart Ideas Program. Given their pre-existing relationship with customers who are the largest users of energy, the main goal for PY3 was to *"provide them with better tools to sell the program."* Program staff have simplified the "tool-kit" as they found that Account Managers were not using it. The addition of more KEMA outreach staff has allowed Account Managers to now have one point of contact for all questions pertaining to the program in an effort to increase communication and provide greater outreach support.

Additionally, PY3 marked the introduction of Smart Ideas goals for Account Managers. PY3 goals included recruiting customers to attend the Energy Efficiency Expo and attending "Lunch and Learns."¹⁶ All interviewed Account Managers were generally receptive to the introduction of these goals; they thought the goals were both realistic and achievable. As one Account Manager noted: *"I think the goals were realistic. It's good for us to support our company goal. So it's good that we have a stake in supporting our company's goals."* However, three of the five did note that continuing to recruit customers to the Energy Efficiency Expo will become increasingly difficult, unless the Expo offers something new to entice customers to return again.

¹⁵ A score of 7 or higher on a scale from 0 to 10, where 0 is "very difficult" and 10 is "very easy."

¹⁶ In early PY3, an additional savings goal for Account Managers was contemplated but ultimately not implemented.

The Account Managers also agreed that the “Lunch and Learns” were very successful and helpful in providing information about the program. One Account Manager mentioned that the “Lunch and Learns” were especially valuable when other Account Managers discussed different approaches that have been successful in promoting the program to their customers. Interviewed Account Managers feel that, overall, they have enough knowledge of the program to effectively promote it and assist their customers through the participation process. Given that all five Account Managers consider themselves very knowledgeable about the program, it is not surprising that all of them promote the program to their customers quite frequently.

Overall, 1,633 of the 3,794 PY2 projects (43%) were implemented by customers with an Account Manager. Program participants report the following involvement of Account Managers during PY3:

- About 15% of participants with an Account Manager first heard about the Smart Ideas program from their Account Manager.
- About 60% of participants with an Account Manager discussed the program with their Account Manager.

In general, despite efforts to better engage Account Managers, program staff noted that there is still huge variability in the efforts of Account Managers:

“Some are extremely active. They’re always asking questions and being involved, and are very comfortable talking about the program. And then we have some that aren’t very involved at all.”

3.2.3 ComEd Trade Ally Network

Trade allies, i.e., contractors and other market actors registered with the Smart Ideas Program, continue to be an important part of the Prescriptive Program. In PY3, in order to remain a trade ally a contractor¹⁷ had to complete one project through the program and attend a basic training. These new requirements were initiated as program staff shifted their focus from the quantity of trade allies to the quality of the applications (i.e., projects) submitted. While the total number of trade allies did not go down as a result of the new requirements, PY3 trade allies are generally more active compared to PY2 ones, as about 75 to 100 of the least active PY2 trade allies were dropped at the end of the program year. Program staff also noticed an improvement in the quality of applications received in PY3.

¹⁷ Most of the Smart Ideas trade allies are contractors. However, in some cases, other market actors assist customers in implementing Smart Ideas projects, including consultants, engineers, suppliers, and manufacturers.

More than half of the contractors interviewed for this evaluation (16 of 25) are “approved” trade allies. Most of the trade allies (12 of 16) have no problem with the new requirements; however, a few noted that attending trainings is difficult due to geographical distance. Trade allies generally did not report a change in their business practices as a result of their trade ally designation but three did indicate a change in their marketing. When asked about the main benefits of becoming a registered trade ally, the use of branded marketing materials and increased credibility in the eyes of the customer were frequently cited.

“I just think that in an area like Chicago or any other part of the country that your power company is one of your most recognizable brand names that are out there and if somebody wants to decide whether or not they want to trust you, if you’re good enough to be working with the power company you’re probably good enough for them.”

However, one trade ally felt that the large number of trade allies on the website dilutes the value of the designation.

Nine of the interviewed contractors participated in the Prescriptive Program in PY3 but are not “registered” trade allies. Reasons for not becoming a ComEd trade ally range from lack of knowledge of the new requirements to difficulty attending the training because of their distance from the training locations. About half of the interviewed non-allies (four of nine) are interested in becoming a trade ally because they think that having their name on the website would lead to more credibility with customers. Others are not interested because it is not required to obtain incentives for customers.

Based on the Prescriptive Program database, 503 unique contractors were involved in a program project in PY3. Of these, 153 (30%) are ComEd trade allies. Overall, 76% of Prescriptive projects were implemented with the support of a contractor. Contractor-implemented projects tend to be larger than those implemented without a contractor (79,000 kWh compared to 35,000 kWh). While only 30% of participating contractors are registered trade allies, they account for more than two-thirds (69%) of PY3 contractor-implemented projects.

About half of the contractors (52%) involved in prescriptive projects implemented a single project in PY3, while 11 contractors (2%) completed 50 or more projects (10 of these 11 contractors are trade allies). However, the contractors that completed 50 or more projects accounted for 41% of all contractor projects.

Table 3-20. PY3 Contractor Projects

Contractors with...	Prescriptive Projects		
	Number of Contractors	Percent of Contractors (n=325)	Percent of Contractor Projects (n=1,492)
1 project	263	52%	9%
2 projects	76	15%	5%
3 projects	40	8%	4%
4 projects	31	6%	4%
5-9 projects	38	8%	8%
10-19 projects	32	6%	15%
20-49 projects	12	2%	13%
50+ projects	11	2%	41%

Source: PY3 Program Tracking Database.

The telephone survey with program participants included questions about their use of contractors, their contractors' affiliation with the ComEd Trade Ally Network, and satisfaction with their contractors. Approximately three-quarters of interviewed participants report having used a contractor to complete the project. Responses to the survey show that contractors play an important role in the implementation of projects. However, many participants do not believe that it is important that the contractor is registered with the program. Specific findings from the survey include:

- **Participants are satisfied with their contractors:** Almost all interviewed program participants (97%) who used a contractor to install their project report that their contractor met their needs (a score of 7 or higher on a scale from 0 to 10). Ninety-five percent of participants would recommend their contractor to others.
- **Participants discuss the program with their contractor:** 73% of prescriptive participants have discussed the Prescriptive Program with a contractor or trade ally.
- **Contractors are vital to the Prescriptive program:** 26% of Prescriptive Program participants first heard about the program through a contractor. Additionally, 35% report that it was the contractor who identified the opportunity for the ComEd incentive.
- **Contractors play an important role in designing or specifying the installed equipment:** 29% of participants report that a contractor was most influential in identifying and recommending the installed equipment.
- **Participants do not believe it is important to use contractors that are registered trade allies:** Over half (52%) of respondents do not know if the contractor they used was a

registered ComEd Trade Ally. Additionally, 34% of participants believe that when implementing an energy efficiency project it is not at all important (a score of 0 on a scale from 0 to 10) to use a contractor that is affiliated with the Smart Ideas for Your Business Program.

Similar to participants, non-participants most often look towards contractors (43%) for information and guidance when purchasing new equipment.¹⁸

Most interviewed contractors indicated that the Smart Ideas for Your Business Program influenced their business. While many of these contractors had already adopted business models that focused on energy efficiency and were recommending energy efficient equipment before participating in the program,¹⁹ most believe that the program was influential in increasing their overall sales. Almost one-half of the interviewed contractors (11 of 25) indicated that they changed the type of equipment they supply and sell as a result of their involvement with the program. Additionally, seven of the trade allies changed their marketing practices, and four trade allies report that they hired additional staff due to their participation in the Smart Ideas program.

Trade Ally Bonus

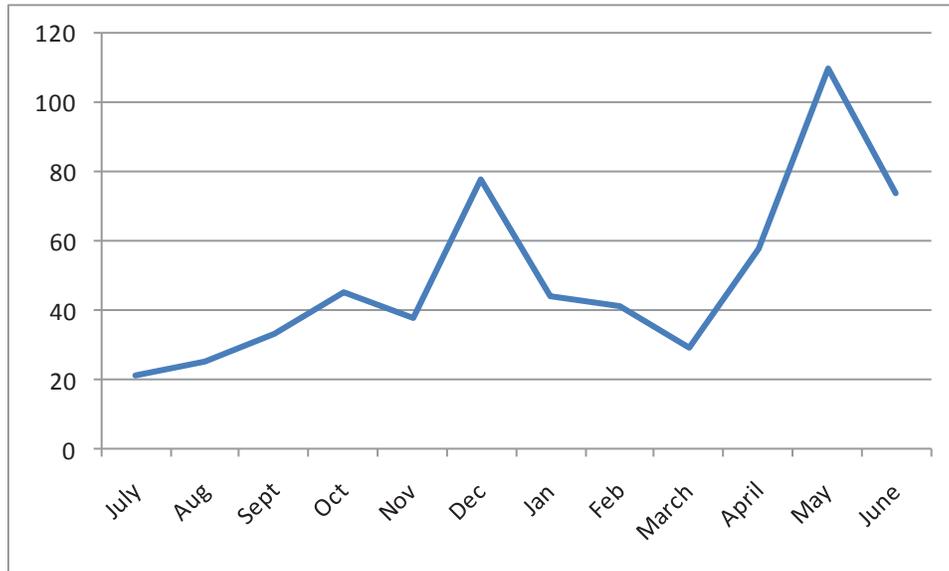
PY3 also marked the introduction of a trade ally bonus. The bonus was in effect from September 1st through November 30th, 2010 (the day by which final applications had to be submitted). It was only available to registered trade allies and consisted of 5% of the total incentive amount for projects with incentives of \$10,000 or more. The trade ally bonus was designed to encourage implementation of larger projects. However, program staff believes that the main outcome was to clear the project pipeline more quickly, rather than to generate additional large projects.

As shown in Figure 3-9 below, the number of projects receiving an incentive of \$10,000 or more did increase during the trade ally bonus. However, the subsequent drop-off and relatively low number of projects over the next three months supports the hypothesis that the project pipeline had been cleared.

¹⁸ Note that the research with non-participants excluded customers with demand of less than 100 kW (delivery service class C28). As such, any non-participant findings presented in this report only represents customers with demand of 100 kW or more.

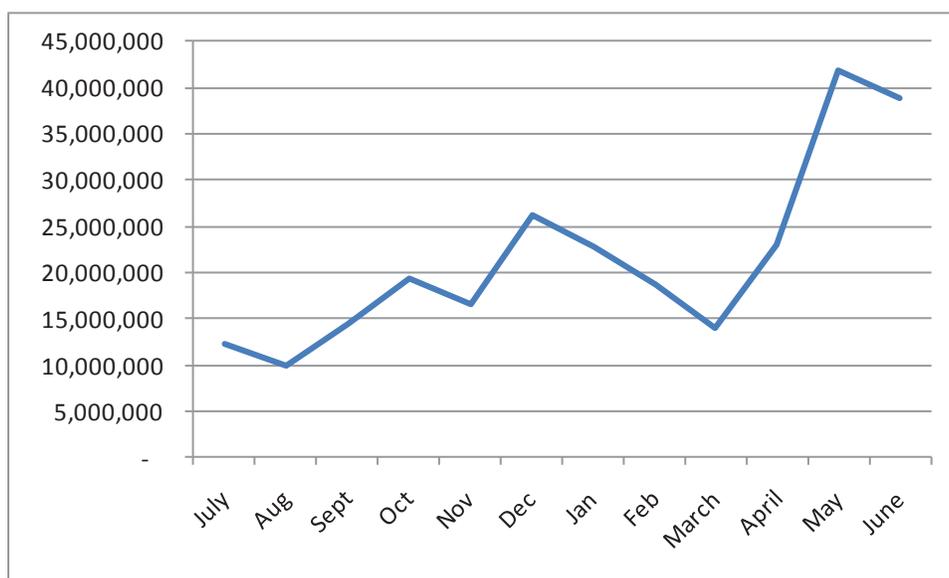
¹⁹ It should be noted that while the respondents considered the recommended equipment energy efficient, it is unknown if the equipment would have met the efficiency standards of the Smart Ideas Program.

**Figure 3-9. Number of Projects of \$10,000 and Above
(Date Incentive Check Mailed)**



Similarly, Figure 3-10 highlights the increase in program savings during the months the trade ally bonus was offered. However, the drastic drop-off indicates that the bonus may have persuaded participants to finish their project quicker – instead of generating additional leads. Initiating a bonus when there are many projects with the “reserved” status may be beneficial in pushing them to complete their project.

Figure 3-10. Program Savings (KWh) by Month



Knowledge of the trade ally bonus offering in PY3 was not universal amongst interviewed contractors. Only 10 of the 16 interviewed trade allies were aware of the bonus, and only four received a bonus payment. Many of the contractors who are not registered with the program were unaware of the bonus offering, but expressed interest and noted that they completed projects that would have qualified for the bonus payment. Additionally, almost half of those unaware of the bonus report that they would have increased their promotion of the program had they been aware of this offering. These responses indicate that trade ally bonuses have the potential to increase promotion of the program and also provide a reason for more contractors to register as a trade ally.

In order to inform potential changes to the trade ally bonus, the evaluation team conducted telephone interviews with utility program managers who oversee programs with similar contractor bonus offerings across the country. These programs varied in both incentive size and savings targets. Two of the most relevant structures for encouraging greater trade ally activity and larger C&I projects were implemented by two utilities in the Midwest and the Northeast, respectively:

- The Midwest utility has a trade ally bonus structure that is based on two tiers: Tier 1 trade allies are those who have implemented projects with combined savings of at least one million kWh in the previous program year. They are eligible for a bonus equal to 10% of the customer incentive, for all savings above one million kWh. Tier 2 trade allies are eligible for a bonus of between \$500 and \$4,000, depending on the amount of savings they achieve in the program year. This is a significant change from the previous program year, when both Tier 1 and Tier 2 trade allies were eligible for a flat \$2,500 incentive per project. The utility made the change after determining that the previous incentives were not spurring as many projects as anticipated. In addition, the incentives were not offered for the full program year and had a number of requirements which were somewhat difficult to communicate to trade allies. The new structure was designed to be more straightforward and predictable for trade allies.
- The Northeast utility also has a bonus based on savings. Once a project reaches 500,000 kWh savings, trade allies are eligible to receive one cent per kilowatt hour saved. This was recently increased from a half cent incentive in July 2011, which was found to be too small to encourage the implementation of larger projects.

Other utility program managers had several pieces of advice for any utility looking to start a trade ally bonus program. Several mentioned the need for clear communication and setting expectations at the beginning of the bonus offering. This minimized trade ally confusion and let them set realistic goals. Further, face-to-face communication, as well as frequent contact, was mentioned. Finally, clear deadlines for when an incentive period would start and end increased trade ally confidence and gave them a measure of budgetary stability. Program managers

believed that strong bonds between their program and trade allies increased the likelihood that new and larger projects would be generated.

According to interviews with ComEd program staff, the program completely restructured its trade ally bonus program for PY4. ComEd staff decided to model the trade ally performance award after Ameren Illinois using a two tiered approach, where the top ten trade allies would be rewarded for achieving a specified increase in participation from the prior year, and other trade allies would be rewarded for reaching set kilowatt hour goals.

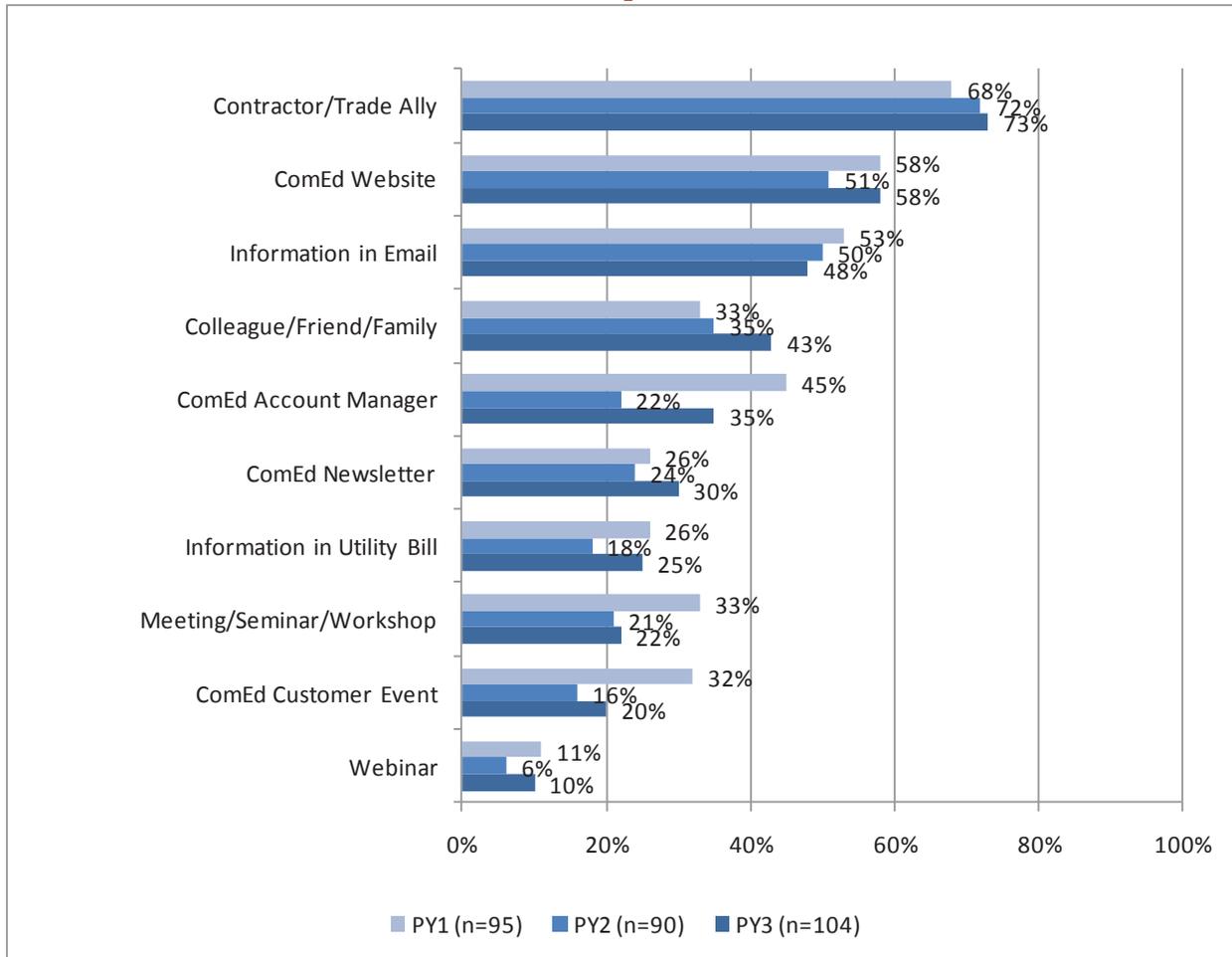
3.2.4 Program Marketing and Outreach

In the first two program years, the Smart Ideas program experienced oversubscription relatively early in the program year, stymieing program marketing efforts. However, with an increased budget and goals the marketing and outreach plans changed substantially for PY3. To support the new activities, the program increased its marketing and outreach staff from one dedicated staff person to five by the end of the program year.

The marketing plan for PY3 included trigger tactics that were initiated throughout the program year. These tactics included increased outreach to targeted customer groups such as trade associations and customers who attended the Energy Efficiency Expo. Program staff also followed up on leads from PY1 and PY2 by checking in on those that submitted applications but cancelled their projects. The frequency with which staff sent the electronic newsletter increased from quarterly to six times a year in PY3. Additionally, program staff implemented a direct mailing, sending program information to approximately 5,000 of their larger customers. However, program staff noted that the mailing was largely ineffective because their database contains billing addresses and is not meant as a marketing database.

As a result of the increased marketing, 32% of Prescriptive participants recall having been directly contacted by ComEd or KEMA. Not surprisingly, larger participants and those with an Account Manager are more likely to have been directly contacted. Despite the increase in marketing efforts in PY3, recall of various methods of outreach has been relatively static throughout the first three program years (see Figure 3-11).

Figure 3-11. Sources of Program Information (Prompted)



Source: PY1, PY2 and PY3 CATI Participant Surveys.

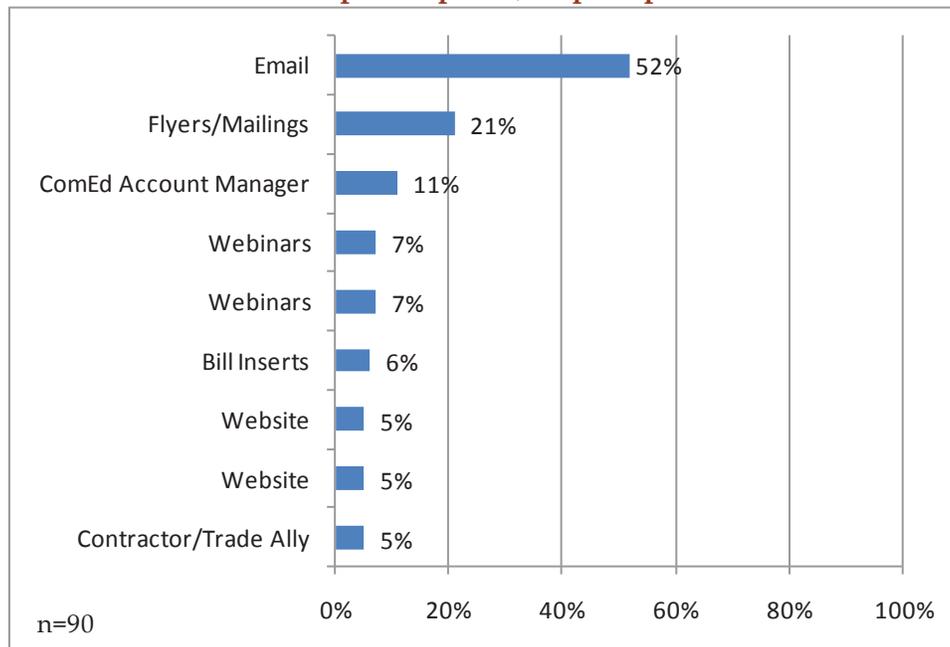
Respondents generally find the program marketing materials useful, with 28% indicating that they are “very useful” and another 41% considering them “somewhat useful.”

The five interviewed Account Managers also found the program’s marketing materials very helpful and easily accessible on the ComEd Smart Ideas for Your Business website. Interviewed Account Managers most often utilize the program’s fact sheets and case studies.

Only half of the interviewed contractors (13 of 25) reported that they have received materials to promote the program to their customers. Furthermore, only seven of the contractors who have received these materials found them useful, and several indicated that they would like more marketing materials from the program. The request for certain program aids varied and included calculation sheets, a timeline of the rebate process, and general handouts about the program.

Although contractors are the most common source of program awareness, participants generally do not believe that contractors are the best way to provide them with information regarding energy efficiency opportunities. Instead participants indicate that they prefer to receive this information through email (52%) or flyers/mailings (21%).

**Figure 3-12. Preferred Methods of Contact
(Multiple Response, Unprompted)**



Source: PY3 CATI Participant Survey, note that responses under 5% are not included.

Non-participants also note that, in general, email (50%) and flyers/mailings (37%) are the best ways to reach them regarding energy efficient offerings. Overall, 57% of non-participating customers are aware that ComEd offers energy efficiency programs to their commercial customers, and 31% have heard of the Smart Ideas for Your Business Program. Of those who have heard of the program, almost one-third (32%) indicate that they are either not very familiar or not at all familiar with the program.

Interviewed contractors were asked to gauge their customer’s awareness of the Smart Ideas for Your Business Program. Responses varied, with ten contractors saying their customers are not very aware or not at all aware of the program and 15 contractors indicating that their customers are either somewhat aware or very aware. However, many contractors do agree that awareness of ComEd’s program offerings has increased over the years. As one trade ally explained:

“We’ve noted in the last year and a half or so that it’s become something they’re much more aware of. The first couple of years of the program they had no idea what we were talking about, and now we actually have customers that call us looking to try to utilize the benefits of that program”

Despite reporting different levels of awareness of the program, all contractors indicate that their customers are interested in the program once they are educated about it. More importantly, all interviewed contractors report that they always promote the program when discussing the possibility of implementing a project with customers that falls under the scope of the Smart Ideas for Your Business Program.

The initial trigger tactics employed by program staff in PY3 were all low cost or no cost efforts. However, as the program year continued and targets for reserved projects were not being met, more costly tactics were initiated. The more costly efforts included the trade ally bonus, which is discussed in more detail in Section 3.2.3, and the increased incentive amounts as part of the bonuses on certain lighting equipment, e.g., T12 replacements and occupancy sensors. Program staff indicated that they learned from their bonuses - *“raising incentives will get you more applications and then if you need to close those applications you can deploy a trade ally bonus and that will seem to get people to finish their projects.”*

According to a review of the program tracking database, 55% of lighting projects (1,641, or 43% of all PY3 projects), had a bonus incentive paid out. Given that these incentives ran from the end of October through May (with the addition of the “May Special”), it is not surprising how many bonus incentives were paid out.

Among survey respondents, 50% received a bonus incentive for their lighting project. However, only 68% of them were aware that their project included a bonus amount, and 31% of those aware, learned about the bonus payouts after they decided to implement their lighting project. When asked how likely they would have been to implement the exact same project without the bonus amount, the average score – on a 0 to 10 likelihood scale where 0 means “not at all likely” and 10 means “extremely likely” – was a 7.6; 40% of respondents said they would have been “extremely likely” to implement the same project. Given these responses, it is unclear how effective the bonus incentives was in attracting new projects.

3.2.5 Barriers to Participation

Customer barriers

Lack of program awareness is a key barrier to participation in the Smart Ideas program, with 43% of non-participants not aware that ComEd offers energy efficiency programs for business customers and 69% not aware of the Smart Ideas program. Of those aware of the Smart Ideas program, approximately two-thirds (68%) consider themselves very or somewhat familiar with the program.

Reaching the correct decision-maker is a major hurdle both in increasing awareness of the program and encouraging participation. Program staff noted that broad-based outreach to business customers is difficult as their database only contains contact information for billing purposes; as a result, program-related communications often do not reach the energy decision-

maker. Account Managers also noted that the decision-making process in some cases presents a barrier to participation:

“For the customer, especially with the national accounts, they in turn cannot just make a decision based on their store. They have to go through corporate, and it becomes a much more time consuming process.”

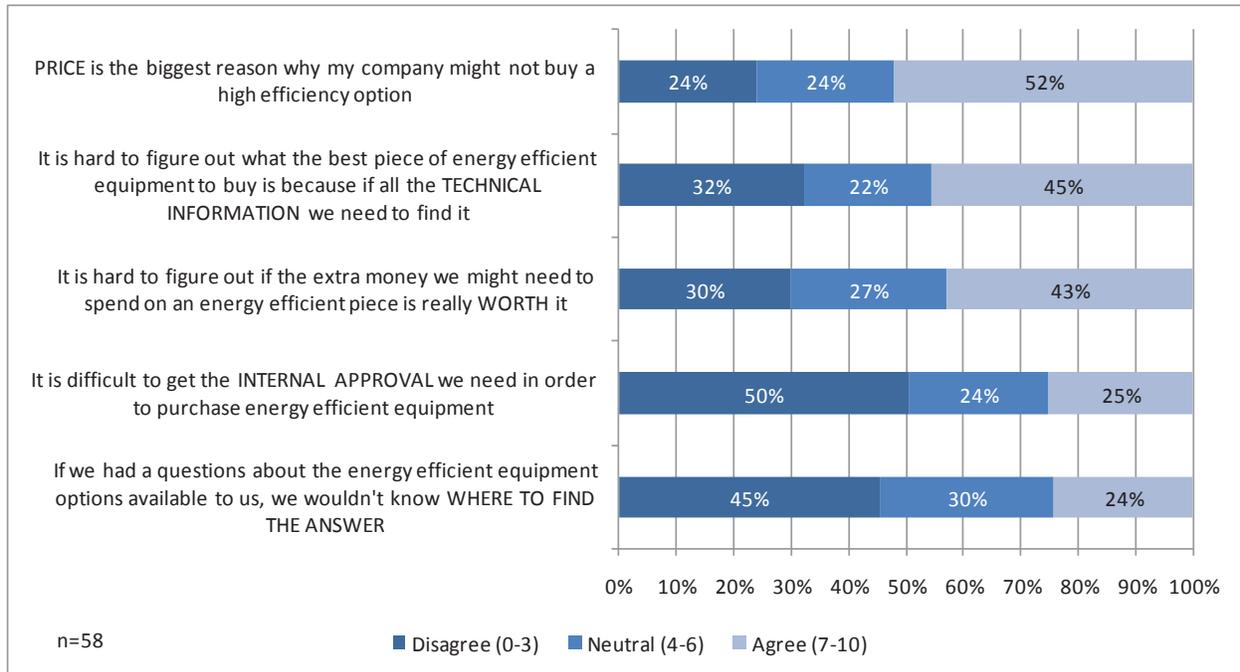
According to interviews with non-participants, 63% have the decision-maker for equipment installations at their facility. An additional 13% noted that the decision-maker was within their company but at a different location (possibly a corporate office). Only 19% indicated that equipment decisions were made by a landlord or property management firm.²⁰

The non-participant survey also explored potential barriers to the installation of energy efficient equipment, including price, lack of information or technical expertise, and internal approval processes. Respondents were asked to state their agreement with a series of statements describing common barriers to becoming more efficient.

Not surprisingly, price is a major barrier to energy efficiency, with 52% of respondents agreeing that price is the biggest reason for not buying a high efficiency option. After price, respondents most often cite informational barriers: 45% of respondents agree that it is difficult to find the necessary technical information and 43% agree it is difficult to determine whether efficient equipment is worth its cost. Figure 3-13 summarizes these responses.

²⁰ Note that the non-participant survey excluded customers in the small delivery service class (<100 kW demand) who would be more likely to rent their facility and not make equipment decisions.

Figure 3-13. Non-Participant Barriers



Interviewed contractors largely agree that cost and the ability to secure upfront capital remains the largest barrier to the installation of energy efficient equipment. Many contractors have found that this barrier tends to disproportionately affect smaller companies. As explained by one contractor:

“Nobody wants to spend the money because a lot of them [smaller companies] feel that they don’t have it, if they realize there are energy savings that will pay for itself maybe they’d find a way to do it but the larger companies seem to be more willing to spend the money to do it.”

Not surprisingly, the current economic environment contributes to cost barriers. When asked to what extent the current economic downturn has affected investment decisions with respect to purchasing *any* new equipment, 29% of non-participants indicate that it has affected them “a great deal” (a rating of 10 on a scale of 0 to 10). Slightly fewer (21%) indicate that the economic situation has affected their investments in *energy efficient* equipment “a great deal.”

Despite these barriers, opportunities to increase participation in the Smart Ideas program among current non-participants exist. Almost two-thirds of non-participants (64%) indicate that there have been installations of equipment, or other upgrades, at their facility in the past three years. The most frequent installations were of lighting or HVAC equipment. While most of these respondents (91%) indicate that the equipment was energy efficient, it is unlikely that all of these projects would actually have qualified for incentives through the Smart Ideas program.

Energy/money savings was cited as the major reason for choosing an energy efficient option (73%). However, it was lack of knowledge about the Smart Ideas program that prevented them from implementing these projects through the program. Sixty-three percent of those who implemented “energy efficient” equipment are not aware of the Smart Ideas program, and an additional 20% – while aware of the program – did not have enough information about the program at the time of implementation.

Looking forward, many non-participants plan to install new equipment within the next two years at their facility (58% indicate yes and another 12% say maybe). Notably, 76% of those non-participants indicate that they are very likely to install energy efficient equipment and another 12% indicate that they are somewhat likely. Whether or not this equipment would meet the standards of the Smart Ideas program is unclear. However, these responses suggest that 1) despite the economic climate, customers are active in installing new equipment and 2) there is an interest in energy efficiency. This presents an opportunity for the program to encourage customers to install equipment that will meet the standards of the Smart Ideas program and further increase its participant base.

Contractor barriers

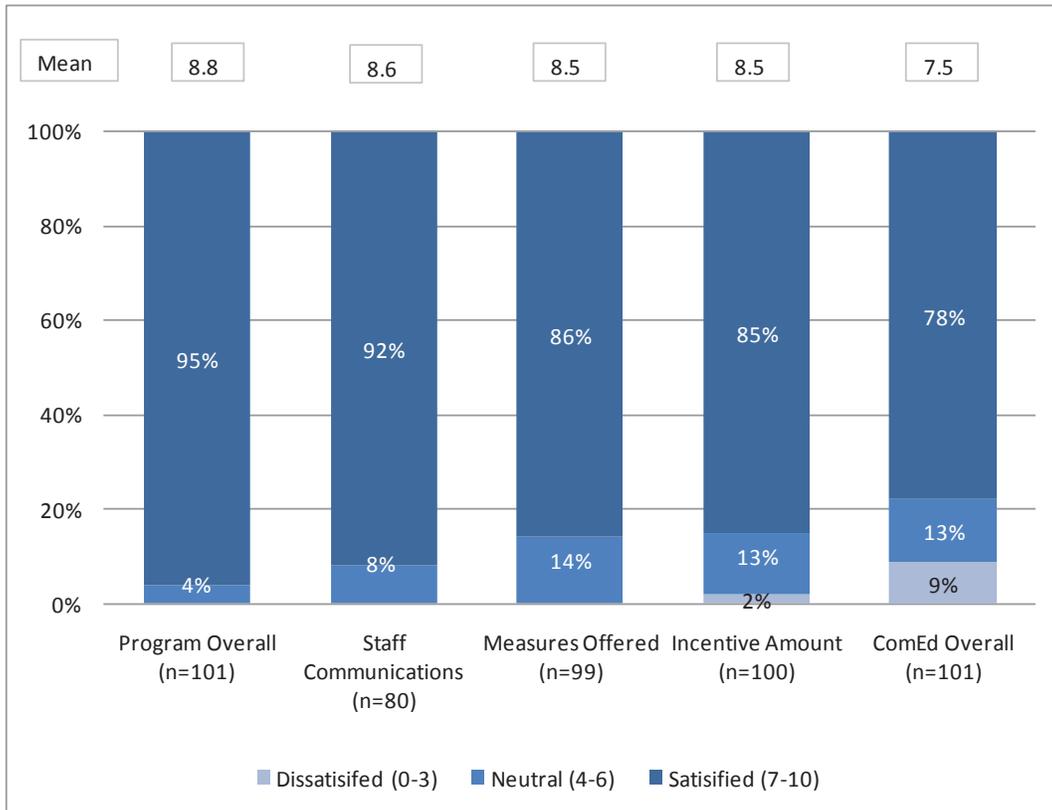
According to the program tracking database, five of the interviewed contractors had limited activity in the Smart Ideas program in PY3, completing less than four projects. However, two of these contractors explained that shared recognition of projects – where they were not acknowledged on the final application – is the reason that they do not have more completed projects on file, despite their active participation in the program. The other three contractors noted that they did not complete more projects because market saturation prevented them from establishing a foothold and because ComEd is a small part of their national reach.

3.2.6 Participant Satisfaction

Customer satisfaction

Participants are satisfied with most aspects of the program. Customers were asked to rate – on a scale of 0 to 10, where 0 means “very dissatisfied” and 10 means “very satisfied” – several aspects of the program. Satisfaction for the program overall is the highest, with 95% of participants indicating that they are satisfied. About 78% of participants are satisfied with ComEd overall.

Figure 3-14. Program Satisfaction



Note: This graph presents valid percentages, i.e., don't know, refused, and not applicable responses are excluded. Individual values may not add up to 100% due to independent rounding.

Source: PY3 CATI Participant Survey.

Satisfaction with all program processes has remained consistently high throughout the three program years. Given the high satisfaction scores, it is not surprising that 67% of participants plan to participate again in the future.

Contractor satisfaction

Almost all contractors (22 of 25) are satisfied with the program. Of the contractors who expressed dissatisfaction, one finds it time consuming to educate customers and participate in the program, and the other, a trade ally, expressed disappointment with the decline in T12 incentives for PY4. Most interviewed contractors note pleasant and knowledgeable interactions with the program staff as the driving force behind their satisfaction. Other points of satisfaction include ease of access to online marketing materials, short processing time associated with their applications, and a high degree of certainty about the expected incentive.

Of the interviewed contractors who offered recommendations for improving the Smart Ideas for Your Business Program, four recommended streamlining the application process and five

recommended increasing incentives. Other recommendations included extending training sessions to the web to include geographically isolated clients, educating designers and architects to design and craft proposals with program incentives in mind, and allowing for shared recognition on applications when projects are completed jointly with other contractors.

3.3 Cost Effectiveness Review

This section addresses the cost effectiveness of the Business Prescriptive program. Cost effectiveness is assessed through the use of the Illinois Total Resource Cost (TRC) test. The Illinois TRC test is defined in the Illinois Power Agency Act SB1592 as follows:

‘Total resource cost test’ or ‘TRC test’ means a standard that is met if, for an investment in energy efficiency or demand-response measures, the benefit-cost ratio is greater than one. The benefit-cost ratio is the ratio of the net present value of the total benefits of the program to the net present value of the total costs as calculated over the lifetime of the measures. A total resource cost test compares the sum of avoided electric utility costs, representing the benefits that accrue to the system and the participant in the delivery of those efficiency measures, to the sum of all incremental costs of end-use measures that are implemented due to the program (including both utility and participant contributions), plus costs to administer, deliver, and evaluate each demand-side program, to quantify the net savings obtained by substituting the demand-side program for supply resources. In calculating avoided costs of power and energy that an electric utility would otherwise have had to acquire, reasonable estimates shall be included of financial costs likely to be imposed by future regulations and legislation on emissions of greenhouse gases.²¹

ComEd uses DSMore™ software for the calculation of the Illinois TRC test.²² The DSMore model accepts information on program parameters such as number of participants, gross savings, free ridership, program costs and CO₂ reductions. It then calculates a TRC that fits the requirements of the Illinois Legislation.

One important feature of the DSMore model is that it performs a probabilistic estimation of future avoided energy costs. It looks at the historical relationship between weather, electric use and prices in the PJM Northern Illinois region and forecasts a range of potential future electric energy prices. The range of future prices is correlated to the range of weather conditions that could occur, and the range of weather is based on weather patterns seen over the historical record. This method captures the impact that extreme weather has on electricity prices. Extreme weather generally results in electricity price spikes and creates a skewed price distribution. High prices are going to be much higher than the average price while low prices are going to be

²¹ Illinois Power Agency Act SB1592, pages 7-8.

²² Demand Side Management Option Risk Evaluator (DSMore) software is developed by Integral Analytics.

only moderately lower than the average. DSMore is able to quantify the weighted benefits of avoiding energy use across years which have this skewed price distribution.

Results

Table 3-21 summarizes the unique inputs used in the DSMore model to assess the TRC ratio for the Business Prescriptive program in PY3. Most of the unique inputs come directly from the evaluation results presented previously in this report. Measure life estimates and program costs come directly from ComEd. All other inputs to the model, such as avoided costs, come from ComEd and are the same for this program and all programs in the ComEd portfolio.

Table 3-21. Inputs to DSMore Model for Business Prescriptive Program

Item	Value Used
Measure Life	12
Utility Administration and Implementation Costs	\$7,292,352
Utility Incentive Costs	\$20,178,985
Net Participant Costs	\$85,359,656

Based on these inputs, the Illinois societal TRC for this program is 1.05 and the program passes the Illinois TRC test.

Section 4. Conclusions and Recommendations

This section highlights the findings, conclusions and recommendations from the PY3 evaluation of ComEd's Smart Ideas for your Business Prescriptive Program. The primary evaluation objectives include quantifying the gross and net energy and demand impacts resulting from the rebated measures and assessing program marketing and delivery. Below are the key conclusions and recommendations.

4.1 Key Impact Findings, Conclusions and Recommendations

In conducting the PY3 Prescriptive program impact evaluation, the evaluation team has drawn a number of conclusions and recommendations that are presented in this section.

Overall Findings

The PY3 Prescriptive impact evaluation estimated that verified gross energy savings were 1 percent higher than savings in ComEd's tracking system, as indicated by the realization rate (realization rate = verified gross / tracking system gross), while verified peak demand impacts were estimated to be 11 percent lower. These realization rates – 1.01 for energy and 0.89 for peak demand – are lower than PY2, where the energy realization rate was estimated to be 1.21 and peak demand was 0.99. The verified net-to-gross ratio (NTGR) for PY3 of 0.72 was slightly lower than the PY2 value of 0.74.

The relative precision at a 90% confidence level for the Prescriptive projects in the sample is $\pm 9\%$ for the kWh realization rate and $\pm 7\%$ for the kW realization rate. The relative precision at a 90% confidence level for the program NTG ratio is $\pm 5\%$.

The Prescriptive realization rate for peak demand was 0.89, reflecting primarily the impact of relatively lower demand realization rates for some sampled variable speed drive measures, the removal of HVAC interaction factors on some sampled lighting projects that were not installed in conditioned spaces as assumed in the default value, and baseline adjustments applied to several projects that received on-site verification.

The primary factors lowering the demand realization rates also resulted in lower energy realization rates on individual projects. The primary factor that raised the Prescriptive energy realization to 1.01 was a common finding, through on-site verification and telephone interviews, of longer hours of use than assumed in the default savings. Longer hours of use has a disproportionately greater impact on energy than demand – for example, if an industrial plant is found to operate continuously throughout the year, the energy realization rate will increase by 104% over the default value (8,760 ex post hours / 4,290 ex ante hours), whereas the peak demand realization rate will only increase the coincident-diversity factor by 1% (1.00 ex post / 0.99 ex ante).

In PY3, on-site verification provided 40% of our sample points (36 out of 90). Given the results of PY3, we conclude that the proportion of on-site verification audits in the PY4 sample should be increased relative to the overall sample size, especially in stratum 1 (large projects) that in PY3 exhibited high variability in realization rates. Increasing the proportion of on-site verification audits in our PY4 sample is consistent with our draft PY4 evaluation plan.

Findings

For PY3, ComEd set a goal to achieve 182,106 MWh of energy savings from the combined results of the Business Prescriptive and Custom programs. The Business Prescriptive program contributed to exceeding this energy savings goal by achieving evaluation verified gross energy savings of 260,237 MWh and net energy savings of 188,463 MWh. The PY3 program was delivered at a benefit-cost ratio of 1.05 using the Illinois Total Resource Cost test.

Specific Recommendations

- **ComEd should consider conducting a detailed review and testing of the implementation of the tracking system's handling of variable speed drive projects.** The ex ante impacts for variable speed drives did not match expected values in many instances, and contributed to significant deviations between ex ante and ex post findings on a project by project basis even when the evaluation team agreed with ComEd on the project details. Since there were a number of evaluator recommendations regarding VSDs in PY3 and ComEd has acted upon some of them since closing out PY3 projects, the evaluation team will assist ComEd in this effort in PY4 by producing updated recommendations and guidance for addressing VSD applications.
- **ComEd should consider working with the evaluation team to review PY3 site M&V and telephone survey data to identify potential refinements to default values that may be applied to PY5.** Measures that weight baseline scenarios of wide variation into a single average, such as permanent lamp removal, contributed to significant deviations between ex ante and ex post findings even when default values were properly applied.
- **ComEd should consider placing tight restrictions on new construction projects admitted into the Prescriptive program, such as restricting maximum motor horsepower size for VSD measures.** On four of nine variable speed drive measures claimed in a sampled new construction project, those involving larger motors 50 horsepower and above, the evaluation concluded that system design and final control strategy, as implemented by the customer, did not produce savings beyond code requirements. This resulted in a significant reduction in energy and demand impacts for the project.
- **When ComEd is adding a new end-use or new measure types to an existing end use, consider alerting the evaluation team who may need to revise data handling routines.**

- **During PY4, prior to closing out year-end ex ante savings estimates, ComEd should consider working with the evaluation team to review multiple factors that can affect ex ante savings.** The evaluation team can review default lookup values coded into the tracking system and check the values against the default values documentation, and advise ComEd on any differences. We identified several HVAC and refrigeration measures that appear to have default values programmed into the tracking system that differ from documented values. The evaluation team could also review the output of changes to ex ante calculations that are made in the tracking system.
- **ComEd should consider investigating customer satisfaction with light levels and consider strategies to reduce under-lit designs if dissatisfaction is common.** Seven of 79 respondents in the CATI survey reported that they installed additional lighting fixtures in the same space at a later time to increase the amount of lighting. This is a significant increase over PY2 (one of 27 respondents added fixtures). Respondents added an additional 26, 24, 15, 12, 8, 4, or 2 fixtures making a total of 91 additional "New T5/T8 fixtures". ComEd indicates they have taken steps to identify potential under-lit designs in the pre-approval stage and contact those customers to make them aware of the potential for lighting level reductions.
- **ComEd should consider discussing their experiences with potential spillover candidates and projects with the evaluation team.** The Prescriptive evaluation team will be conducting an enhanced effort to identify potential spillover candidates and quantify spillover in PY4. Spillover effects identified through the participant telephone survey in PY3 were relatively small, with only 3 of 100 telephone respondents in the survey mentioning pursuing a total of 5 projects (two VSDs, two T5s, one CFLs) where a strong influence was indicated for the ComEd program. The three respondents were not in the impact sample and the potential savings could not be quantified from the telephone responses. Although spillover effects identified in the participant telephone survey were relatively small, an increase in net-to-gross ratio due to spillover for the Prescriptive program of one or two percent would appear possible, if it could be quantified and verified. In PY3, one percent of Prescriptive verified gross impacts amounts to 2.6 million kWh. If participant spillover can be reliably characterized and quantified, it may be possible for ComEd to develop strategies to encourage it.

4.2 Key Process Conclusions, Findings and Recommendations

Finding. The PY3 program was delivered effectively, as indicated by process evaluation findings that participants were satisfied with most aspects of the program. Satisfaction for the program overall was highest, with 95% of PY3 customer participants surveyed indicating that they are satisfied. Almost all contractors (22 of 25 interviewed) were satisfied with the program. ComEd should consider the impact and process-related recommendations in this evaluation report to improve upon these results in future years.

Program Participation

Finding. Although participation levels doubled in PY3, energy savings only increased by 20%. PY3 projects were, on average, much smaller than PY2 projects (68,104 kWh per project in PY3 compared to 122,784 per project in PY2).

Finding. The medical and lodging sectors have experienced stagnant participation growth, but they have had relatively high per project savings. The medical sector, in particular, had three of the 10 largest PY3 projects and the highest average PY3 savings, generating over 200,000 kWh per project.

- **Recommendation:** Consider special offerings for sectors with limited participation but high savings potential. Hard-to-engage industries with high savings potential might benefit from special offerings to encourage more participation. Such an approach has been successfully employed by other utility programs, e.g., through targeted RFP programs that have packaged prescriptive and custom measures into one comprehensive offering. Further research might be required to identify industries to target for special promotions and identify their specific barriers to participation.

Finding. Relative to lighting, savings from non-lighting measures have increased substantially. In addition, the average size of lighting projects has declined significantly from PY1 and PY2 levels. In contrast, the size of prescriptive HVAC projects has increased since PY2, and the introduction of food service equipment generated six projects that had the highest average savings in PY3.

- **Recommendation:** Consider offering special promotions for non-lighting measures. While lighting projects will continue to be critical to the success of the program, the program should consider offering special promotions for non-lighting measures (if cost effective) to further encourage their implementation.

Finding. Eleven percent of surveyed Prescriptive Program participants noted that the scope of their project was limited by the incentive cap.

- **Recommendation:** Consider removing or increasing incentive caps. This may help in bringing in larger prescriptive projects and meeting increasing savings goals. ComEd has raised the per-premise cap from \$400,000 in PY3 to \$1,000,000 in PY4.

Participant Satisfaction

Finding. Participants and contractors are satisfied with the program. The highest participant satisfaction was with the program overall and staff communications. Sixty-seven percent of PY3 participants plan to participate again in the future. Contractors noted the helpfulness of KEMA staff and their responsiveness to inquiries. Other points of satisfaction include ease of access to

online marketing materials, short application processing time, and a high degree of certainty about the expected incentive.

Trade Ally Network

Finding. A smaller share of prescriptive projects was implemented with contractor support in PY3 (76% compared to 86% in PY2 and 92% in PY1). This trend closely mirrors the decreasing average project size since program inception and reflects the fact that contractor-implemented projects tend to be larger than those implemented without a contractor (79,000 kWh compared to 35,000 kWh).

Finding. Most interviewed contractors indicated that the Smart Ideas for Your Business Program influenced their business. Reported effects of the program include increased sales, changes in the type of equipment they supply and sell, changes in their marketing practices, and hiring additional staff.

Finding. The requirements and benefits of becoming a ComEd trade ally do not always seem to be communicated well to contractors. Interviewed non-trade allies were generally not aware of the benefits of the trade ally designation.

- **Recommendation:** Attempt to enhance and better communicate the benefits of becoming a registered trade ally. By offering additional benefits, such as more co-branding opportunities, more contractors may be enticed to register with the program.

Finding. PY3 marked the introduction of the new trade ally requirements. While most interviewed trade allies saw no problems with these requirements, active non-trade allies most often cite the time burden of attending the training in person as the main reason for not becoming a trade ally.

- **Recommendation:** Consider options to reduce the time-burden of Basic Training. The program should consider options such as offering a limited number of trainings via a web portal or in locations other than the KEMA office in Wheaton. This will allow more contractors to take advantage of the training opportunities and would reduce a barrier to becoming a trade ally.

Trade Ally Bonus

Finding. Only 11 of the 25 interviewed trade allies were aware of the bonus, all but one of them trade allies. However, some of the interviewed non-trade ally contractors expressed interest in the bonus offering and indicated that they would have increased promotion of the program had they been aware of the offering.

- **Recommendation:** Consider increasing the promotion of the trade ally bonus. By leaving interested contractors unaware, the program might have missed opportunities to attract more large projects.

Finding. Additional research into bonuses offered by Ameren Illinois and other utilities found that apart from the bonus structure, strong communication and clear expectations are crucial to the success of such an effort.

- **Recommendation:** The Smart Ideas program has already modified its bonus offering for PY4, adopting a two-tiered system modeled after Ameren Illinois' trade ally incentive structure. The program should strive to communicate the modified bonus program early and clearly to both trade allies and non-ally contractors, and provide sufficient lead time for contractors to increase their promotion and take advantage of the offering to the fullest extent.

Program Outreach and Marketing

Finding. Marketing and outreach increased substantially in PY3. The marketing plan for PY3 included trigger tactics that were initiated throughout the program year. Initial tactics included several low or no cost measures such as targeted outreach to customer groups (e.g., trade associations) and customers who attended the Energy Efficiency Expo, following up on leads from PY1 and PY2, increasing the frequency of the electronic newsletter, and a direct mailing to larger customers. As a result of the increased marketing, 32% of Prescriptive participants recall having been directly contacted by ComEd or KEMA.

Finding. Lack of program awareness is still a key barrier to participation in the Smart Ideas program. In addition, reaching the correct decision-maker is a major hurdle both in increasing awareness of the program and encouraging participation. However, opportunities to increase participation in the Smart Ideas program among current non-participants exist. Almost two-thirds of non-participants indicate that there have been installations of equipment, or other upgrades, at their facility in the past three years. Despite the economic climate, customers are active in installing new equipment and have an interest in energy efficiency. This presents an opportunity for the program to encourage customers to install equipment that will meet the standards of the Smart Ideas program and further increase its participant base.

- **Recommendation:** The program should attempt to develop a more targeted database of energy decision makers at their larger customers. To start this database, Account Managers could be engaged to provide decision maker contact information for each of their managed accounts.

Finding. Many of the participants receiving a bonus incentive on their lighting project reported that they likely would have implemented the same project without the bonus amount.

Account Managers

Finding. All interviewed Account Managers were generally receptive to the introduction of new Smart Ideas goals for Account Managers. They thought the goals were both realistic and achievable. While interviewed Account Managers generally found their new Smart Ideas goals reasonable, several noted that it would become increasingly difficult to recruit their customers to the Energy Efficiency Expo, if largely similar information was provided.

- **Recommendation:** Consider offering new attractions for future Energy Efficiency Expos. The program should find ways to keep the Expo attractive for returning customers and reflect that in outreach efforts, or consider adjusting Account Manager goals with respect to Expo recruitment.

Finding. No formal process for tracking customer leads exists in the Smart Ideas Program. However, interviewed Account Managers indicated that such a system would be a useful tool for Account Managers and Smart Ideas staff alike. ComEd indicates systems are under development.

- **Recommendation:** The program should implement a more formal system of tracking leads, especially among large managed accounts. This would facilitate more coordinated follow-up by program staff and could also help in building a more useful marketing database for targeted outreach towards large customers.

Section 5. Appendices

5.1 *Data Collection Instruments*

5.1.1 Participant Phone Survey

COMED SMART IDEAS FOR YOUR BUSINESS PROGRAM
PARTICIPANT SURVEY – BUSINESS PRESCRIPTIVE PROJECTS
PY3 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 energy efficient <ENDUSE>, which was recently installed and received an incentive of <INCENTIVE AMOUNT> from ComEd. We are calling to do a follow-up study about <COMPANY>'s participation in this incentive program, which is called the Smart Ideas for Your Business 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 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 energy efficient <ENDUSE>, which was recently installed and received an incentive of <INCENTIVE AMOUNT> from ComEd. We are calling to do a follow-up study about your firm's participation in this incentive program, which is called the Smart Ideas for Your Business 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 minutes. Is now a good time? [If no, schedule call-back]

SCREENING QUESTIONS

- S1 Which of the following statements best characterizes your relation to <COMPANY>?
1. I am an employee of <COMPANY> (THIS CATEGORY SHOULD INCLUDE THE OWNER/PRESIDENT/PARTNER ETC. OF THE COMPANY.)
 2. My company provides energy-related services to <COMPANY>
 3. I am a contractor and was involved in the installation of energy efficient equipment for this project
 00. (Other, specify) (PUT OWNER/PRESIDENT/PARTNER ETC. OF THE COMPANY IN 1)
 98. (Don't know)
 99. (Refused)

[READ if S1<>1] This survey asks questions about the energy efficiency upgrades for which <COMPANY> received an incentive at <ADDRESS>. Please answer the questions from the perspective of <COMPANY>. For example, when I refer to “YOUR COMPANY”, I am referring to <COMPANY>. If you are not familiar with certain aspects of the project, please just say so and I will skip to the next question.

- A1. Just to confirm, between June 1, 2010 and May 31, 2011 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.)
- 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 energy efficient <END USE> you installed through the Smart Ideas for Your Business Program at <ADDRESS>.

- A3. I’d like to confirm some information in ComEd’s database. Our records show that you implemented the following <ENDUSE> measures through the Smart Ideas for Your Business Program. Is this correct?

[ASK A3a IF MEASD1 <> BLANK]

- A3a <MEASD1>
- 1 (Yes)
 - 3 (No, did not install)
 - 8 (Don’t know)

9 (Refused)

[ASK A3b IF MEASD2 <> BLANK]

A3b <MEASD2>

- 1 (Yes)
- 3 (No, did not install)
- 8 (Don't know)
- 9 (Refused)

[ASK A3c IF MEASD3 <> BLANK]

A3c <MEASD3>

- 1 (Yes)
- 3 (No, did not install)
- 8 (Don't know)
- 9 (Refused)

IF A3A=3,8,9 AND A3B=3,8,9 AND A3C=3,8,9: Thank and Terminate, Record Dispo as "Could Not Confirm Measures"

IF QA3A=1 OR 2 THEN MEAS1=1, IF QA3B=1 OR 2 THEN MEAS2=1, IF QA3C=1 OR 2 THEN MEAS3=1

LIGHTING MODULE [ASK IF LIGHT=1, ELSE SKIP TO COOLING MODULE]

PL1 Who was the most influential in identifying and recommending that you install the <ENDUSE> project you completed through the Smart Ideas Program?

1. (me/respondent)
2. (contractor)
3. (engineer)
4. (architect)
5. (manufacturer)
6. (distributor)
7. (Owner)
8. (Supplier)
9. (ComEd representative/program staff)
00. (Other, specify)
98. (Don't know)
99. (Refused)

PL2 And who informed you about the availability of an incentive through ComEd Smart Ideas Program?

1. (me/respondent)
2. (contractor)
3. (engineer)
4. (architect)
5. (manufacturer)
6. (distributor)
7. (ComEd Account Manager)
8. (owner/developer)
9. (project manager)
10. (Supplier)
11. (ComEd representative/program staff)
00. (Other, specify)
98. (Don't know)
99. (Refused)

L0 When did you implement this project (IF NECESSARY, PROBE FOR BEST GUESS)

- a Month [Precodes for Jan through Dec., DK, REF]
- b Year [Precodes for 2010 and 2011, DK, REF]

Measure Loop

[Loop 1: ASK IF MEAS1=1. Loop 2: ASK IF MEAS2=1. Loop 3: ASK IF MEAS3=1.]

[For Loop 2, replace "1" at the end of read-ins with "2"; for Loop 3, replace "1" with "3".]

[LMSR=1: LINEAR]

[LMSR=2: INTERIOR OTHER]

[LMSR=3: CONTROLS]

[LMSR=4: EXIT SIGNS]

[LMSR=5: DELAMP WITH LINEAR]

[LMSR=6: DELAMPING ONLY]

[LMSR=9: EXTERIOR]

[IF LMSR=3,5 SKIP TO NEXT LIGHTING MEASURE]

The following questions are about the <MEASD1> you installed through the Smart Ideas for Your Business Program.

REMOVED EQUIPMENT

[SKIP TO EX1 if LMSR=4]

I'd like to ask you a few questions about the equipment that was removed when you installed the <MEASD1>...

[SKIP L7 if LMSR=6]

L7 What type of lighting was removed when you installed <MEASD1> through the Smart Ideas for Your Business program? (READ LIST) [MULTIPLE RESPONSE, UP TO 3]

- 1 Linear fluorescent lights
- 2 Metal Halide Fixtures
- 3 High Pressure Sodium Fixtures
- 4 Compact fluorescent lights
- 5 Incandescent bulbs
- 6 (Did not replace anything - new equipment)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

[ASK L7a IF L7=1 or LMSR=6]

L7a What type of linear fluorescent lights were removed? (READ LIST) [MULTIPLE RESPONSE, UP TO 3]

- 1 High performance T8 lighting (1" diameter bulbs)
- 2 Standard performance T8 fluorescent lighting (1" diameter bulbs)
- 3 BLANK
- 4 T12 lighting (1.5" diameter bulbs)
- 5 T5 lighting (5/8" diameter)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

[ASK L7b IF L7a=4]

- L7b What types of ballasts were in use on the linear fluorescent lighting you removed?
- 1 Electronic Ballast
 - 2 Magnetic Ballast
 - 00 (Other, specify)
 - 98 (Don't know)
 - 99 (Refused)

[ASK L10 IF L7a=4]

- L10 If you had not participated in the program, when would you have replaced your T-12 lighting?
- 1 (Within one year)
 - 2 (Between 1 and 2 years)
 - 3 (2 or more years later)
 - 8 (Don't know)
 - 9 (Refused)

[SKIP L9 IF LMSR=9]

- L9 Was the new lighting equipment installed in an air conditioned (cooled) space?
- 1. (Yes)
 - 2. (No)
 - 3. (Some of the lighting was and some wasn't)
 - 8. Don't know
 - 9. Refused

- L4 After you completed the installation of the new fixtures, did you install additional lighting fixtures in that same space at a later time to increase the amount of lighting?
- 1 Yes
 - 2 No
 - 8 (Don't know)
 - 9 (Refused)

[ASK IF L4=1, ELSE GO TO NEXT LIGHTING MEASURE]

- L5 How many of these additional new fixtures did you install? [NUMERIC OPEN END, 1 TO 3000; 98=Don't know, 99=Refused]

EXIT SIGNS

[ASK IF LMSR=4; ELSE GO TO NEXT LIGHTING LOOP]

- EX1 What type of exit signs were removed? (READ LIST) [MULTIPLE RESPONSE, UP TO 3]
- 1 Incandescent exit signs
 - 2 Compact fluorescent exit signs
 - 3 LED exit signs
 - 00 (Other, specify)
 - 98 (Don't know)
 - 99 (Refused)

[End of Measure Loop; GO TO NEXT LIGHTING MEASURE]

EQUIPMENT INTO STORAGE

L6 Was any of the lighting equipment for which you received an incentive placed into storage or installed at another facility?

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

[SKIP L6a AND L6b IF L6<>1]

L6a What percentage of the lighting equipment for which you received an incentive was placed in storage? [NUMERIC OPEN END, 0 TO 100; 998=Don't know, 999=Refused]

L6b And what percentage was installed at another facility? [NUMERIC OPEN END, 0 TO 100; 998=Don't know, 999=Refused]

HOURS OF USE – LIGHTING

[ASK IF LMSR1=1,2 OR LMSR2=1,2 OR LMSR3=1,2; ELSE SKIP TO NTG MODULE]

Now we'd like to talk about the hours that your interior lighting equipment is in operation.

LH1a Are you typically open every day, Monday through Friday?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused

[ASK LH1b IF LH1a=2]

LH1b How many days are you CLOSED Monday through Friday?

- 1 One
- 2 Two
- 3 Three
- 4 Four
- 5 Five
- 8 Don't know
- 9 Refused

[IF LH1b=5, SKIP TO LH4]

LH2 At what time do your indoor lights currently turn on during weekdays (Monday - Friday)? (Enter 2400 for 24-hour operation, enter 0 for never on)

LH2a Enter hours and minutes, e.g., 0530 for 5:30

- LH2b
1. AM
 2. PM

[SKIP LH3 IF LH2=24hr or never]

LH3 At what time do your indoor lights currently turn off during weekdays (Monday - Friday)? (Enter 2400 for 24-hour operation, enter 0 for never on)

LH3a Enter hours and minutes, e.g., 0530 for 5:30

- LH3b 1. AM
2. PM

LH4 Does the lighting equipment operate on a different schedule on weekends (Saturday and Sunday)?

- 1 Yes
2 No
8 Don't know
9 Refused

[ASK IF LH4=1, ELSE SKIP TO LH9]

LH5 On Saturdays, at what time does the indoor lighting equipment turn on? (Enter 2400 for 24-hour operation, enter 0 for never on)

LH5a Enter hours and minutes, e.g., 0530 for 5:30

- LH5b 1. AM
2. PM

[SKIP LH6 IF LH5=24hr or never]

LH6 And when does the indoor lighting equipment turn off on Saturdays? (Enter 2400 for 24-hour operation, enter 0 for never on)

LH6a Enter hours and minutes, e.g., 0530 for 5:30

- LH6b 1. AM
2. PM

LH7 And on Sundays, at what time does the indoor lighting equipment turn on? (Enter 2400 for 24-hour operation, enter 0 for never on)

LH7a Enter hours and minutes, e.g., 0530 for 5:30

- LH7b 1. AM
2. PM

[SKIP LH8 IF LH7=24hr or never]

LH8 And when does the indoor lighting equipment turn off on Sundays? (Enter 2400 for 24-hour operation, enter 0 for never on)

LH8a Enter hours and minutes, e.g., 0530 for 5:30

- LH8b 1. AM
2. PM

LH9a During hours when your business is OPEN, approximately what percentage of the indoor lights are kept on? [NUMERIC OPEN END, 0 TO 100; 998=DON'T KNOW, 999=REFUSED]

[SKIP LH9b IF LH1a=1 AND LH2a = 2400 AND LH4 = 2]

LH9b During hours when your business is CLOSED, approximately what percentage of the indoor lights are kept on? [NUMERIC OPEN END, 0 to 100; 998=Don't know, 999=Refused]

LH10a Are there any months during the year when the operating schedule for the indoor lighting differs significantly from what you just described?

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

[ASK LH10b-e IF LH10a=1; ELSE SKIP TO PROCESS MODULE]

LH10b How many hours per day does the indoor lighting typically operate during the periods with different operating schedules?

[NUMERIC OPEN END, 0 TO 24; 98=DON'T KNOW, 99=REFUSED]

LH10c And how many days per week?

[NUMERIC OPEN END, 0 TO 7; 8=DON'T KNOW, 9=REFUSED]

LH10d How many months per year does the equipment run on the alternative schedule? [NUMERIC OPEN END, 0 TO 12; 98=DON'T KNOW, 99=REFUSED]

LH10e During hours when your business is OPEN, on the alternative schedule, approximately what percentage of the indoor lighting is kept on? [NUMERIC OPEN END, 0 TO 100; 998=DON'T KNOW, 999=REFUSED]

[SKIP LH10f IF LH10b = 24]

LH10f During hours when your business is CLOSED on the alternative schedule, approximately what percentage of the indoor lights are kept on? [NUMERIC OPEN END, 0 to 100; 998=Don't know, 999=Refused]

[ASK THE PY3 NET-TO-GROSS MODULE, THEN RETURN]

[ASK THE PY3 SPILLOVER MODULE, THEN RETURN]

HVAC MODULE [ASK IF COOLING=1, ELSE SKIP TO REFRIGERATION MODULE]

PC1 Who was the most influential in identifying and recommending that you install the <ENDUSE> project you completed through the Smart Ideas Program?

1. (me/respondent)
2. (contractor)
3. (engineer)
4. (architect)
5. (manufacturer)
6. (distributor)
7. (Owner)
00. (Other, specify)
98. (Don't know)
99. (Refused)

PC2 And who informed you about the availability of an incentive through ComEd Smart Ideas Program?

1. (me/respondent)
2. (contractor)
3. (engineer)
4. (architect)
5. (manufacturer)
6. (distributor)
7. (ComEd Account Manager)
8. (owner/developer)
9. (project manager)
11. (ComEd representative/program staff)
00. (Other, specify)
98. (Don't know)
99. (Refused)

C0 When did you implement this project (IF NECESSARY, PROBE FOR BEST GUESS)

- a Month [Precodes for Jan through Dec.; DK, REF]
- b Year [Precodes for 2010 and 2011; DK, REF]

[End of HVAC MODULE]

[ASK THE PY3 NET-TO-GROSS MODULE, THEN RETURN]

[ASK THE PY3 SPILLOVER MODULE, THEN RETURN]

REFRIGERATION MODULE [ASK IF REFRIG=1, ELSE TO GO MOTORS MODULE]

PR1 Who was the most influential in identifying and recommending that you install the <ENDUSE> project you completed through the Smart Ideas Program?

1. (me/respondent)
2. (contractor)
3. (engineer)
4. (architect)
5. (manufacturer)
6. (distributor)
7. (Owner)
9. (ComEd Representative/Program Staff)
00. (Other, specify)
98. (Don't know)
99. (Refused)

PR2 And who informed you about the availability of an incentive through ComEd Smart Ideas Program?

1. (me/respondent)
2. (contractor)
3. (engineer)
4. (architect)
5. (manufacturer)
6. (distributor)
7. (ComEd Account Manager)
8. (owner/developer)
9. (project manager)
11. (ComEd Representative/Program Staff)
00. (Other, specify)
98. (Don't know)
99. (Refused)

R0 When did you implement this project (IF NECESSARY, PROBE FOR BEST GUESS)

- a Month [Precodes for Jan through Dec.]
- b Year [Precodes for 2010 and 2011]

Measure Loop

[Loop 1: ASK IF MEAS1=1. Loop 2: ASK IF MEAS2=1. Loop 3: ASK IF MEAS3=1.]

[For Loop 2, replace "1" at the end of read-ins with "2"; for Loop 3, replace "1" with "3".]

The following questions are about the <MEASD1> installed through the Smart Ideas for Your Business Program.

REMOVED EQUIPMENT

- R1 What type of refrigeration equipment was removed when you installed the <MEASD1> through the Smart Ideas for Your Business Program?
- 1 (Old Strip curtains)
 - 2 (Older Anti-sweat heat controllers)
 - 3 (Standard efficiency evaporator fan motors)
 - 4 (Older ice maker)
 - 5 (Older controls)
 - 6 (Same Equipment, just newer)
 - 7 (Fluorescent display case lighting)
 - 00 (Other, specify)
 - 96 (NONE - Not a replacement)
 - 98 (Don't know)
 - 99 (Refused)

[SKIP R2 AND R3 IF R1=96,98,99]

- R2 How would you describe the condition of refrigeration equipment that was removed? Was it...
- 1 Inoperable (broken)
 - 2 Poor condition
 - 3 Fair condition
 - 4 Good condition
 - 8 Don't know
 - 9 Refused

- R3 Approximately how old was the refrigeration equipment that was removed by the new refrigeration equipment? Was it...
- 1 Less than 5 years old
 - 2 Between 5 and 10 years old
 - 3 10 to 20 years old
 - 4 more than 20 years old
 - 8 Don't know
 - 9 Refused

[ASK R4a and R4b IF MEASD1="Anti-Sweat Heater Controls"]

- R4a Thinking about the previous system you had in place to reduce condensation on your refrigeration doors, was it on all the time or did you control the number of hours that it operated?
- 1 On all the time
 - 2 Controlled the hours of operation
 - 00 (Other, specify)
 - 96 (Didn't have a previous system)
 - 98 Don't Know
 - 99 Refused

[ASK R4b IF R4a=2]

- R4b How many hours per day was the previous system on? [NUMERIC OPEN END, 0 TO 24; 98=Don't know, 99=Refused]

[End of Measure Loop; GO TO NEXT REFRIGERATION MEASURE]

[ASK PY3 NET-TO-GROSS MODULE, THEN RETURN]

[ASK PY3 SPILLOVER MODULE, THEN RETURN]

MOTORS MODULE [ASK IF MOTORS=1]

PM1 Who was the most influential in identifying and recommending that you install the <ENDUSE> project you completed through the Smart Ideas Program?

1. (me/respondent)
2. (contractor)
3. (engineer)
4. (architect)
5. (manufacturer)
6. (distributor)
7. (Owner)
9. (ComEd Representative/Program Staff)
00. (Other, specify)
98. (Don't know)
99. (Refused)

PM2 And who informed you about the availability of an incentive through ComEd Smart Ideas Program?

1. (me/respondent)
2. (contractor)
3. (engineer)
4. (architect)
5. (manufacturer)
6. (distributor)
7. (ComEd Account Manager)
8. (owner/developer)
9. (project manager)
11. (ComEd Representative/Program Staff)
00. (Other, specify)
98. (Don't know)
99. (Refused)

Measure Loop

[Note to programmer: The Smart Ideas sample has no participant with more than one measure. Only need one loop.]

The following questions are about the <MEASD1> you installed through the Smart Ideas Program.

M0 When did you implement this project (IF NECESSARY, PROBE FOR BEST GUESS)

- a Month [Precodes for Jan through Dec.]
- b Year [Precodes for 2010 and 2011]

- M1 Are the new motors used to... (READ LIST)
- 1 Drive a newly installed piece of equipment
 - 2 Replace a failed motor
 - 3 Replace a functioning motor
 - 4 Serve as a spare
 - 00 Or for some other reason (Specify)
 - 98 (Don't Know)
 - 99 (Refused)

- M1a Are the new motors controlled by a variable speed drive (VSD)?
- 1 Yes
 - 2 No
 - 8 (Don't know)
 - 9 (Refused)

REPLACED EQUIPMENT [ASK IF M1=2,3, ELSE SKIP TO NTG MODULE]

I'd like to ask you a few questions about the equipment that was removed when you installed the new <MEASD1>.

- M3a Were the motors you removed...
- (IF NEEDED: "In this survey we use the term "NEMA Premium motors" to refer to very high efficiency motors that meet specific performance criteria developed by the National Electrical Manufacturers Association. We use the term "EPAct Motors" to refer to motors that meet current federal minimum efficiency standards contained in the Energy Policy Act; new motors installed in Illinois after 1997 must be, at a minimum, EPAct motors. Finally, we use the term "Standard Efficiency Motors" to refer to typically older motors that do not meet the current Federal standards.)
- 1 NEMA Premium motors
 - 2 EPAct motors
 - 3 standard efficiency motors
 - 8 (Don't Know)
 - 9 (Refused)

- M3b Had the motors you removed been rewound?
- 1 Yes
 - 2 No
 - 8 (Don't Know)
 - 9 (Refused)

M3c How would you describe the condition of the motors that were removed when you installed the new <MEASD1>? Were they...

- 1 Inoperable (broken)
- 2 Poor condition
- 3 Fair condition
- 4 Good condition
- 8 (Don't Know)
- 9 (Refused)

M3d How old were the motors that were removed? Would you say...

- 1 Less than 5 years old
- 2 Between 5 and 10 years old
- 3 10 to 20 years old
- 4 more than 20 years old
- 8 (Don't Know)
- 9 (Refused)

[End of MOTORS MODULE]

[ASK THE PY3 NET-TO-GROSS MODULE, THEN RETURN]

[ASK THE PY3 SPILLOVER MODULE, THEN RETURN]

PY3 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)

<UTILITY> (ComEd or Ameren Illinois Utilities)

<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.)

<FINCRIT1> (Variable to be calculated based on responses. Equals 1 if payback period WITHOUT incentive is shorter than company requirement. See instructions below.)

<FINCRIT2> (Variable to be calculated based on responses. Equals 1 if payback period WITH incentive is shorter than company requirement. See instructions below.)

<MSAME> (Equals 1 if same customer had more than one project of the same end-use type; from program tracking database)

<NSAME> (Number of additional projects of the same end-use type implemented by the same customer; from program tracking database)

<FSAME> (Equals 1 if same customer also had a measure of a different end-use type at the same facility; from program tracking database)

<FDESC> (Type of end-use of a different measure type at the same facility; from program tracking database)

<ACCT_REP> (Name of utility account manager, from program tracking database or program files if present)

<BONUS> (Equals 1 if any Prescriptive lighting measure in the overall project received an incentive bonus from the October 25, 2010 to April 30, 2011 offer)

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]

V2 BLANK

V3 Did you also use a DESIGN or CONSULTING Engineer?

- 961 (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 <UTILITY> <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.

N1 When did you first learn about <UTILITY>'s 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 <UTILITY>'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 old 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 <UTILITY> or KEMA 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 a <UTILITY> program staff person

[SKIP N3ff IF NTG=B]

[ASK N3ff IF N3f=8, 9, 10]

N3ff. Why do you give it this rating?

N3h. Information from <PROGRAM> or <UTILITY> 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 <UTILITY> 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 old 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 the incentive was not that important?
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 the information provided was not that important?
00 [Record VERBATIM]
98 (Don't know)
99 (Refused)

N4c When I asked you about THE RECOMMENDATION FROM A <UTILITY> 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 the information provided was not that important?
00 [Record VERBATIM]
98 (Don't know)
99 (Refused)

N4d When asked about THE INFORMATION from the <PROGRAM> or <UTILITY> 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 this information was not that important?
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 UTILITY 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 this endorsement was not that important?
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 very 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.

N5 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? [RECORD 0 to 10; 98=Don't know; 99=Refused]

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 standard practice or policy?

- 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)

- N10a What was the estimated payback period for the new <ENDUSE>, in months, WITH the incentive
1
from the <PROGRAM>?
- 00 [NUMERIC OPEN END, UP TO 240]
 - 998 (Don't know)
 - 999 (Refused)

- N10b And what was the estimated payback period for the <ENDUSE>, in months, WITHOUT the
incentive from the <PROGRAM>?
- 00 [NUMERIC OPEN END, UP TO 240]

- 998 (Don't know)
- 999 (Refused)

[CREATE VARIABLE FINCRIT1. SET FINCRIT1 = BLANK IF: N9=8,9 OR N10b=998,999. SET FINCRIT1 = 1 IF: (N9=1 AND N10b<7) OR (N9=2 AND N10b<13) OR (N9=3 AND N10b<25) OR (N9=4 AND N10b<37) OR (N9=5 AND N10b<61) OR (N9=6). ELSE, SET FINCRIT1 = 0.]

[ASK N10c IF FINCRIT1=1]

N10c Even without the incentive, the <ENDUSE> project met <COMPANY>'s financial criteria. Would you have gone ahead with it even without the incentive?

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

[CREATE VARIABLE FINCRIT2. SET FINCRIT2 = BLANK IF: N9=8,9 OR N10a=998,999. SET FINCRIT2 = 1 IF: (N9=1 AND N10a<7) OR (N9=2 AND N10a<13) OR (N9=3 AND N10a<25) OR (N9=4 AND N10a<37) OR (N9=5 AND N10a<61) OR (N9=6). ELSE, SET FINCRIT2 = 0.

[ASK N10d IF FINCRIT2=1 AND FINCRIT1=0 AND N3b=0,1,2,3,4]

N10d The incentive seemed to make the difference between meeting your financial criteria and not meeting them, but you are saying that the incentive didn't have much effect on your decision, why is that?

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

[ASK N10e IF FINCRIT2=0 AND N3b=8,9,10]

N10e. The incentive didn't cause this <ENDUSE> project to meet <COMPANY>'s financial criteria, but you said that the incentive had an impact on the decision to install the <ENDUSE>. Why did it have an impact?

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

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

N11 Does your organization have a corporate 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 corporate policy influenced your decision to adopt or install the <ENDUSE> through the <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <PROGRAM>?

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

- N20a Could you please rate the importance of the <PROGRAM>, versus this standard industry practice in influencing your decision to install the <ENDUSE>. Would you say the <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)

ADDITIONAL PROJECTS

[ASK N26 IF MSAME=1]

Our records show that <COMPANY> also received an incentive from <UTILITY> 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 <UTILITY> 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 <UTILITY> 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)

BONUS INCENTIVE [ASK IF BONUS=1]

BI1a Are you aware that the incentive you received for this project included a bonus amount that ComEd offered for a limited period of time? (If needed, "This payment was part of a special offer from ComEd that paid additional Bonus incentives for occupancy sensors, new T5 and T8 fluorescent fixtures, and most T12 retrofit measures. To receive the higher incentives, you would have used specially marked application forms and submitted the final application between October 25, 2010 and April 30, 2011.")

- 1 (Yes)
- 2 (No) [SKIP TO SPILLOVER]
- 8 (Don't know) [SKIP TO SPILLOVER]
- 9 (Refused) [SKIP TO SPILLOVER]

BI1b Were you aware of the bonus incentive when you decided to implement the <ENDUSE> project?

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

BI2 How did you find out about the bonus incentive?

- 1 (ComEd website)
- 2 (Bill insert)
- 3 (ComEd Newsletter)
- 4 (Contractor)
- 5 (Account Manager)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

BI3 If you had only received the regular incentive amount for your <ENDUSE> project, how likely would you have been to still implement the exact same project? Please use a scale from 0 to 10 where 0 means "not at all likely" and 10 means "extremely likely".

PY2 SPILLOVER MODULE

Thank you for discussing the new <ENDUSE> that you installed through the <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 <UTILITY> 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)

SP4 BLANK

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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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 <UTILITY> 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

[IF S1<>1 SKIP TO S1A]

S0 How did you first hear about the Smart Ideas program?

1. (ComEd Account Manager)
2. (ComEd Website)
4. (Contractor/Trade Ally)
5. (Email)
6. (Friend/colleague/word of mouth)
00. (Other, specify)
98. (Don't know)
99. (Refused)

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 S1b IF S1a=1 ELSE SKIP TO S1e]

S1b Did the application forms clearly explain the program requirements and how to participate?

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

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)

S2-S3 BLANK

[IF S1=3, SKIP TO S8]

- S4a Did you use a contractor for your <ENDUSE> project?
1. Yes
 2. No
 8. (Don't know)
 9. (Refused)

[ASK S4b IF S4a=1]

- S4b Was the contractor you used a ComEd Trade Ally? (IF NEEDED: Was the contractor REGISTERED with the Smart Ideas for Your Business Program?)
1. Yes
 2. No
 8. (Don't know)
 9. (Refused)

[ASK S5 IF S4a=1 ELSE SKIP TO S7]

- S5 How would you rate the contractor's ability to meet your needs in terms of implementing your project? Please use a scale from 0 to 10, where 0 is "not at all able to meet needs" and 10 is "completely able to meet needs"? [SCALE 0-10; 98=Don't know, 99=Refused]

S6a Would you recommend the contractor you worked with to other people or companies?

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

S6b Why not?

1. (Too small)
00. (Other, specify)
98. (Don't know)
99. (Refused)

S7 When implementing an energy efficiency project, how important is it to you that the contractor is a ComEd Trade Ally? 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]

S8-S10 BLANK

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 measures offered by the program (If needed: this is the equipment that is eligible for an incentive under the program)
- d. the Smart Ideas program overall
- e. ComEd overall

[ASK S12a IF S11a<4]

S12a You indicated some dissatisfaction with the incentive amount, why did you rate it this way?

[MULTIPLE RESPONSE; UP TO 3]

1. (Better rebates in other states)
2. (Too small)
3. (Equipment didn't qualify)
00. (Other, specify)
98. (Don't know)
99. (Refused)

[ASK S12b IF S11b<4]

S12b You indicated some dissatisfaction with the communication you had with the Smart Ideas staff, why did you rate it this way?

1. (Provided inconsistent information)
2. (Didn't understand the question)
3. (Hard to reach the right person/person with the answer)
00. (Other, specify)
98. (Don't know)
99. (Refused)

[ASK S12b IF S11c<4]

S12c You indicated some dissatisfaction with the measures offered by the Smart Ideas program, why did you rate it this way? [OPEN END; 98=Don't know, 99=Refused]

[ASK S12d IF S11d<4]

S12d You indicated some dissatisfaction with the Smart Ideas Program overall, why did you rate it this way?

1. (Not as easy as other states)
2. (No clear guidance)
00. (Other, specify)
98. (Don't know)
99. (Refused)

[ASK S12e IF S11e<4]

S12e You indicated some dissatisfaction with ComEd overall, why did you rate it this way?

1. (Rates are too high)
2. (Took too long to get rebate)
3. (Poor customer service)
4. (Poor power supply/service)
00. (Other, specify)
98. (Don't know)
99. (Refused)

Marketing and Outreach

[IF S1<>1, SKIP TO B1A]

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. Received information about the program in your monthly utility bill?
- b. Attended a ComEd customer event where the program was discussed?
- c. Discussed the program with a ComEd Account Manager?
- d. Discussed the program with a Contactor or Trade Ally?
- e. Seen information about the program on the ComEd Website?
- f. Received information about the program in an Email?
- g. Heard about the program from a colleague, friend or family member?
- h. Attended a meeting, seminar or workshop where the program was presented?
- i. Attended a webinar where the program was discussed?
- j. Read about the program in a ComEd Newsletter?
- k. Been directly contacted by a ComEd or KEMA outreach staff?

MK1b How useful were the program's marketing materials in providing information about the program? Would you say they were...

1. Very useful
2. Somewhat useful
3. Not very useful
4. Not at all useful
8. (Don't know)
9. (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/Saving money)
- 2. (Good for the Environment)
- 3. (Lower Maintenance Costs)
- 4. (Better Quality/New Equipment)
- 5. (Rebate/Incentive)
- 9. (Able to make improvements sooner)
- 00. (Other, Specify)
- 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)
- 00. (Other, specify)
- 98. (Don't know)
- 99. (Refused)

B2 BLANK

B3 Was the scope of your project limited by the program's incentive cap?

- 1. Yes
- 2. No
- 00. (Other, specify)
- 98. (Don't know)
- 99. (Refused)

Feedback and Recommendations

- R1 Do you plan to participate in the 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.

- F1 BLANK
- 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)
- F6 And 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
- F4a How old is this facility? [NUMERIC OPEN END, 0 TO 150; 998=Don't know, 999=Refused]

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

[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)

5.1.2 Trade Ally and Contractor Phone Survey

**Trade Ally Survey for the ComEd Prescriptive Program
FINAL**

Hello, this is _____ from Opinion Dynamics calling on behalf of ComEd. THIS IS NOT A SALES CALL. We are doing a brief survey with program allies who have been involved in projects supported by the Smart Ideas for Your Business Program.

We are interested in your experience with the program and any feedback you may have received from your customers about the program. ComEd plans to use the information to improve the energy efficiency programs and services it offers to its business customers.

[If name does not match name on list] Who might be the best person to speak with about the Smart Ideas for Your Business Program?

[If name matches name on list] Would you be willing to speak with me for about 15 minutes? Is now a good time or is there a more convenient time when I could call back?

Alert interviewee that the call will be recorded.

Note that responses will remain confidential and only be reported in aggregate with other responses.

Firmographics

I first have a few general questions about your company.

- F1 What is your business category? (Probe for: contractor, engineer, ESCO, equipment vendor, architect)

- F2 What type of equipment, if any, would you say is your company's area of expertise? (Probe, if necessary: lighting, HVAC, refrigeration, motors, food service)
 - a. If multiple areas: What is the MAIN area? → [RECORD THIS AREA AS "ENDUSE"]
 - b. Approximately how many total commercial or industrial [ENDUSE] projects does your company implement in a typical year?

- F3 Approximately, how many employees does your company have? (Fewer than 5, 5-10, 11-50, over 50)

- F4 What are the key business sectors your company serves? (Probe for light/heavy industry, retail, office, restaurant, etc.)

Freeridership Module [ASK ONLY IF IDENTIFIED BY CUSTOMER]

I now have a few specific questions about your firm's recent involvement in <%CUSTOMER>'s installation of <%MEASURE> through the Smart Ideas for Your Business Program at <%ADDRESS> in <%MONTH/YEAR >.

FR1 <%CUSTOMER> has indicated that your firm was involved in the implementation of this project. Is this correct? Are you the person that is most knowledgeable about your firm's involvement in this project?

[IF NO, PROBE TO SEE IF THERE IS SOMEONE ELSE IN FIRM WHO MAY HAVE KNOWLEDGE OF THIS PROJECT, ELSE SKIP TO FR4]

FR2 Can you please describe your firm's role in the selection and installation of <%MEASURE> at <%CUSTOMER>'s facility? (Probe if firm merely supplied or installed equipment or if they had a role in selecting it. Probe about perceived level of influence firm's recommendation had on customer's choice.)

[IF NO ROLE IN SELECTING EQUIPMENT, SKIP TO FR4]

FR3a On a scale of 0 to 10 where 0 is NOT AT ALL IMPORTANT and 10 is EXTREMELY IMPORTANT, how important was the PROGRAM, including incentives as well as program services and information, in influencing your decision to recommend that <%CUSTOMER> install the energy efficiency MEASURE at this time? [SCALE 0-10]

FR3b And using a 0 to 10 likelihood scale where 0 is NOT AT ALL LIKELY and 10 is EXTREMELY LIKELY, if the PROGRAM, including incentives as well as program services and information, had not been available, what is the likelihood that you would have recommended this specific MEASURE to <%CUSTOMER>? [SCALE 0-10]

FR4 Do you know of any other vendors that worked with <%CUSTOMER> during their implementation and/or installation of <%MEASURE>, for example engineers or designers? If so, do you have their name and phone number?

Market Trends & Effect of Program on Business

I now have a few questions about the market for commercial and industrial [ENDUSE] equipment and the influence of the Smart Ideas for Your Business Program on your business practices.

- M1 Over the last 12 months, approximately what percentage of your [ENDUSE] equipment sales in ComEd's service territory were energy efficient models?
- Of these energy efficiency models, approximately what percentage would qualify for incentives from the program?
 - And of the installations that would qualify for incentives, approximately what percentage did NOT receive an incentive? Why do you think they did not receive an incentive? (*Probe for other reasons, if only one is mentioned.*)
- M2 You just told me that about ___% of your [ENDUSE] sales involve high efficiency equipment. Has this percentage *changed* in the past three years? How? In other words, do more of your sales involve high efficiency equipment?
- If increase:
- How important was the Smart Ideas Program in this change? (*Probe for specific program components: incentives, training, program website, other program components.*)
 - How important are other factors not related to the program? What are these other factors? (*Probe for tax credits/gov't rebates, general EE awareness, change in codes or standards.*)
- M3 In what percent of sales situations do you recommend high efficiency [ENDUSE] products?
- [If not 100%] When you don't recommend high efficiency products, what are the reasons?
- M4 Has the frequency with which you recommend high efficiency [ENDUSE] equipment changed in the past three years? How?
- If change noted:
- How important was the Smart Ideas Program in this change? (*Probe for specific program components: incentives, training, program website, other program components.*)
 - How important are other factors not related to the program? What are these other factors? (*Probe for tax credits/gov't rebates, general EE awareness, change in codes or standards.*)
- M5 As a result of the Smart Ideas Program...
- have you changed the type of equipment you supply and sell?
 - have you changed any other business practices as a result of the program? (*Probe for: hired more staff, opened up new offices, changed marketing.*)
 - Has the program caused an increase in business?

- M6 How aware, would you say, are your customers of energy efficiency and options available to make their facilities more energy efficient? How interested would you say are they? (*Probe for very, somewhat, not very, not at all aware/interested*)
Has this (awareness/interest) changed over time?
- M7 What do you view as the main barriers to the installation of energy efficient equipment for your customers? Does this vary by customer type or size? Anything else? What could be done to overcome these barriers?

Process Module

- P1 How aware, would you say, are your customers of the Smart Ideas for Your Business program? How interested are they in it? Does this vary by customer type or size?
- P2 How frequently do you promote the program to your customers? (Always, most of the time, sometimes, rarely, never?) If sometimes/rarely/never: Why? Does this vary by customer type or size?
- P3 Have you received any marketing materials from the program? If so, what did you receive? (*Probe for fact sheets, case studies, The Wire newsletter, "toolkit" from training session*) Do you provide these materials to your customers?
- If yes: How useful do you think are these materials in providing information about the program and encouraging customers to participate? If not useful, what would make them more useful?
 - If no: why not?
 - Are there any specific promotional materials that you would like ComEd to provide? If yes, what are they (e.g., case studies, point-of-sale technical handouts, website tools/enhancements)?

[IF REGISTERED TRADE ALLY]

- P4 Our records show that you are a registered Trade Ally, is that correct?
- Last year, ComEd instituted new requirements for becoming a registered Trade Ally. These included attending the Basic training once a year and completing at least one project. How do you feel about these new requirements? Did your firm have any problems meeting the requirements?
 - Has the designation of "Trade Ally" changed any of your business practices? How?
 - What do you see as the main benefits of being a registered Trade Ally? (*Probe: marketing materials, listing on ComEd website, group training, application status, sales coaching, discount on technical training, eligibility for trade ally bonus*)

[IF NOT A REGISTERED TRADE ALLY]

- P5 Our records show that you are **not** a registered trade ally, is that correct?
- Last year, ComEd instituted new requirements for becoming a registered Trade Ally. These included attending the Basic training once a year and completing at least one project. Were you aware of these new restrictions? How do you feel about these new requirements?
 - Why has your company not registered to become a Trade Ally?
 - Are you planning on becoming a registered trade ally?
 - What, if any, do you see as the main benefits of being a registered Trade Ally? (*Probe: marketing materials, listing on ComEd website, group training, application status, sales coaching, discount on technical training*)
 - What Trade Ally benefits could the Smart Ideas Program add that may convince you to become a registered trade ally? (*Probe for trade ally bonus*)
- P6 Were you aware that ComEd offered trade ally bonuses in the fall of 2010, where registered trade allies were awarded a 5% bonus of the incentive amount for projects that received \$10,000 or more in incentives?

[IF REGISTERED TRADE ALLY]

If aware:

- Did your company receive a bonus?
 - Did the bonus offering lead to an increased promotion of the program on your behalf? Did it lead to any other changes in your business practices? Do you think it resulted in more or bigger projects?
 - How did you feel about the restrictions/rules of the bonus? Was the bonus amount adequate?
 - What changes, if any, would you make to a trade ally bonus offering to make it more effective at bringing in more large projects? (*Probe: timing of bonus, length of promotion*)
- P7 What do you view as the main barriers to customer participation in the Smart Ideas for Your Business program? What could be done to overcome these barriers?
- P8 How satisfied are you with your participation in the Smart Ideas for Your Business program? (*Ask very, somewhat, not very, not at all satisfied.*) If not very satisfied or not at all satisfied: why?
- measures offered
 - incentive amounts
 - communication with Smart Ideas program staff
 - the program overall

[ask if total # of proj<4]

- P9 Our records indicate that you only participated in [X] project(s) through the program between June 2010 and May 2011. Can you briefly describe what prevented you from more active participation?
- P10 Do you have any recommendations of how the Smart Ideas for Your Business Program could be improved?

This concludes our survey. On behalf of ComEd, thank you very much for your time today!

5.1.3 Account Manager Phone Survey

ComEd Smart Ideas for Your Business C&I Programs: Account Manager Interviews
FINAL

Hello, this is _____ from Opinion Dynamics. We are the independent contractor hired by ComEd to conduct the evaluation of the Smart Ideas for Your Business Program. We are doing a brief survey with ComEd Account Managers. We are interested in your experience with the <Prescriptive and/or Custom> Program and any feedback you may have received about the program from your customers.

Is now still a good time or is there a more convenient time when I could call back?

Alert interviewee that the call will be recorded.

Note that responses will remain confidential and only be reported in aggregate with other responses.

Background

1. How long have you been an Account Manager at ComEd?
2. What kind of customers do you serve? *[Probe for business sector, size, chains]* Approximately how many customers do you serve?
3. How frequently do you interact with your customers? What is the primary mode of communication? *[Probe for if they visit location, call, send out emails, letters]* Does this vary by customer type or size?

NTG Battery

4. According to our records <SCOMP> is a customer of yours who implemented a <EUSE> project through the Prescriptive Program at <ADDR>. Were you aware of their participation?
5. Did you ever promote the Smart Ideas for Your Business Program to <SCOMP>? How frequently did you discuss the program with them? *(Probe for when the first began discussing the program, use <DATE> as a reference point)*
6. Did you play a role in their decision to implement <EUSE> project? Please explain. From your perspective, what were the main factors in <SCOMP> decision to install high efficiency equipment and participate in the program?
 - a. If promote it/involved: Without your involvement, how likely would they have been to implement the project through the program? *(Probe for very likely, somewhat likely, not at all likely)*

Program Awareness

7. How familiar would you say you are with the Smart Ideas for Your Business Program? [*Probe: very, somewhat, not very, not at all familiar*]
8. Have you attended any lunch-and-learn presentations? How many? How useful did you find these presentations? How did you use the information from the Lunch N Learns? Please explain.
9. How often do you discuss energy efficiency with your customers? How often do you promote the program? Does this vary by customer type or size?
If not often: why not?
10. What do you find to be the best way to reach your customers about energy efficiency opportunities? Does this vary by customer type or size?
11. What information about the program do you typically provide? [*probe for fact sheets, case studies*]
If provide materials: How useful have you found these marketing materials to be? What could make them more useful?
12. Do you use the website as a resource for program information? Do you find that the materials on the website are easily accessible? Do you have any suggestions on how to make program materials more accessible?
13. Do you feel you have enough information about the program to effectively promote it and assist customers in getting started with their participation?
14. Is there anything that the program could do to help you be more effective in promoting the program? (*probe for better marketing materials, more training, ...*)
15. Did you attend last year's (2010) EE Expo? Did you promote the Expo to your customers? Did any of your customers attend the Expo?
 - a. Did you find this EE Expo useful in providing information to your customers or promoting the program? Are there any changes that would make it better in the future?
 - b. How about this year's (2011) Expo that just took place? Did you attend? Did you promote it to your customers? Did your customers attend? How useful was the Expo in providing information about the program?
16. Is there a formal process for tracking leads? Do you keep track of your communications with your customers with respect to the Smart Ideas program? Is this information passed along to Program staff?
 - a. Do you find this process is working? Why/Why not?

Customer Awareness/Interest/Participation

17. What percentage of your customers, do you think, are aware of the Smart Ideas for Your Business Program? What percentage is interested? Why or why not? Does this vary by customer type or size?
18. How aware are you of your customers' participation and status in the program? Do you find that the weekly updates are useful? Do they provide enough information? Do you prefer to get updates in any other way?
19. Approximately what percentage of your customers has participated in the Smart Ideas Program? Does this vary by customer type or size?
20. Have you gotten any feedback from customers about the Smart Ideas Program? What is the nature of that feedback? Does this vary by customer type or size?
21. In your view, what are the major barriers to participating in the Smart Ideas for Your Business program?
22. What are the major barriers to your customers in installing energy efficient equipment?
23. This was the first year that the program initiated goals for account executives. (*To bring customers to EE expo, bring in \$15 million in paid/reserved projects by Nov, and to attend a certain amount of lunch-and-learns*). Did you achieve these goals? How did you feel about these goals? Did you find them realistic?

Those are all the questions I had. Thank you very much for your time today!

5.1.4 Non-Participant Phone Survey

COMED SMART IDEAS FOR YOUR BUSINESS PROGRAM

NON-PARTICIPANT SURVEY

Final 08/11/11

INTRODUCTION

Hello, this is _____ from Opinion Dynamics calling on behalf of ComEd. This is not a sales call. We are conducting research on behalf of ComEd to help them develop programs to better serve their business customers. I'm looking to speak with the person responsible for making energy decisions for the company. (IF NEEDED: I am looking to speak with someone who might be involved in any decisions to improve the efficiency of the energy consuming systems your business uses, such as lighting or air conditioning) Could you connect me to the appropriate person?

SCREENING

- S1 Since June 2008, has <COMPANY> received a rebate from ComEd for the installation of one or more energy-efficient measures?
- 1 Yes [THANK AND TERMINATE]
 - 2 No
 - 8 (Don't know)
 - 9 (Refused) [THANK AND TERMINATE]

PROCESS QUESTIONS

Program Awareness and Familiarity

- PA1 Are you aware that ComEd offers energy efficiency programs to help commercial and industrial customers make energy efficiency improvements at their facilities?
- 1 Yes
 - 2 No
 - 8 (Don't know)
 - 9 (Refused)
- PA2 Have you heard of the Smart Ideas for Your Business Program?
- 1 Yes
 - 2 No
 - 8 (Don't know)
 - 9 (Refused)

[SKIP to MK2 IF PA2=2,8,9]

- PA3 How would you rate your familiarity with the Smart Ideas for Your Business Program? Would you say you are...

- 1 Very familiar
- 2 Somewhat familiar
- 3 Not very familiar
- 4 Not at all familiar
- 8 (Don't know)
- 9 (Refused)

S0 How did you first hear about the Smart Ideas for Your Business Program?

- 1 (ComEd Account Manager)
- 2 (Contractor)
- 3 (Friend/colleague/word of mouth)
- 4 (ComEd Website)
- 5 (Email)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

MK2 In general, what is the best way of reaching your company with 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. (Contractor)
- 00. (Other, specify)
- 98. (Don't know)
- 99. (Refused)

Energy Efficiency Knowledge and Baseline

EE1 How would you rate your knowledge of the different ways your company can save money by using energy more efficiently? Would you say that you are...

- 1 Very knowledgeable
- 2 Somewhat knowledgeable
- 3 Not very knowledgeable
- 4 Not at all knowledgeable
- 8 (Don't know)
- 9 (Refused)

EE2 On a scale of 0 to 10 where 0 is "not at all efficient" and 10 is "extremely efficient", how energy efficient would you rate your facility? [SCALE 0 to 10; 98=Don't know, 99=Refused]

- EE3 Has this facility ever had an energy audit/consultation to assess its energy efficiency?
- 1 Yes
 - 2 No
 - 8 (Don't know)
 - 9 (Refused)

Equipment Purchases

Now I would like to ask you some questions about equipment purchases for this location.

Decision-Making

- EP1 Thinking about the types of equipment at your facility that consume the most energy (such as lighting, heating & cooling systems), when it's time to replace this equipment, who makes the decisions on the type of equipment to install?
- 1 (I/Me)
 - 2 (Somebody else at this facility)
 - 3 (Somebody at the company/corporate office)
 - 4 (The owner/landlord – if facility is rented)
 - 5 (The property management firm)
 - 6 (Contractor/consultant)
 - 00 (Other, specify)
 - 98 (Don't know)
 - 99 (Refused)

[SKIP TO PP1 IF EP1=4,5]

- EP2 In general, when considering purchasing new equipment, what sources do you consult for information and guidance on what type of equipment to select? [MULTIPLE RESPONSE, UP TO 3]
- 1 (Your own experience)
 - 2 (Other employees of the company)
 - 3 (Contractor/Consultant)
 - 4 (ComEd/ComEd Account Manager)
 - 5 (Internet)
 - 00 (Other, specify)
 - 98 (Don't know)
 - 99 (Refused)

- EP3 On a scale of 0 to 10 where 0 is “not at all important” and 10 is “very important,” how important are the following factors when purchasing new equipment for your facility? [SCALE 0-10; 98=Don't know, 99=Refused]
- a Purchase cost
 - b Operating and maintenance cost
 - c Investment payback period
 - d Energy efficiency
 - e Aesthetics
 - f Availability

EP4 We are interested in understanding how companies like yours make decisions about purchasing energy efficient equipment. I am going to read a list of statements that may or may not apply to your company at this time, but please answer them to the best of your ability. Using a scale from 0 to 10 where 0 is 'Strongly Disagree' and 10 is 'Strongly Agree,' please indicate your level of agreement with the following statements [SCALE 0 to 10; 98=Don't know, 99=Refused]:
[Randomize List]

- a It's hard to figure out if the extra money we might need to spend on an energy efficient piece of equipment is really worth it.
- b It's hard to figure out what the best piece of energy efficient equipment to buy is because of all the technical information we need to find.
- c If we had a question about the energy efficient equipment options available to us, we wouldn't know where to find the answer.
- d Price is the biggest reason why my company might not buy a high efficiency item.
- e It is difficult to get the internal approval we need in order to purchase a piece of energy efficient equipment.

Past Purchases

PP1 In the past three years, have there been any installations of ENERGY EFFICIENT equipment, or other energy efficient upgrades, at this facility?

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

[SKIP TO PP5 IF PP1=2,8,9]

PP2 What type of energy efficient equipment was installed or upgraded? (IF TOO MUCH DETAIL IS GIVEN, PROMPT FOR MAJOR END-USE CATEGORIES LISTED) [MULTIPLE RESPONSE; UP TO 5]

- 1 (Lighting)
- 2 (Heating/Cooling/HVAC)
- 3 (Motors)
- 4 (Variable Speed Drives/VSDs)
- 5 (Refrigeration equipment)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

[SKIP TO PP5 IF EP1=4,5]

PP3 What were the reasons for installing energy efficient equipment as opposed to standard efficiency equipment? [MULTIPLE RESPONSE; UP TO 3]

- 1 (Save energy/save money)
- 2 (Improve equipment performance)
- 3 (Benefit from energy efficiency tax credits/incentives)
- 4 (To be a more "green" company)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

[SKIP IF PA2=2,8,9]

PP4 What were your reasons for not participating in the Smart Ideas for Your Business Program?
[MULTIPLE CHOICE, UP TO 3]

- 1 (Wasn't aware of the program at the time)
- 2 (Didn't have enough information about the program)
- 3 (Incentives not high enough/not worth the effort)
- 4 (Cost of energy efficiency equipment)
- 5 (Program is too complicated/confusing)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

PP5 In the past three years, have there been any installations of equipment, or other upgrades, at this facility that were NOT energy efficient?

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

[SKIP IF PP5=2,8,9 OR EP1=4,5]

PP6 Why didn't you install high efficiency equipment?

- 1 (Costs more/too much)
- 2 (Wasn't available)
- 3 (Was not aware of options)
- 4 (Purchased used equipment)
- 5 (Wasn't recommended by contractor/vendor)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

[SKIP TO FIRMOGRAPHICS IF EP1=4,5]

PP7 On scale from 0 to 10, where 0 is "not at all" and 10 is "a great deal", to what extent has the current economic downturn adversely affected your investment decisions with respect to purchasing new equipment? [SCALE 0 to 10; 98=Don't know, 99=Refused]

[SKIP if PP7=0]

PP8 And to what extent has the current economic downturn adversely affected your investment decisions with respect to purchasing ENERGY EFFICIENT equipment? Please use the same scale from 0 to 10, where 0 is "not at all" and 10 is "a great deal." [SCALE 0 to 10; 98=Don't know, 99=Refused]

Future Purchases

FP1a Within the next 2 years, do you plan to install any new equipment at this facility?

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

[SKIP TO FIRMOGRAPHICS IF FP1a=2,8,9]

FP1b What type of equipment do you plan to install? (IF TOO MUCH DETAIL IS GIVEN, PROMPT FOR MAJOR END-USE CATEGORIES LISTED) [MULTIPLE RESPONSE; UP TO 5]

- 1 (Lighting)
- 2 (Heating/Cooling/HVAC)
- 3 (Motors)
- 4 (Variable Speed Drives/VSDs)
- 5 (Refrigeration equipment)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

FP2 How likely is it that the equipment you plan to install will be energy efficient? Would you say...

- 1 Very likely
- 2 Somewhat likely
- 3 Not very likely
- 4 Not at all likely
- 8 (Don't know)
- 9 (Refused)

[SKIP TO FIRMOGRAPHICS IF FP2=4,8,9 OR PA2=2,8,9 OR PA3=4,8,9]

FP3a How likely are you to participate in the Smart Ideas for Your Business Program when you install your energy efficient equipment? Would you say you are...

- 1 Very likely
- 2 Somewhat likely
- 3 Not very likely
- 4 Not at all likely
- 8 (Don't know)
- 9 (Refused)

[SKIP IF FP3a=1,2,8,9]

FP3b Why are you not likely to participate in the program? [MULTIPLE RESPONSE, UP TO 3]

- 1 (Don't have enough information about the program)
- 2 (Incentives not high enough/not worth the effort)
- 3 (Cost of energy efficiency equipment)
- 4 (Program is too complicated/confusing)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

FIRMOGRAPHICS

I only have a few general questions left.

F1 What is the business sector of this facility? (PROBE, IF NECESSARY)

- 1 (K-12 School)
- 2 (College)
- 3 (Grocery)
- 4 (Medical)
- 5 (Hotel/Motel)
- 6 (Light Industry)
- 7 (Heavy Industry)
- 8 (Office)
- 9 (Restaurant)
- 10 (Retail/Service)
- 11 (Warehouse)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

F2 Does your company own or rent this facility?

- 1 (Own)
- 2 (Rent)
- 00 (Other, specify)
- 98 (Don't know)
- 99 (Refused)

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

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

F6 Which of the following best describes your facility? This facility is...

1. my company's only location
2. one of several locations owned by my company
3. the headquarters location of a company with several locations

[SKIP F7 IF F2=2]

F7 In comparison to other companies in your industry, would you describe your company as...

1. A small company
2. A medium-sized company
3. A large company
4. (Not applicable)
8. (Don't know)
9. (Refused)

5.2 Methodologies and Sampling

5.2.1 Impact Evaluation Methods

Gross Program Savings

The objective of this element of the impact evaluation is to verify the veracity and accuracy of the PY3 ex ante gross savings estimates in the Prescriptive program tracking system. The savings reported in ComEd's online tracking system was evaluated using the following steps:

3. Engineering review at the measure-level for a sample of 90 project files, with the following subcomponents:
 - a. Engineering review and analysis of measure savings based on project documentation, default assumptions, and tracking data.
 - b. Review and application (if appropriate) of participant phone survey impact data (reported hours of use, reported baseline equipment, installation in non-air-conditioned space) to projects in the engineering review sample.
 - c. On-site verification audits at 36 project sites selected randomly from the sample of 90 projects. Performance measurements included spot measurements and runtime hour data logging for selected measures. On-site data collection was concentrated in the June 1 through August 31 summer peak period.
 - d. Calculation of a verified gross savings value (kWh and kW) for each project within the sample, based on measure-level engineering analysis.
4. Carry out a quality control review of the ex post impact estimates and the associated draft site reports and implement any necessary revisions.

A verified gross realization rate (which is the ratio of the ex post 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 Sections 2 and 3 below. The result is an ex post estimate of gross savings for the Prescriptive program.

Engineering Review of Project Files

For each selected project, an in-depth application review is performed to assess the engineering methods, parameters and assumptions used to generate all ex ante impact estimates. For each measure in the sampled project, engineers estimated ex post gross savings based on their review of documentation, consideration of CATI interview response data, and engineering analysis.

To support this review, ComEd provided project documentation in electronic format for each sampled project. Documentation included some or all of scanned files of hardcopy application forms and supporting documentation from the applicant (invoices, measure specification sheets, and vendor proposals), pre-inspection reports and photos (when required), post inspection reports and photos (when conducted), calculation spreadsheets, a project summary report, and important email and memoranda. Where projects covered by the participant phone survey overlapped with the engineering review sample, relevant impact data from the phone survey (reported hours of use, reported baseline equipment, installation in a non-air-conditioned space) was applied to projects.

On-Site Data Collection

On-site surveys were completed for a subset of 36 of the 90 customer applications sampled. For most projects on-site sources include interviews that are completed at the time of the on-site, visual inspection of the systems and equipment, EMS data downloads, spot measurements, and short-term monitoring (e.g., less than four weeks).

An analysis plan is developed for each project selected for on-site data collection. Each plan explains the general gross impact approach used (including monitoring plans), provides an analysis of the current inputs (based on the application and other available sources at that time), and identifies sources that will be used to verify data or obtain newly identified inputs for the ex post gross impact approach.

The engineer assigned to each project first calls to set up an appointment with the customer. During the on-site audit, data identified in the analysis plan is collected, including monitoring records (such as instantaneous spot watt measurements for relevant equipment, measured temperatures, data from equipment logs and EMS/SCADA system downloads), equipment nameplate data, system operation sequences and operating schedules, and, of course, a careful description of site conditions that might contribute to baseline selection.

All engineers who conduct audits are trained and experienced in completing inspections for related types of projects. Each carries properly calibrated equipment required to conduct the planned activities. They check in with the site contact upon arrival at the building, and check out with that same site contact, or a designated alternate, on departure. The on-site audit consists of a combination of interviewing and taking measurements. During the interview, the engineer meets with a building representative who is knowledgeable about the facility's equipment and operation, and asks a series of questions regarding operating schedules, location of equipment, and equipment operating practices. Following this interview, the engineer makes a series of detailed observations and measurements of the building and equipment. All information is recorded and checked for completeness before leaving the site.

Conduct Site-Specific Impact Calculations and Prepare Site Reports

After all of the field data is collected, including any monitoring data, annual energy and demand impacts are developed based on the on-site data, monitoring data, application information, and, in some cases, billing or interval data. Each program engineering analysis is based on calibrated engineering models that make use of hard copy application review and on-site gathered information surrounding the equipment installed through the program (and the operation of those systems).

Energy and demand savings calculations are accomplished using methods that include short-term monitoring-based assessments, simulation modeling (e.g., DOE-2), bin models, application of ASHRAE methods and algorithms, analysis of pre- and post-installation billing and interval data, and other specialized algorithms and models.

For this study, peak hours are defined as non-holiday weekdays between 1:00 PM and 5:00 PM Central Prevailing Time (CPT) from June 1 to August 31. This is in accordance with the PJM manual 18, *Energy Efficiency and Verification*, of March 1, 2010.

Peak demand savings for both baseline and post retrofit conditions are the average demand kW savings for the 1 pm to 5 pm weekday time period. If this energy savings measure is determined to have weather dependency then the peak kW savings are based on the zonal weighted temperature humidity index (WTHI) standard posted by PJM. The zonal WTHI is the mean of the zonal WTHI values on the days in which PJM peak load occurred in the past ten years. This mean WTHI value is 80.4. Demand savings is the difference in kW between the baseline and post retrofit conditions.

After completion of the engineering analysis, a site-specific draft impact evaluation report is prepared that summarizes the M&V plan, the data collected at the site, and all of the calculations and parameters used to estimate savings. Each draft site report underwent senior engineer review and comment, providing feedback to each assigned engineer for revisions or other improvements. Each assigned engineer then revised the draft reports as necessary to produce the final site reports.

Net Program Savings

The primary objective of the net savings analysis for the Prescriptive 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 (NTG) ratio that quantifies the percentage of the gross program impacts that can be reliably attributed to the program.

For PY3, the net program impacts were quantified from the estimated level of free-ridership. Quantifying free-ridership requires estimating what would have happened in the absence of the

program. A customer self-report method, based on data gathered during participant phone interviews, was used to estimate the free-ridership for this evaluation. The existence of participant spillover was qualitatively examined by identifying spillover candidates through questions asked in the participant telephone interviews. If response data provides sufficient detail to quantify participant spillover, those impacts are estimated.

Once free-ridership and participant spillover has been estimated the Net-to-Gross (NTG) ratio is calculated as follows:

$$\text{NTG Ratio} = 1 - \text{Free-ridership Rate} + \text{Participant Spillover}$$

Basic Rigor Free-Ridership Assessment

Free ridership was assessed using a customer self-report approach following a framework that was developed for evaluating net savings of California's 2006-2008 nonresidential energy efficiency programs. This method calculates free-ridership using data collected during participant telephone interviews concerning the following three items:

- A **Timing and Selection** score that reflected the influence of the most important of various program and program-related elements in the customer's decision to select the specific program measure at this time.
- A **Program Influence** score that captured the perceived importance of the program (whether rebate, recommendation, or other program intervention) relative to non-program factors in the decision to implement the specific measure that was eventually adopted or installed. This score is cut in half if they learned about the program after they decided to implement the measures.
- A **No-Program** score that 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. This score accounts for deferred free ridership by incorporating the likelihood that the customer would have installed program-qualifying measures at a later date if the program had not been available.

Each of these scores represents the highest response or the average of several responses given to one or more questions about the decision to install a program measure. The rationale for using the maximum value is to capture the most important element in the participant's decision making. This approach and scoring algorithm is identical to that used by the Ameren Illinois evaluators with the exact same questions.

Standard Rigor Free-Ridership Assessment

For projects that receive greater program funding levels in excess of \$50,000, an effort is made during the customer telephone interview to more completely examine project influence sources in order to allow for any analyst-determined adjustments to customer self-reported score calculations using the Basic approach outlined above. Additional survey batteries examine other project decision-making influences including the vendor, ComEd Account Manager, age, and condition of existing equipment, corporate policy for efficiency improvements and so on. Any adjustments made on this basis are carefully documented and the rationale for any adjustments is provided, to ensure their transparency to the reviewer.

In a Standard Rigor Free-Ridership Assessment, program influence through vendor or ComEd Account Manager recommendations is incorporated into the Timing and Selection score, if a follow-up interview has been triggered. The purpose of this additional component is to assess the influence of the program on vendors for programs that are vendor-driven, where the utility has specific outreach and assistance efforts targeting vendors. The Account Manager interview provides insight into multiple points of program influence exerted into large and often complex participating customer organizations. Account Manager interviews were triggered on projects that were managed accounts where the customer had not already assigned a maximum program influence score to one of the other program components.

Triggering of a vendor interview occurs when the interviewee responds as follows:

The respondent identifies that a contractor, engineer, architect, manufacturer, distributor, or supplier:

- was the most influential in identifying and recommending that the respondent install the project completed through the Smart Ideas Program, or
- informed the respondent about the availability of an incentive through ComEd Smart Ideas Program

AND, the respondent rates the importance with a score of 8 or higher for

- Recommendation from an equipment vendor or contractor that helped with the choice of the equipment
- A recommendation from a design or consulting engineer

When triggered, vendors and ComEd Account Managers were interviewed regarding their involvement in the project and the influence of the program in their recommendations to the participant. The NTG interview questions for vendors and Account Managers are provided in Appendix 5.1.2, and are the basis for estimating a Vendor Score and Account Manager Score.

The Vendor Score is the maximum (on a scale of 0 to 10) of the following factors:

1. [Score= response, on scale of 0 to 10] On a scale of 0 to 10 where 0 is NOT AT ALL IMPORTANT and 10 is EXTREMELY IMPORTANT, how important was the PROGRAM, including incentives as well as program services and information, in influencing your decision to recommend that <%CUSTOMER> install the energy efficiency MEASURE at this time?
2. [Score= 10 minus the response, on a scale from 0 to 10] And using a 0 to 10 likelihood scale where 0 is NOT AT ALL LIKELY and 10 is EXTREMELY LIKELY, if the PROGRAM, including incentives as well as program services and information, had not been available, what is the likelihood that you would have recommended this specific MEASURE to <%CUSTOMER>?

The algorithm above provides a score on a scale of 0 to 10, where 10 is associated with no free-ridership due to program influence. The Account Manager score is assigned by the evaluator based on a qualitative assessment of the influence exerted by the Account Manager. The Vendor Score or Account Manager Score is then factored into the Timing and Selection Score.

The calculation of free-ridership for the Prescriptive program is a multi-step process. The survey covers a battery of questions used to assess net-to-gross ratio for a specific end-use and site.

Responses are used to calculate a Timing and Selection 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 free-ridership level. If the customer has additional projects at other sites covering the same end-use, the survey asks whether the responses also apply to the other projects. If that is the case, the additional projects are given the same score.

Spillover

For the PY3 Prescriptive program evaluation, a battery of questions was asked to qualitatively assess spillover. Below are paraphrased versions of the spillover questions that were asked:

1. 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?
2. What specifically were the measures that you implemented?
3. Why are you not expecting an incentive for these measures?
4. Why did you not install this measure through the ComEd Program?
5. Please describe the SIZE, TYPE, and OTHER ATTRIBUTES of these measures.

6. Please describe the EFFICIENCY of these measures.
7. Please describe the QUANTITY installed of these measures.
8. Were these measures specifically recommended by a program related audit, report or program technical specialist?
9. How significant was your experience in the ComEd 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?
10. Why do you give the ComEd program this influence rating?
11. If you had not participated in the ComEd 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?

Responses to these questions allow us to assess whether spillover may be occurring and the type of equipment involved, but typically do not offer enough detail to quantify the spillover.

NTG Scoring

The net-to-gross scoring approach is summarized in Table 5-1.

Table 5-1. Net-to-Gross Scoring Algorithm for the PY3 Prescriptive Program

Scoring Element	Calculation
<p>Timing and Selection score. The maximum score (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:</p> <ul style="list-style-type: none"> A. Availability of the program incentive B. Recommendation from utility program staff person C. Information from utility or program marketing materials D. Endorsement or recommendation by utility account manager E. Other factors (recorded verbatim) F. Information provided through technical assistance received from utility or KEMA field staff G. Vendor Score (when triggered) H. Account Manager Score (when triggered) 	<p>Basic Rigor: Maximum of A, B, C, D, and E</p> <p>Standard Rigor: Maximum of A, B, C, D, E, F, G, and H</p>
<p>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?”</p>	<p>Points awarded to the program (divided by 10)</p> <p>Divide by 2 if the customer learned about the program AFTER deciding to implement the measure that was installed</p>

Scoring Element	Calculation
<p>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?” The NTG algorithm computes the Likelihood Score as 10 minus the respondent’s answer (e.g., the likelihood score will be 0 if extremely likely to install exactly the same equipment if the program had not been available).</p> <p>Adjustments to “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.</p>	<p>Interpolate between Likelihood Score and 10 to obtain the No-Program score, where</p> <p>If “At the same time” or within 6 months then the No Program score equals the Likelihood Score, and if 48 months later then the No Program Score equals 10 (no free-ridership)</p>
<p>Project-level Free-ridership (ranges from 0.00 to 1.00)</p>	<p>1 – Sum of scores (Timing & Selection, Program Influence, No-Program)/30</p>
<p>“Our records show that <COMPANY> also received an incentive from <UTILITY> for a <different end use> project at <same ADDRESS>. Was the decision making process for the <different end use> project the same as for the <ENDUSE> project we have been talking about?”</p>	<p>If participant responds “same decision,” assign free-ridership score to other end-uses of the same project</p>
<p>“Our records show that <COMPANY> also received an incentive from <UTILITY> for <number> other <ENDUSE> project(s). Was it a single decision to complete all of those <ENDUSE> projects for which you received an incentive from <UTILITY> or did each project go through its own decision process?”</p>	<p>If participant responds “single decision,” assign free-ridership score to same end-use of the additional projects (projects with separate project ID’s)</p>
<p>PY3 Project level Net-to-Gross Ratio (ranges from 0.00 to 1.00)</p>	<p>1 – Project level Free-ridership + Project-Level Participant Spillover</p>

5.2.2 Impact Evaluation Sampling

For gross impact evaluation, sampling was conducted in two waves to allow an early start of the impact efforts. The first wave of sampling was conducted on projects with a status of paid in a March 22, 2011 database extract. The second and final wave of sample projects were drawn from the end of year population of projects paid after the March 22 extract. The Prescriptive telephone survey sample for Net-to-Gross estimation was drawn in one wave from a database extract representing the final population of projects.

Profile of Population

Program-level Prescriptive savings data were analyzed by measure type, end-use, business type, and project size to inform the sample design for this population. Table 5-2, Table 5-3, and Table 5-4, and show the population profile analyzed by business type, end-use, and measure. Some “end-uses” reported in the ComEd tracking system relate to programming requirements of the database, so ComEd’s “end-uses” were consolidated into measure technology types that align with end uses. For example, ComEd’s ice maker “end-use” was combined with refrigeration, while ComEd’s “HVAC_VSD” end use was called “ALL VSDs”, since Prescriptive incentives now allow for VSD applications that are not HVAC related.

Table 5-2. PY3 Prescriptive Program Participation by Business Type

Business Type	Project Count		Measure Count		Ex Ante kWh Impact Claimed		Ex Ante kW Impact Claimed	
	Count	%	Count	%	kWh	%	kW	%
Warehouse	292	8%	713	9%	56,019,530	22%	9,898	19%
Light Industry	404	11%	1,185	15%	46,374,552	18%	11,396	22%
Retail/Service	1,415	37%	2,248	29%	39,017,385	15%	7,832	15%
Office	599	16%	1,328	17%	26,315,976	10%	6,493	12%
Miscellaneous	468	12%	914	12%	26,076,783	10%	4,675	9%
Heavy Industry	156	4%	373	5%	24,774,149	10%	5,890	11%
Medical	103	3%	392	5%	20,740,511	8%	3,201	6%
Grocery	195	5%	286	4%	12,057,843	5%	1,730	3%
Hotel/Motel	33	1%	59	1%	3,397,208	1%	457	1%
College / University	38	1%	83	1%	2,189,815	1%	450	1%
Restaurant	61	2%	125	2%	735,230	0%	123	0%
K-12 School	30	1%	59	1%	686,900	0%	155	0%
TOTAL	3,794	100%	7,765	100%	258,385,882	100%	52,300	100%

Source: Evaluation analysis of tracking savings from ComEd online tracking system, August 3, 2011.

Table 5-3. PY3 Prescriptive Program Participation by Consolidated End-Use Measure Type

Consolidated End-Use Measure Technology Type	Population Measure Count		Ex-Ante Claimed Savings			
	Count	%	Gross kWh		Gross kW	
LIGHTING	6,320	81%	220,081,626	85%	45,023	86%
ALL VSDs	563	7%	27,586,756	11%	4,292	8%
REFRIGERATION	603	8%	7,132,166	3%	706	1%
HVAC EQUIPMENT	183	2%	3,121,799	1%	2,202	4%
PREMIUM MOTORS	84	1%	400,019	0%	66	0%
FOOD SERVICE	12	0%	63,516	0%	12	0%
Total	7,765	100%	258,385,882	100%	52,300	100%

Source: Evaluation analysis of tracking savings from ComEd online tracking system, August 3, 2011.

Table 5-4. PY3 Prescriptive Program Participation by Measure Type

Consolidated Measure Type	Measure Count		Meas. With Bonus	Ex Ante kWh Impact Claimed		Ex Ante KW Impact Claimed	
	Count	%		kWh	%	KW	%
New T5/T8 Fixture	1,095	14.1%	646	110,950,622	42.9%	23,304	44.6%
Delamp (2,3,4,8-foot) with or w/o reflector	1,009	13.0%	769	31,495,368	12.2%	6,946	13.3%
Red. Watt T8 (4') & HP T8 (4') Lamp & Bal.	1,301	16.8%	962	25,342,619	9.8%	5,407	10.3%
Daylighting & Occupancy Sensor Controls	813	10.5%	535	22,510,418	8.7%	4,453	8.5%
Red. Watt T8 (4-foot & 8-foot) Lamp Only	253	3.3%	-	8,188,353	3.2%	1,490	2.8%
LED or Induction	473	6.1%	-	7,355,827	2.8%	1,285	2.5%
Exit Signs	553	7.1%	-	5,390,273	2.1%	651	1.2%
Metal Halides (PS or Ceramic)	80	1.0%	-	2,503,189	1.0%	474	0.9%
Hardwired/Screw-in CFLs	83	1.1%	-	1,770,810	0.7%	326	0.6%
2' & 3' T8 Lamps & Ballast	336	4.3%	255	1,265,153	0.5%	230	0.4%
Time Clocks for Lighting	23	0.3%	-	1,105,585	0.4%	-	0.0%
Red. Watt T8 (8') & Ballast	95	1.2%	65	665,424	0.3%	148	0.3%
Cold Cathode	17	0.2%	-	659,392	0.3%	128	0.2%
U-Tube T8 Lamps & Bal.	145	1.9%	94	583,743	0.2%	125	0.2%
Bi-Level Fixtures	7	0.1%	-	236,434	0.1%	48	0.1%
Retro T12 Fixt w/ T5 Lamps & Elec. Bal.	6	0.1%	3	27,275	0.0%	6	0.0%
LED Channel/Open Signs	3	0.0%	-	18,104	0.0%	0	0.0%
Photocells	24	0.3%	-	9,292	0.0%	-	0.0%
Remove 2-foot Lamp and Install Reflector	4	0.1%	-	3,746	0.0%	1	0.0%
Variable Speed Drive Control	563	7.3%	-	27,586,756	10.7%	4,292	8.2%
Heating & Cooling Equip.	176	2.3%	-	2,038,944	0.8%	2,057	3.9%
Hotel Guest Room EMS	7	0.1%	-	1,082,855	0.4%	145	0.3%
Premium Eff. Motors	84	1.1%	-	400,019	0.2%	66	0.1%
EC Motor	143	1.8%	-	2,668,120	1.0%	327	0.6%
Anti-sweat control system	69	0.9%	-	2,330,972	0.9%	41	0.1%
LED Refrig. Case Lighting	353	4.5%	-	1,966,875	0.8%	320	0.6%
Refrigeration Other	38	0.5%	-	166,199	0.1%	19	0.0%
Hot Food Holding Cabinet	12	0.2%	-	63,516	0.0%	12	0.0%
TOTALS	7,765	100%	3,329	258,385,882	100%	52,300	100%

Source: Evaluation analysis of tracking savings from ComEd online tracking system, August 3, 2011.

Project size was examined using Prescriptive project-level records (based on project ID number). Projects with a status of "paid" were sorted largest to smallest and placed in three

strata using ex ante energy savings to create roughly equal contributions to total program savings. Table 5-5 presents the number of projects by strata, along with ex ante gross energy and peak demand savings claimed.

Table 5-5. PY3 Prescriptive Program Participation by Strata

Strata	Projects	Ex Ante kWh Impact Claimed	Ex Ante kW Impact Claimed
1	139	88,442,741	16,891
2	406	84,575,667	17,540
3	3,249	85,367,474	17,868
TOTAL	3,794	258,385,882	52,300

Source: Evaluation analysis of tracking savings from ComEd online tracking system, August 3, 2011.

The average PY3 Prescriptive project size is 68,104 kWh and 13.8 kW. This is roughly half the size of the average Prescriptive project in PY2 which was 122,784 kWh and 26.2 kW. Lighting measures dominated PY3 activity on a relative basis, accounting for 85 percent of program reported energy savings, but variable speed drives (VSDs) accounted for 11 percent of the program reported energy savings and HVAC and refrigeration were also represented. Each of ComEd’s twelve business types was represented in PY3. Although warehouses, light industry and heavy industry accounted for 50 percent of claimed energy savings, offices and retail/service accounted for a significant 25 percent of energy savings and 53 percent of projects.

Gross Impact M&V Sample

For the PY3 program year, a statistically significant sample based on 90/10 confidence/precision level for program-level savings was drawn for the gross savings verification. Following the approach used in PY1 and PY2, the specific customer projects receiving the impact verification were selected using a stratified ratio estimator technique to ensure that the projects with the largest contribution to program-level kWh were included in the sample. After the initial sample selection (stratified by size), we compared the sample against the program population to check that the sample reasonably represented the population end use distribution.

Sampling was performed in two phases during the PY3 program year. The sample for the first phase was drawn in April 2011 from a March 22, 2011 database extract, and then the sample for the second (final) phase was drawn once the program closed out PY3 application processing in June 2011. Final results were based upon wave 1 and 2 combined.

To improve the accuracy of the verified gross savings estimates, a large portion of the overall sample was selected for an on-site visit. Projects were randomly selected from the sample in each stratum so that a program-level realization rate could be calculated and the confidence and relative precision level could be estimated. The sample size for the on-site visits in PY3 supports

a confidence and relative precision for peak demand reduction in the range of 90/10, based on a one-tail test.

This sampling strategy is designed to provide a solid estimate of program level savings. It was not designed to provide statistically significant results by measure type, building type, or measure end-use category, nor will the field work identify changes to all assumptions feeding the program's engineering algorithms. Evidence from the engineering review and field work that addresses the appropriateness of the savings algorithms and the accuracy of the assumptions feeding those algorithms will be presented.

Some projects contain both Custom and Prescriptive measures (combined projects). The Custom and Prescriptive programs were sampled and evaluated through different approaches by necessity, so the evaluation team included all custom measures within the Custom evaluation, and all prescriptive measures within the Prescriptive evaluation. Site visits and phone surveys were coordinated by assigning combined projects to one evaluation or the other to avoid multiple contacts.

Using the March 22, 2011 extract, paid projects were stratified at tracking record level for projects using the ex ante energy impact claim. Records were sorted from largest to smallest Prescriptive energy claim, and placed into one of three strata such that each contains approximately one-third of the program total kWh claim. The project distribution changed between March 22, 2011 and the year end extract dated July 13, 2011, but the strata boundaries defined using the March 22 extract were preserved for all future gross impact, net impact, and process samples.

The Prescriptive evaluation plan called for a target sample of 90 projects in the ex post gross impact sample to engineering review. This sample was drawn such that an equal number of projects (30 per stratum) were randomly selected for each stratum. Each of the 90 records selected represents just one Prescriptive application which may have multiple measures. A set of 36 projects for the on-site M&V sample were randomly selected from the sample of 90 by strata.

Profile of the Gross Impact M&V Sample

Table 5-6 provides a profile of the gross impact verification sample for the Prescriptive program in comparison with the Prescriptive program population. Shown is the resulting sample that was drawn, consisting of 90 projects, responsible for 26.5 million kWh of ex ante impact claim and representing 10% of the ex ante impact claim for the program population. Also shown are the ex-ante based kWh sample weights for each of three strata.

Table 5-6. Profile of the Gross Impact Sample by Strata

Prescriptive Population Summary				Impact Sample		
Sampling Strata	Number of Projects (N)	Ex Ante kWh Impact Claimed	kWh Weights	n	Ex Ante kWh	Sampled % of Population
1	139	88,442,741	0.342	30	19,205,786	22%
2	406	84,575,667	0.327	30	6,460,074	8%
3	3,249	85,367,474	0.330	30	845,031	1%
TOTAL	3,794	258,385,882	1.000	90	26,510,891	10%

Table 5-7 provides a comparison of the population profile to the sample analyzed by measure technology types that align with end uses. The sample reflects the dominance of lighting, somewhat over-represents variable speed drives, and provides some field M&V for refrigeration, HVAC cooling equipment, and premium efficiency motor measures.

Table 5-7. PY3 Prescriptive Sample End-Use Measure Technology Type Comparison

Consolidated End-Use Measure Technology Type	Ex-Ante Claimed Savings			
	Gross kWh, Population		Gross kWh, Sample	
LIGHTING	220,081,626	85%	21,040,421	79%
ALL VSDs	27,586,756	11%	4,966,909	19%
REFRIGERATION	7,132,166	3%	230,030	1%
HVAC EQUIPMENT	3,121,799	1%	205,560	1%
PREMIUM MOTORS	400,019	0%	67,971	0%
FOOD SERVICE	63,516	0%	0	0%
Total	258,385,882	100%	26,510,891	100%

Source: Evaluation analysis of tracking savings from ComEd online tracking system, August 3, 2011.

Table 5-8 provides a comparison of the population profile to the sample analyzed by business type. The sample reflects the dominance of warehouses, although they are somewhat over-represented as is medical. Industry is somewhat under-represented, however, the measures in industry and warehouses are commonly new T5/T8 fixtures and occupancy sensors, and both the population and sample have 50 percent of energy savings in these business types.

Table 5-8. PY3 Prescriptive Sample Business Type Comparison

Business Type	Ex-Ante Claimed Savings			
	Gross kWh, Population		Gross kWh, Sample	
Warehouse	56,019,530	22%	9,392,685	35%
Light Industry	46,374,552	18%	3,236,793	12%
Retail/Service	39,017,385	15%	3,871,977	15%
Office	26,315,976	10%	1,807,832	7%
Miscellaneous	26,076,783	10%	1,639,941	6%
Heavy Industry	24,774,149	10%	820,696	3%
Medical	20,740,511	8%	4,834,780	18%
Grocery	12,057,843	5%	534,865	2%
Hotel/Motel	3,397,208	1%	369,886	1%
College / University	2,189,815	1%	-	0%
Restaurant	735,230	0%	1,430	0%
K-12 School	686,900	0%	-	0%
Total	258,385,882	100%	26,510,891	100%

Source: Evaluation analysis of tracking savings from ComEd online tracking system, August 3, 2011.

Table 5-9 provides a profile of the 36 sites selected from the impact sample for on-site M&V.

Table 5-9. Profile of the Gross Impact M&V On-Site Sample by Strata

On-Site Sample				
Sampling Strata	Number of Sites	Business Types	Ex Ante kWh Impact Claimed	Sampled % of Population
1	12	Warehouse, Light Industry, Medical, Retail/Service	7,361,557	8%
2	10	Warehouse, Light Industry, Heavy Industry, Office, Grocery, Miscellaneous, Retail/Service	1,955,561	2%
3	14	Warehouse, Light Industry, Office, Restaurant, Miscellaneous, Retail/Service	535,805	<1%
TOTAL	36		9,852,923	4%

5.2.3 CATI Telephone Survey for Participating Customers

A quantitative telephone survey was implemented with a stratified random sample of Prescriptive Program participants, resulting in 109 completed interviews.

Sampling

To best support estimation of the net-to-gross ratio for the program, a stratified random sampling approach was employed for this survey. Projects were stratified by savings, using the ex ante kWh impacts reported in the tracking database. Records were sorted from largest to smallest kWh claimed, and placed into one of three strata, such that approximately one-third of ex ante savings fell into each stratum.²³

The sampling unit for the CATI telephone survey was the unique program contact phone number. Overall, there were 1,853 unique phone numbers associated with 3,794 completed projects. Projects associated with duplicate phone numbers were removed from the sample (in cases where a single contact was involved in more than one project application). In general, projects with larger savings and those for which an engineering desk review was performed were retained in the sample. Participants who completed both prescriptive and custom projects were also removed from the sample for the prescriptive survey (given the smaller population of custom projects, the custom program was given priority for calling overlapping project contacts). The resulting sample frame included 1,783 unique phone numbers.

We completed net-to-gross interviews with 109 participants, resulting in a precision level of +/- 5% (at a 90% confidence level).²⁴ We completed process interviews with 104 participants, resulting in a precision level of +/-8% for process questions (at a 90% confidence level).^{25,26}

²³ Stratum 1: large savers (>349,580 kWh); Stratum 2: medium savers (between 133,284 and 349,580 kWh); Stratum 3: small savers (<=133,284).

²⁴ One of the 109 respondents did not answer enough of the net-to-gross questions to be scored.

²⁵ After reaching the target number of interviews (104), we conducted an additional five impact-only interviews with participants with non-lighting projects. These interviews were added to improve the precision levels for non-lighting net impact estimates.

²⁶ The difference in precision between net-to-gross questions and process questions is the result of net-to-gross findings being based on savings and process findings being based on respondents. Since larger projects were oversampled, precision levels are slightly higher for net-to-gross results.

Survey Disposition

Table 5-10 below shows the final disposition of the 1,783 contact phone numbers included in the sample frame for the participant survey.²⁷ Contact with 44% of the sample was attempted at least once, resulting in 109 completed interviews.

Overall the response rate for this survey was 15%, computed as the number of completed interviews divided by the number of eligible respondents.²⁸

Table 5-10. Sample Disposition for the Participant Survey

Sample Disposition	Customers	%
Population of Unique Customer Contacts	1,783	
Completed Survey	109	6%
Not Dialed	995	56%
Unable to Reach	271	15%
Callback	263	15%
Refusal	104	6%
Phone Number Issue	36	2%
Knowledgeable Person No Longer There	2	<0.1%
Language Problems	3	<0.1%
<i>Response Rate</i>	15%	

Source: ODC CATI Center.

Profile of Survey Respondents

The highest number of survey respondents is from the light industry sector (19%), followed by the warehouse (17%) and office (16%) sectors. Both the warehouse and heavy industry sectors are somewhat overrepresented in the survey, compared to the population. This is not surprising given that the sampling strategy focused on projects with the highest savings, and projects in these sectors tend to be larger than projects in the other sectors.

On the other hand, the retail/service sector is underrepresented in the survey, and the restaurant sector is not represented at all. These two sectors have among the smallest per project savings and were therefore not as heavily targeted in the survey. Overall, however, the

²⁷ Some unique contacts had to be removed from our sample frame because they also completed projects in the Custom Program.

²⁸ Eligible respondents include the following dispositions: a) Completed Surveys, b) Unable to Reach, c) Callback, and d) Refusal.

distribution of survey respondents is largely similar to that of the population of PY3 Prescriptive Program participants.

Table 5-11 presents the comparison of business sectors for survey respondents and the overall population of participants.

Table 5-11. Business Sector of Participant Survey Respondents

Sector	Respondents (n=109)	Population* (N=1,783)
Light Industry	19%	19%
Warehouse	17%	13%
Office	16%	17%
Heavy Industry	14%	7%
Retail/Service	8%	19%
Grocery	3%	2%
Medical	2%	3%
Hotel/Motel	2%	1%
K-12 School	2%	1%
College / University	1%	1%
Restaurant	–	2%
Miscellaneous	17%	15%

**Note: The population is based on the sample frame and excludes contact phone numbers that were set aside for the Custom participant survey.*

Source: Program Tracking Database; results of CATI telephone survey.

Survey Weights

Table 5-12 provides a summary of the PY3 population and the completed interviews for the net impact analysis, and presents kWh weights, by stratum. The table shows that the 108 completed interviews represent 10% of ex ante gross program savings.

Table 5-12. Summary of Sampling Approach for Net-to-Gross Analysis

Sampling Strata	Program Population			Completed Interviews		
	Number of Applications (N)	Ex Ante kWh Impact Claimed	kWh Weights by Segment	Number of Applications (n)	Ex Ante kWh	% of Population Impacts Surveyed
1	139	88,442,741	0.342	27	15,903,916	18%
2	406	84,575,667	0.327	40	8,143,106	10%
3	3,249	85,367,474	0.330	41	1,833,643	2%
TOTAL	3,794	258,385,882	1.000	108	25,880,665	10%

Source: Program tracking database; results of CATI telephone survey.

For the process analysis, survey weights were developed for the three strata. These weights reflect the fact that not all strata were surveyed in proportion to their representation in the population. The following weights were applied to respondents in the three strata:

Table 5-13. Process Weights

Stratum	Population*	Completes	Weight
1	117	26	0.26
2	308	40	0.45
3	1,365	38	2.09
TOTAL	1,790	104	

**Note: Survey weights are based on the population of unique contacts rather than unique phone numbers. As a result, the totals differ slightly from the population totals presented above.*

5.2.4 CATI Telephone Survey for Non-Participating Customers

A quantitative telephone survey was implemented with a random sample of business customers who have not participated in the Smart Ideas for Your Business Program in the first three program years. This survey resulted in 70 completed interviews.

Sampling

The sample of non-participants was based on the database of all business customers provided by ComEd. One of the objectives of the Smart Ideas for Your Business Program in PY3 was to generate more large projects. The non-participant survey therefore focused on delivery service classes for customers with medium and large energy demand (including rate classes C29, C30, C31, and C32). Excluded from the sample frame were customers with small energy demand (class C28, <100 kW).

Removing the small class customers resulted in 23,130 records in the sample frame. We also removed from the sample frame 11,272 records associated with customers who participated in the program, or submitted applications, in the first three program years (based on account number, telephone number, or company name). We then randomly selected 1,500 customers for the sample frame. After removing duplicate contacts, our final sample frame consisted of 1,439 unique contacts.

Table 5-14 compares the distribution of all ComEd business customers with the distribution of Smart Ideas for Your Business Program participants, by delivery service class. The table shows that more than 90% of ComEd customers are in the small class, compared with 53% of all participants.

Table 5-14. Summary of Participation in Smart Ideas for Your Business Program

Delivery Service Class	All Customers		Participants	
	Freq.	Percent	Freq.	Percent
C28-Small (0 - 100)	242,041	91%	2,795	53%
C29-Med (100 - 400)	17,478	7%	1,282	24%
C30-Large (400 - 1000)	4,121	2%	758	14%
C31-Very Large (1000 - 10,000)	1,517	1%	453	9%
C32-Extra Large (> 10 MW)	14	<1%	3	<1%
Total	265,171		5,291*	100%

**Note: Participants were assigned a delivery service class by matching their account number to the ComEd customer database. Of the 5,902 unique participant account numbers, 611 did not match to the customer database.*

Source: Customer Database; Program tracking databases

Survey Disposition

Table 5-15 below shows the final disposition of the 1,439 unique contacts included in the sample frame for the non-participant survey. Contact with 100% of the sample was attempted at least once, resulting in 70 completed surveys.

Overall the response rate for this survey was 6% computed as the number of completed surveys divided by the number of eligible respondents.²⁹

Table 5-15. Sample Disposition for Non-Participant Survey

Sample Disposition	Customers	%
Total Sample	1,439	
Completed Survey	70	5%
Not Dialed	-	-
Unable to Reach	274	19%
Callback	369	26%
Refusal	534	37%
Phone Number Issue	187	13%
Language Problems	5	3%
<i>Response Rate</i>		6%

Source: ODC CATI Center.

²⁹ Eligible respondents include the following dispositions: a) Completed Surveys, b) Unable to Reach, c) Callback, and d) Refusal.

Profile of Non-Participant Survey Respondents

Surveyed non-participants come from a variety of business sectors. Sixteen percent classify their business as a government/public sector or non-profit entity, 11% as retail/service, and 10% as light industry. A majority of respondents (80%) own their facility. In addition, 44% of the businesses only operate at one location, 43% have several locations, and 10% are located at the headquarters of their company.

5.3 Other Appendices

5.3.1 PY3 Tracking System Default Values Check

The attached spreadsheet identifies measures values that *may* have tracking system entries for default values that differ from documented values.

MEASURE_TYPE	MSR_MODEL_ID	Description 1	Description 2	Description 3	BUS_TYPE_SUB	SAVINGS_WINGS_CQ	Match Workpaper?	Additional Detail
Cooling	1 AC Units and Heat Pumps	14 SEER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	< 65,000 Btuh (5.42 tons)	College / University	49.1	0.067 Y	
Cooling	2 AC Units and Heat Pumps	15 SEER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	< 65,000 Btuh (5.42 tons)	College / University	91.6	0.126 Y	
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	College / University	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	College / University	67.7	0.1 Y	... averaged: 58.3, 1
Cooling	5 AC Units and Heat Pumps	10.5 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	College / University	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	6 AC Units and Heat Pumps	10.8 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	College / University	67.7	0.1 Y	... averaged: 58.3, 1
Cooling	7 AC Units and Heat Pumps	9.7 EER	>= 760,000 Btuh (63.33 tons)	>= 760,000 Btuh (63.33 tons)	College / University	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	8 AC Units and Heat Pumps	10.2 EER	>= 760,000 Btuh (63.33 tons)	>= 760,000 Btuh (63.33 tons)	College / University	50.5	0.079 Y	
Cooling	1 AC Units and Heat Pumps	14 SEER	>= 65,000 Btuh (5.42 tons)	< 65,000 Btuh (5.42 tons)	Grocery	87.8	0.068 Y	
Cooling	2 AC Units and Heat Pumps	15 SEER	>= 65,000 Btuh (5.42 tons)	< 65,000 Btuh (5.42 tons)	Grocery	163.9	0.128 Y	
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Grocery	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Grocery	120.5	0.102 N	Doesn't meet efficiency requirements, therefore 1 off by a few, should be 117.2, .105
Cooling	5 AC Units and Heat Pumps	10.5 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Grocery	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	6 AC Units and Heat Pumps	10.8 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Grocery	117.2	0.105 Y	
Cooling	7 AC Units and Heat Pumps	9.7 EER	>= 760,000 Btuh (63.33 tons)	>= 760,000 Btuh (63.33 tons)	Grocery	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	10.2 EER	>= 760,000 Btuh (63.33 tons)	>= 760,000 Btuh (63.33 tons)	Grocery	89.7	0.08 Y		
Cooling	14 SEER	>= 65,000 Btuh (5.42 tons)	< 65,000 Btuh (5.42 tons)	Heavy Industry	40.4	0.066 Y		
Cooling	15 SEER	>= 65,000 Btuh (5.42 tons)	< 65,000 Btuh (5.42 tons)	Heavy Industry	75.5	0.124 Y		
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Heavy Industry	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Heavy Industry	59	0.098 Y	averaged
Cooling	5 AC Units and Heat Pumps	10.5 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Heavy Industry	65.4	0.11 Y?	uses 10 to 20 ton
Cooling	6 AC Units and Heat Pumps	10.8 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Heavy Industry	61.9	0.102 Y?	uses 20 to 60
Cooling	7 AC Units and Heat Pumps	9.7 EER	>= 760,000 Btuh (63.33 tons)	>= 760,000 Btuh (63.33 tons)	Heavy Industry	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	8 AC Units and Heat Pumps	10.2 EER	>= 760,000 Btuh (63.33 tons)	>= 760,000 Btuh (63.33 tons)	Heavy Industry	47.3	0.078 Y	
Cooling	14 SEER	>= 65,000 Btuh (5.42 tons)	< 65,000 Btuh (5.42 tons)	Hotel/Motel	87.3	0.07 Y		
Cooling	15 SEER	>= 65,000 Btuh (5.42 tons)	< 65,000 Btuh (5.42 tons)	Hotel/Motel	162.9	0.203 Y		
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Hotel/Motel	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Hotel/Motel	118.1	0.104 Y	averaged
Cooling	5 AC Units and Heat Pumps	10.5 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Hotel/Motel	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	6 AC Units and Heat Pumps	10.8 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Hotel/Motel	118.1	0.104 Y	
Cooling	7 AC Units and Heat Pumps	9.7 EER	>= 760,000 Btuh (63.33 tons)	>= 760,000 Btuh (63.33 tons)	Hotel/Motel	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	10.2 EER	>= 760,000 Btuh (63.33 tons)	>= 760,000 Btuh (63.33 tons)	Hotel/Motel	86.9	0.083 Y		
Cooling	14 SEER	>= 65,000 Btuh (5.42 tons)	< 65,000 Btuh (5.42 tons)	K-12 School	20.7	0.066 N		
Cooling	15 SEER	>= 65,000 Btuh (5.42 tons)	< 65,000 Btuh (5.42 tons)	K-12 School	38.6	0.122 Y		
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	K-12 School	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	K-12 School	29.2	0.097 N	should be 27, .085
Cooling	5 AC Units and Heat Pumps	10.5 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	K-12 School	31.3	0.109 N	should be 28.9, .101
Cooling	6 AC Units and Heat Pumps	10.8 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	K-12 School	29.2	0.097 N	should be 28.9, .101
Cooling	7 AC Units and Heat Pumps	9.7 EER	>= 760,000 Btuh (63.33 tons)	>= 760,000 Btuh (63.33 tons)	K-12 School	0	0	Doesn't meet efficiency requirements, therefore 0
Cooling	10.2 EER	>= 760,000 Btuh (63.33 tons)	>= 760,000 Btuh (63.33 tons)	K-12 School	22.1	0.077 Y		
Cooling	14 SEER	>= 65,000 Btuh (5.42 tons)	< 65,000 Btuh (5.42 tons)	Light Industry	41.5	0.068 Y		

Cooling	2 AC Units and Heat Pumps	15 SEER	< 65,000 Btuh (5.42 tons)	Light Industry	77.4	0.127 Y	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Light Industry	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Light Industry	61.5	0.101 Y	averaged	averaged
Cooling	5 AC Units and Heat Pumps	10.5 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Light Industry	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	6 AC Units and Heat Pumps	10.8 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Light Industry	61.5	0.101 N	Should be 63.9, 1.05	Should be 63.9, 1.05
Cooling	7 AC Units and Heat Pumps	9.7 EER	>= 760,000 Btuh (63.33 tons)	Light Industry	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	8 AC Units and Heat Pumps	10.2 EER	>= 760,000 Btuh (63.33 tons)	Light Industry	48.9	0.08 Y		
Cooling	1 AC Units and Heat Pumps	14 SEER	< 65,000 Btuh (5.42 tons)	Medical	96.7	0.068 Y		
Cooling	2 AC Units and Heat Pumps	15 SEER	< 65,000 Btuh (5.42 tons)	Medical	180.5	0.126 Y		
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Medical	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Medical	132.2	0.104 Y	averaged	averaged
Cooling	5 AC Units and Heat Pumps	10.5 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Medical	126	0.113 N	should be 116.2, .104 (20 to 80 tons)	should be 116.2, .104 (20 to 80 tons)
Cooling	6 AC Units and Heat Pumps	10.8 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Medical	132.2	0.104 N	should be 116.2, .104 (20 to 80 tons)	should be 116.2, .104 (20 to 80 tons)
Cooling	7 AC Units and Heat Pumps	9.7 EER	>= 760,000 Btuh (63.33 tons)	Medical	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	8 AC Units and Heat Pumps	10.2 EER	>= 760,000 Btuh (63.33 tons)	Medical	88.9	0.08 Y		
Cooling	1 AC Units and Heat Pumps	14 SEER	< 65,000 Btuh (5.42 tons)	Miscellaneous	56.4	0.068 Y		
Cooling	2 AC Units and Heat Pumps	15 SEER	< 65,000 Btuh (5.42 tons)	Miscellaneous	105.2	0.134 Y		
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Miscellaneous	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Miscellaneous	78.5	0.101 Y	averaged	averaged
Cooling	5 AC Units and Heat Pumps	10.5 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Miscellaneous	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	6 AC Units and Heat Pumps	10.8 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Miscellaneous	78.5	0.101 N	should be 76.8, 1.05	should be 76.8, 1.05
Cooling	7 AC Units and Heat Pumps	9.7 EER	>= 760,000 Btuh (63.33 tons)	Miscellaneous	0	0	Doesn't meet efficiency requirements, therefore 1	Doesn't meet efficiency requirements, therefore 1
Cooling	8 AC Units and Heat Pumps	10.2 EER	>= 760,000 Btuh (63.33 tons)	Miscellaneous	58.7	0.08 Y		
Cooling	1 AC Units and Heat Pumps	14 SEER	< 65,000 Btuh (5.42 tons)	Office	41.2	0.07 Y		
Cooling	2 AC Units and Heat Pumps	15 SEER	< 65,000 Btuh (5.42 tons)	Office	76.8	0.13 Y		
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Office	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Office	57.2	0.104 Y	averaged (5 to 10 and 10 to 20)	averaged (5 to 10 and 10 to 20)
Cooling	5 AC Units and Heat Pumps	10.5 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Office	60.7	0.116 N	this is for 10 to 20 tons	this is for 10 to 20 tons
Cooling	6 AC Units and Heat Pumps	10.8 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Office	57.2	0.104 N	should be 56.2, .107	should be 56.2, .107
Cooling	7 AC Units and Heat Pumps	9.7 EER	>= 760,000 Btuh (63.33 tons)	Office	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	8 AC Units and Heat Pumps	10.2 EER	>= 760,000 Btuh (63.33 tons)	Office	42.4	0.082 Y		
Cooling	1 AC Units and Heat Pumps	14 SEER	< 65,000 Btuh (5.42 tons)	Restaurant	54.4	0.068 Y		
Cooling	2 AC Units and Heat Pumps	15 SEER	< 65,000 Btuh (5.42 tons)	Restaurant	101.5	0.126 Y		
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Restaurant	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Restaurant	76.9	0.1 Y	averaged (5 to 10 and 10 to 20)	averaged (5 to 10 and 10 to 20)
Cooling	5 AC Units and Heat Pumps	10.5 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Restaurant	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	6 AC Units and Heat Pumps	10.8 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Restaurant	76.9	0.1 N	should be 76.7, 1.04	should be 76.7, 1.04
Cooling	7 AC Units and Heat Pumps	9.7 EER	>= 760,000 Btuh (63.33 tons)	Restaurant	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	8 AC Units and Heat Pumps	10.2 EER	>= 760,000 Btuh (63.33 tons)	Restaurant	58.7	0.079 Y		
Cooling	1 AC Units and Heat Pumps	14 SEER	< 65,000 Btuh (5.42 tons)	Retail/Service	65	0.069 Y		
Cooling	2 AC Units and Heat Pumps	15 SEER	< 65,000 Btuh (5.42 tons)	Retail/Service	121.4	0.126 Y		
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Retail/Service	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Retail/Service	88.5	0.102 Y	averaged (5 to 10 and 10 to 20)	averaged (5 to 10 and 10 to 20)
Cooling	5 AC Units and Heat Pumps	10.5 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Retail/Service	92.3	0.114 N	this is for 10 to 20 tons, should be 90.5, 1.05	this is for 10 to 20 tons, should be 90.5, 1.05
Cooling	6 AC Units and Heat Pumps	10.8 EER	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	Retail/Service	88.5	0.102 N	should be 80.5, 1.06	should be 80.5, 1.06
Cooling	7 AC Units and Heat Pumps	9.7 EER	>= 760,000 Btuh (63.33 tons)	Retail/Service	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	8 AC Units and Heat Pumps	10.2 EER	>= 760,000 Btuh (63.33 tons)	Retail/Service	69.3	0.081 Y		
Cooling	1 AC Units and Heat Pumps	14 SEER	< 65,000 Btuh (5.42 tons)	Warehouse	36	0.07 Y		
Cooling	2 AC Units and Heat Pumps	15 SEER	< 65,000 Btuh (5.42 tons)	Warehouse	67.1	0.131 Y		
Cooling	3 AC Units and Heat Pumps	11.5 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Warehouse	0	0	Doesn't meet efficiency requirements, therefore 0	Doesn't meet efficiency requirements, therefore 0
Cooling	4 AC Units and Heat Pumps	12 EER	>= 65,000 Btuh (5.42 tons) and < 240,000 Btuh (20 tons)	Warehouse	52.4	0.105 Y	averaged (5 to 10 and 10 to 20)	averaged (5 to 10 and 10 to 20)

there's a trend of 20 to 60 using 10 to 20 and the second 20 to 60 e

System	Equipment	Capacity	Efficiency	Notes	Efficiency	Notes	Efficiency	Notes
Cooling	5 AC Units and Heat Pumps	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	10.5 EER	WareHouse	58	0.117 Y	but using 10.1 to 20 for 20 to 60 (53.8, 108)	
Cooling	6 AC Units and Heat Pumps	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	10.8 EER	WareHouse	52.4	0.105 N	Shouldn't meet efficiency requirements, therefore 0	
Cooling	7 AC Units and Heat Pumps	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	10.2 EER	WareHouse	41.1	0.083 Y	Should be 125.5 and .13	
Cooling	8 AC Units and Heat Pumps	>= 240,000 Btuh (20 tons) and < 760,000 Btuh (63.33 tons)	9.7 EER	College / University	42.3	0.046 N	Should be 122.9, 127	
Cooling	11 Air-Cooled Chillers	>= 150 Tons	Level 1	College / University	53.8	0.056 N	Should be 251, 26	
Cooling	15 Air-Cooled Chillers	< 150 Tons	Level 2	College / University	103	0.112 N	Should be 245.8, 225	
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	College / University	94.5	0.103 N	Should be 153.6, 14	
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	Grocery	63	0.055 N	Should be 150.4, 137	
Cooling	15 Air-Cooled Chillers	>= 150 Tons	Level 1	Grocery	71.1	0.067 N	more inline with tier 1	
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	Grocery	153.4	0.132 N	Should be 300.8, 273	
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	Grocery	140.8	0.122 N	Should be 103.9, 13	
Cooling	11 Air-Cooled Chillers	< 150 Tons	Level 1	Heavy Industry	36.3	0.048 N	Should be 101.8, 127	
Cooling	15 Air-Cooled Chillers	< 150 Tons	Level 1	Heavy Industry	44.2	0.06 N	Should be 207.9, 26	
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	Heavy Industry	88.3	0.115 N	Should be 203.6, 255	
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	Heavy Industry	81	0.106 N	Should be 175.2, 141	
Cooling	11 Air-Cooled Chillers	< 150 Tons	Level 1	Hotel/Motel	60.9	0.054 N	Should be 171.5, 138	
Cooling	15 Air-Cooled Chillers	>= 150 Tons	Level 1	Hotel/Motel	77.5	0.06 N	Should be 350.3, 281	
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	Hotel/Motel	148.3	0.132 N	Should be 63.7, 125	
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	Hotel/Motel	136.1	0.121 N	Should be 62.4, 122	
Cooling	11 Air-Cooled Chillers	>= 150 Tons	Level 1	K-12 School	22.4	0.047 N	Should be 127.4, 25	
Cooling	15 Air-Cooled Chillers	< 150 Tons	Level 1	K-12 School	27.5	0.058 N	Should be 124.8, 244	
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	K-12 School	54.4	0.113 N	Should be 77, 142	
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	K-12 School	50	0.104 N	Should be 90.8, 143	
Cooling	11 Air-Cooled Chillers	>= 150 Tons	Level 1	Light Industry	33.4	0.062 N	Should be 169.5, 141	
Cooling	15 Air-Cooled Chillers	>= 150 Tons	Level 1	Light Industry	66	0.126 N	Should be 76, 088	
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	Light Industry	67	0.116 N	Should be 75.8, 087	
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	Light Industry	57.2	0.052 N	Should be 151.6, 174	
Cooling	11 Air-Cooled Chillers	>= 150 Tons	Level 1	Medical	30	0.052 N	Should be 89, 15	
Cooling	15 Air-Cooled Chillers	>= 150 Tons	Level 1	Medical	72.1	0.061 N	Should be 87.2, 147	
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	Medical	99.2	0.126 N	Should be 178, 3	
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	Medical	127.8	0.116 N	Should be 174.2, 294	
Cooling	11 Air-Cooled Chillers	>= 150 Tons	Level 1	Miscellaneous	42.7	0.052 N	Should be 127.9, 138	
Cooling	15 Air-Cooled Chillers	< 150 Tons	Level 1	Miscellaneous	52.8	0.064 N	Should be 125.3, 135	
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	Miscellaneous	101.1	0.127 N	Should be 255.9, 276	
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	Miscellaneous	93.5	0.121 N	Should be 250.6, 27	
Cooling	11 Air-Cooled Chillers	>= 150 Tons	Level 1	Office	31	0.052 N	Should be 118.9, 134	
Cooling	15 Air-Cooled Chillers	>= 150 Tons	Level 1	Office	38.1	0.072 N	Should be 120.3, 132	
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	Office	75.2	0.127 N	Should be 237.7, 269	
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	Office	69.1	0.117 N	Should be 240.5, 263	
Cooling	11 Air-Cooled Chillers	>= 150 Tons	Level 1	Restaurant	44.6	0.051 N	Should be 87.3, 134	
Cooling	15 Air-Cooled Chillers	< 150 Tons	Level 1	Restaurant	54.3	0.064 N	Should be 89.6, 132	
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	Restaurant	108.5	0.137 N	Should be 174.5, 267	
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	Restaurant	99.6	0.114 N	Should be 179.3, 263	
Cooling	11 Air-Cooled Chillers	>= 150 Tons	Level 1	Retail/Service	50.4	0.057 N		
Cooling	15 Air-Cooled Chillers	< 150 Tons	Level 1	Retail/Service	66.9	0.082 N		
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	Retail/Service	101.4	0.145 N		
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	Retail/Service	93.9	0.133 N		
Cooling	11 Air-Cooled Chillers	>= 150 Tons	Level 1	Warehouse	31.9	0.056 N		
Cooling	15 Air-Cooled Chillers	< 150 Tons	Level 1	Warehouse	41.7	0.055 N		
Cooling	16 Air-Cooled Chillers	< 150 Tons	Level 2	Warehouse	73.8	0.126 N		
Cooling	17 Air-Cooled Chillers	< 150 Tons	Level 2	Warehouse	69.4	0.114 N		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	College / University	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	Community College	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	Grocery	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	Heavy Industry	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	Hotel/Motel	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	K-12 School	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	Light Industry	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	Medical	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	Miscellaneous	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	Office	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	Restaurant	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	Retail/Service	402	0.007 Y		
Refrigeration	2 Anti-sweat control system	>= 150 Tons	Level 2	Warehouse	402	0.007 Y		
Other	2 Combination Oven		Level 1	Restaurant	18432	4.21 Y		
Refrigeration	12 Door Closer - Main Cooler		Level 1	College / University	943	0.137 Y		
Refrigeration	12 Door Closer - Main Cooler		Level 1	Community College	943	0.137 Y		
Refrigeration	12 Door Closer - Main Cooler		Level 1	Grocery	943	0.137 Y		
Refrigeration	12 Door Closer - Main Cooler		Level 1	Heavy Industry	943	0.137 Y		
Refrigeration	12 Door Closer - Main Cooler		Level 1	Hotel/Motel	943	0.137 Y		
Refrigeration	12 Door Closer - Main Cooler		Level 1	Light Industry	943	0.137 Y		
Refrigeration	12 Door Closer - Main Cooler		Level 1	K-12 School	943	0.137 Y		
Refrigeration	12 Door Closer - Main Cooler		Level 1	Light Industry	943	0.137 Y		

these are out of order by size and type of ac measure
see white text for examples

Refrigeration	7 Vending Controllers Beverage				Restaurant	1612	0 Y				
Refrigeration	7 Vending Controllers Beverage				Retail/Service	1612	0 Y				
Refrigeration	7 Vending Controllers Beverage				Warehouse	1612	0 Y				
Refrigeration	9 Vending Controllers Snacks				College / University	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				Community/College	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				Grocery	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				Heavy Industry	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				Hotel/Motel	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				K-12 School	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				Light Industry	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				Medical	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				Miscellaneous	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				Office	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				Restaurant	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				Retail/Service	387	0 Y				
Refrigeration	9 Vending Controllers Snacks				Warehouse	387	0 Y				
Cooling	9 Water-Cooled Chillers			Level 1	College / University	53	0.057 Y?				This is the value for Scroll or helical rotary <75 tier 1
Cooling	10 Water-Cooled Chillers			Level 2	College / University	48.5	0.053 N?				This is the value for Scroll or helical rotary 150-299 tier 1 scroll or helical rotary, <75, tier 1
Cooling	9 Water-Cooled Chillers			Level 1	Grocery	78.8	0.057 Y?				150-299 scroll helical, tier 1
Cooling	10 Water-Cooled Chillers			Level 2	Grocery	72.2	0.063 Y?				<75, scroll, tier 1
Cooling	9 Water-Cooled Chillers			Level 1	Heavy Industry	45.4	0.059 Y?				this is the value for 150,299, tier 1
Cooling	10 Water-Cooled Chillers			Level 2	Heavy Industry	41.6	0.054 N?				<75 scroll, tier 1
Cooling	9 Water-Cooled Chillers			Level 1	Hotel/Motel	76.3	0.068 Y?				scroll helical 150-299, tier 1
Cooling	10 Water-Cooled Chillers			Level 2	Hotel/Motel	69.9	0.062 N?				<75 scroll, tier 1
Cooling	9 Water-Cooled Chillers			Level 1	K-12 School	28	0.058 Y?				scroll helical 150-299, tier 1
Cooling	10 Water-Cooled Chillers			Level 2	K-12 School	25.6	0.063 N?				<75 scroll, tier 1
Cooling	9 Water-Cooled Chillers			Level 1	Light Industry	34	0.065 Y?				scroll helical 150-299, tier 1
Cooling	10 Water-Cooled Chillers			Level 2	Light Industry	34.4	0.06 N?				<75 scroll, tier 1
Cooling	9 Water-Cooled Chillers			Level 1	Medical	71.6	0.065 Y?				scroll helical 150-299, tier 1
Cooling	10 Water-Cooled Chillers			Level 2	Medical	65.5	0.069 N?				<75 scroll, tier 1
Cooling	9 Water-Cooled Chillers			Level 1	Miscellaneous	52	0.065 Y?				scroll helical 150-299, tier 1
Cooling	10 Water-Cooled Chillers			Level 2	Miscellaneous	48	0.06 N?				<75 scroll, tier 1
Cooling	9 Water-Cooled Chillers			Level 1	Office	38.7	0.065 Y?				scroll helical 150-299, tier 1
Cooling	10 Water-Cooled Chillers			Level 2	Office	35.4	0.06 N?				<75 scroll, tier 1
Cooling	9 Water-Cooled Chillers			Level 1	Restaurant	55.8	0.077 Y?				scroll helical 150-299, tier 1
Cooling	10 Water-Cooled Chillers			Level 2	Restaurant	51.1	0.058 N?				<75 scroll, tier 1
Cooling	9 Water-Cooled Chillers			Level 1	Retail/Service	52.1	0.063 Y?				scroll helical 150-299, tier 1
Cooling	10 Water-Cooled Chillers			Level 2	Retail/Service	48.2	0.063 N?				<75 scroll, tier 1
Cooling	9 Water-Cooled Chillers			Level 1	Warehouse	38	0.065 Y?				scroll helical 150-299, tier 1
Cooling	10 Water-Cooled Chillers			Level 2	Warehouse	35.6	0.059 N?				scroll helical 150-299, tier 1

notice trend

why labeled "ALL"?

5.4 *Midstream Incentive Pilot Program Evaluation*

5.4.1 **Evaluation Objectives**

The goal of this report is to present a summary of the findings and results from the evaluation of the Program Year 3 Midstream Incentive Pilot program³⁰. The primary objectives of this evaluation are to quantify gross and net impacts and to determine key process-related program strengths and weaknesses and identify ways in which the program can be improved.

5.4.2 **Program Overview**

The pilot was designed to provide an expedited, simple solution to business customers interested in purchasing efficient lighting. Screw-based CFLs were offered to ComEd business customers at an instant discount at the point of sale. The program launched in October of 2010, but program staff noted that the bulk of activity did not begin until February of 2011.

The program targeted distributors that have a heavy end-use customer base as opposed to those mostly selling to contractors.³¹ Manufacturers were paramount in helping program staff identify distributors with large commercial customer bases. By the end of PY3, 12 distributors had signed up as partners with the program. However, only four partners sold program bulbs invoiced in PY3.

5.4.3 **Evaluation Methods**

This section describes the analytic methods and data collection activities implemented as part of the PY3 process and impact evaluation of the Midstream Incentive Pilot program, including the data sources and sampling used as a base for the data collection activities.

Impact Evaluation Methods

The key impact evaluation activities were:

³⁰ The Program Year 3 (PY3) program year began June 1, 2010 and ended May 31, 2011. The Midstream Incentive Pilot Program did not become open to end-user purchases until January 2011.

³¹ Towards the end of PY3, the program was opened to allow sales to contractors in addition to end-use customers.

- Reviewed program activity tracking data from the implementation contractor that identified distributor, type and quantity of products sold, purchase dates, business name and address of purchaser, and implementation contractor invoicing detail.³²
- Reviewed the default impact values for hours of use and watts reduced by CFL wattage proposed by ComEd for use in developing an ex ante impacts, to be used in place of the implementation contractor estimate.³³
- Analyzed CFL sales data.
- Generated ex ante and ex post estimates for gross and net impacts for all PY3 participant sales.

Process Evaluation Methods

Three research activities were planned in support of the process evaluation of the Midstream Incentive Lighting Pilot:

- **Interview with implementation staff:** The evaluation team conducted one call with staff at APT responsible for the Midstream pilot implementation. This call took place in August of 2011 and covered program design, participation, and key challenges.
- **Interviews with Participating Distributors:** We conducted two interviews with participating distributors involved in the Midstream incentive pilot. The interviews took place in September and October of 2011 and focused on program challenges and successes.
- **Interviews with End-User of Midstream-Incented CFLs:** The evaluation team planned to conduct interviews with end-users, covering topics such as awareness of the program and the incentive, promotion by distributors, and an assessment of free-ridership. However, program tracking data only included company name and address and did not include contact name and phone number. Despite efforts to compile contact information from public data sources, the evaluation team was unable to reach end-users to conduct these interviews.

Profile of Participation

Program-level participation data were analyzed for all purchases in PY3. In all, 121 transaction records were recorded in PY3, with each transaction representing a distributor sale to an end-

³² Data provided by email communication from David Nichols, August 12, 2011.

³³ Data provided by email communication from David Nichols, August 12, 2011.

user. The first purchase date is January 3, 2011, and the final purchase date for PY3 is May 31, 2011. Sales of products are identified by CFL model number, and each is designated as Standard, Specialty, or High Wattage that are associated with different payment levels. The typical Specialty bulb was a dimmable CFL reflector, globe lamp, or PAR lamp. The high wattage bulbs in PY3 included only 42 watt CFLs that were included in the tracking data in the category of standard, but the program has tracking placeholders for CFL models up to 105 watts.

Table 5-16, Table 5-17, Table 5-18 and Table 5-19, show the population profile analyzed by distributor, transaction, and CFL type.

Table 5-16. PY3 Midstream Incentive Program Distributor Participation

Distributor	Transaction Count		CFL Sales	
Distributor A	68	56%	1,368	27%
Distributor B	29	24%	1,617	32%
Distributor C	18	15%	1,256	25%
Distributor D	6	5%	861	17%
Total	121	100%	5,102	100%

Source: Evaluation analysis of tracking data provided by ComEd, August 12, 2011.

Table 5-17. PY3 Midstream Incentive Transactions

Transaction Data	CFLs Purchased	Payment
Largest Transaction	650	\$650.00
Smallest Transaction	1	\$1.00
Average Transaction	42	\$58.56
Total	5,102	\$7,085.24

Source: Evaluation analysis of tracking data provided by ComEd, August 12, 2011.

Table 5-18. PY3 Midstream Incentive CFL Sales by CFL Wattage

CFL Wattage	CFL Sales	
5	61	1%
7	11	0%
10	292	6%
11	6	0%
14	360	7%
15	2,655	52%
16	129	3%
20	499	10%
23	384	8%
26	650	13%
42	55	1%
Total	5,102	100%

Source: Evaluation analysis of tracking data provided by ComEd, August 12, 2011.

Table 5-19. PY3 Midstream Incentive CFL Types

CFL Type	CFL Sales	
Specialty	929	18%
Standard	4,173	82%
Total	5,102	100%

Source: Evaluation analysis of tracking data provided by ComEd, August 12, 2011. Standard CFLs include 55 "high wattage" types.

5.4.4 Impact Evaluation Findings

Evaluation of impacts consisted of the following tasks:

- Reviewing tracking data to assess reasonableness
- Identify appropriate default values for gross impact evaluation
- Apply default values to tracking data to estimate ex post gross impacts
- Apply net-to-gross ratios to determine evaluation estimated net savings

Tracking Data Review

The tracking data provided by ComEd on August 12, 2011 was reviewed for reasonableness. Each of the 121 transaction records was reviewed and were found to contain reasonable quantities purchased, had purchase dates that were during PY3, and had participant addresses that were located within ComEd service territory. The company names of purchasers suggested a general mix of C&I business types, including small and large retail, hotel, university, industrial, and realty/property management firms.

ComEd and the implementation contractor informed the evaluation team that contact person names and telephone numbers were not available for purchasers. The evaluation team attempted to contact businesses via public data sources through a search by address and company name. Although contact was made with some businesses, we were unable to complete brief interviews. The tracking data, although reasonable, was not verified with end-users. The evaluation team was able to interview two distributors.

The tracking data provided manufacturer and model numbers for CFL sales. The evaluation team checked each model and concluded that claimed CFL installed wattages were consistent with CFL descriptions.

The evaluation team concluded that the Midstream Incentive Pilot program claim of 5,102 CFL units sold in PY3 to ComEd business customers, at the quantities and wattages noted in the tracking system, is reasonable.

Default Values Review and Ex Post Impact Parameters

ComEd provided default values that allowed the evaluation team to estimate ex ante energy impacts from tracking data.³⁴ These are provided in Table 5-20. ComEd did not provide a peak demand reduction estimate.

³⁴ Email communication from David Nichols, August 12, 2011.

Table 5-20. ComEd Default Impacts for PY3 Midstream Incentives

CFL Wattage	Incandescent Replacement Wattage	Delta Watts Reduced	Annual kWh Savings per CFL
5	25	20	86.14
7	25	18	77.53
10	40	30	129.21
11	40	29	124.9
14	60	46	198.12
15	60	45	193.82
16	60	44	189.51
20	75	55	236.89
23	100	77	331.64
26	100	74	318.72
42	150	108	465.16

Source: Data provided by ComEd, August 12, 2011.

ComEd indicated that the basis for their energy impacts was to use the Prescriptive program defaults for the average or “Miscellaneous” building type. We conclude that is reasonable, based on the business types suggested by the tracking data. The PY3 default for CFLs installed in Miscellaneous building types is 4,321 hours of operation, or about 11.8 hours per day, 365 days per year. ComEd does not include HVAC interaction factors for energy impacts or delta watts reduced. For estimating ex post gross impacts, the evaluation team uses the assumptions provided in ComEd’s PY3 Business Prescriptive workpapers, summarized below.

Table 5-21. Ex Post Default Assumptions

Assumption	Value
Building Type	Miscellaneous
Measure Type	CFL
Annual Hours of Use	4,321
Energy Interactive Factor	1.12
Coincident-Diversity Factor	0.77
Demand Interactive Factor	1.19

Source: ComEd Workpapers 6-1-10.doc

The evaluation team concludes it is reasonable to use the PY3 assumptions for CFL lighting in the Miscellaneous building type to estimate ex post impacts for the Midstream CFLs, and to include HVAC interaction factors for energy and demand. For estimating delta watts reduced, we use a method consistent with the PY3 ComEd Residential Lighting program evaluation that bases watts reduced on lumen equivalency of an incandescent lamp for the specific CFL model identified in the tracking data. The lumen equivalency table is provided below.

Table 5-22. Lumen Output to Base Wattage Mapping

Lumen Range	Incandescent Base Wattage
0 - 313	25
314 - 648	40
649 - 1016	60
1017 - 1437	75
1438 - 2207	100
2208 - 3297	150
> = 3298	200

Source: Navigant Consulting Team Analysis

In calculating default values, ComEd makes the assumption that all CFLs purchased are installed within the program year. The PY3 evaluation has found, as shown in Table 3-1, that lighting equipment purchased for businesses is not placed in storage. It is possible however that some of the CFL units purchased through this Pilot were not installed by May 31, 2011, but we could not confirm this with end users. We conclude it is reasonable to use the Business

Prescriptive assumption of a 100% in-service rate for the Midstream Pilot program, but this assumption should be checked in future evaluations.

ComEd did not provide an estimate for a net-to-gross ratio of Midstream Incentive pilot CFL sales. The evaluation team attempted to gather free-ridership information from purchasing end-user interviews, however, we were not successful in reaching the end-users. For PY3, the evaluation will assume that the general NTG ratio for lighting measures in the PY3 Prescriptive program provides a reasonable estimate. The value for lighting measures is 0.74, as shown in Table 3-13 of this report.

Gross and Net Impacts and Conclusions

Based on the assumptions outlined above, the evaluation team provides the following estimate of gross and net impacts for the Midstream Incentive Pilot program.

Table 5-23. Gross and Net Impact Analysis

Wattage	Sales	Ex Ante Peak kW	Ex Ante kWh	Ex Post Peak kW	Ex Post kWh	Ex Post kWh %
5	61	NA	5,255	1	5,904	0%
7	11	NA	853	0	1,757	0%
10	292	NA	37,729	8	42,394	3%
11	6	NA	749	0	842	0%
14	360	NA	71,323	15	80,142	6%
15	2,655	NA	514,592	109	578,202	46%
16	129	NA	24,447	5	27,469	2%
20	499	NA	118,208	23	122,803	10%
23	384	NA	127,350	27	141,643	11%
26	650	NA	207,168	41	216,206	17%
42	55	NA	25,584	5	28,747	2%
Total Gross	5,102	NA	1,133,258	236	1,246,109	100%
Gross Realization Rate				NA	1.10	
NTG Ratio				0.74	0.74	
Net Savings				173	916,159	

The gross impact realization rate for energy is 1.10, which is higher than ComEd due to the inclusion by the evaluation analysis of an energy interaction factor with the HVAC system. ComEd did not provide an ex ante estimate for peak demand, so we could not estimate a gross

impact realization rate on peak demand. The evaluation analysis method of calculating demand reduction for each CFL model resulted in a total connected load reduction of 257 kW for the Midstream program, compared with a value of 263 kW total connected load reduction from ComEd’s delta watts assumptions, for a ratio of 0.98. This is due to minor differences in assumed incandescent wattage replaced, where the evaluation team used actual lumen values from product literature for specific CFL model numbers to select an incandescent base wattage.

The evaluation team recommends that ComEd include HVAC interaction factors for energy and peak demand when calculating impacts for CFLs installed through the Midstream program. If additional measures are added to the Midstream delivery approach, ComEd should consider including HVAC interaction factors, depending on the measure type.

5.4.5 Key Process Findings

Based on program materials, marketing tactics included point-of-purchase materials for distributors and sales tools and talking points for partner distributors. Both interviewed distributors received marketing collateral from ComEd and used it to promote the benefits of CFLs and the Midstream incentive to qualified customers.

Interviews with implementation staff show that the Midstream pilot faced several challenges in its original design. Staff noted that it was very difficult to recruit distributors to partner with the program for a variety of reasons. Many distributors were reluctant to participate in a markdown program because their sales representatives were worried about the negative effects on their sales margin of selling discounted bulbs. Additionally, implementation staff noted that the sales tracking systems of many distributors were not compatible with the program requirements:

“Of course, the reporting and sales tracking systems at the majority of MRO partners weren’t compatible to allow instant rebates to select customers. Because it’s just for non-governmental ComEd customers, it was challenging for them to set up their system to target just those select customers.”

One interviewed distributor, who was active in the program in PY3, did not encounter any major challenges in participating. One hurdle was *“the backroom paperwork.”* However, the other interviewed distributor noted that they had to go back and forth with their manufacturer in order to work out a system that could overcome the pricing issues. Given the challenges facing several large distributors, program staff noted recruitment required extensive outreach efforts.

Both interviewed contractors indicated that the program was not as effective in increasing CFL sales as they had hoped. While one found that that the markdown motivated a few of his customers to change their orders from incandescent bulbs to CFLs, he felt that, in general, the discounts offered by ComEd were not sufficient to induce customers to purchase the CFLs. The other interviewed distributor found that since most of his customers have standard purchasing

contracts, many of the customers that took advantage of the markdown were already purchasing CFLs anyway. In his words: *“why lower the price or change the price if it’s already on the contract?”*

Although both interviewed distributors were disappointed that the Midstream incentive pilot did not generate the sales they had hoped for, they both indicated that they are continuing to participate in PY4. One suggested that the program should increase eligible lighting measures to include pin-based fluorescents and LED lighting, noting that screw-based CFLs are a very small part of their total sales.