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Small Business Energy Savings Program Evaluation Report

FINAL
Energy Efficiency / Demand Response Plan:
Plan Year 8 (PY8)
(6/1/2015-5/31/2016)

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Prepared by:

Paul Higgins
Navigant

Charles Ampong
Navigant

Sharon Mullen
Navigant

www.navigant.com

Small Business Energy Savings Program Evaluation Report

Submitted to:

ComEd
Three Lincoln Centre
Oakbrook Terrace, IL 60181

Submitted by:

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

Contact:

Randy Gunn, Managing Director
312.583.5714
Randy.Gunn@Navigant.com

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

Robert Neumann, Associate Director
312.583.2176
Rob.Neumann@Navigant.com

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E. EXECUTIVE SUMMARY

This report presents the findings and results from the impact and process evaluation of Commonwealth Edison's (ComEd's) Small Business Energy Savings (SBES) program in Program Year 8 (PY8).[1] SBES is ComEd's primary energy efficiency program for small business customers. PY8 represents the program's fifth full year of operation. It is currently funded under the Illinois Power Agency (IPA) portfolio.[2] Nexant, Inc. (Nexant) is the implementation contractor for the SBES program throughout ComEd's service territory.

The SBES program is designed to assist qualified ComEd non-residential customers[3] to achieve electric energy savings by educating them about energy efficiency (EE) opportunities through no-cost on-site energy assessments conducted by preapproved, specially-trained Trade Allies (TAs) and installation of no-cost Direct-Install (DI) measures.[4] Further savings are available to participating customers through incentives of 30 to 75 percent offered for select Contractor-Installed (CI) measures.

Notable program changes made from PY7 to PY8 included:

- Initiated pre-approval of all applications to minimize disruptions from mid-year budget overages.
- Started program year early to offer TA training or assessments before program year launch, including roundtable discussions with TAs for feedback.
- Initiated TA eNewsletter to keep TAs informed (Fund-o-meter to inform TAs of incentive funding availability).
- Initiated Excel-based online Energy Assessment Tool to streamline the paperwork, eliminate need for incentive worksheets, and generate customer facing reports.
- Removed SBES self-service option.
- Removed incandescent-to-CFL retrofit measures and added incandescent-to-LED DI measures, with a $125 per project cap[5].
- Decreased certain lighting incentives.
- Added new measures, including Ecobee smart thermostat and VSDs.
- Initiated three new pilot initiatives to expand beyond lighting into refrigeration, compressed air and comprehensive measures.

The Basic SBES program, comprising the entire program, with the exception of multi-family common area measures and three comprehensive pilots, ended early in October 2015 when high customer demand exhausted the budget. The comprehensive pilot campaigns were then launched in November 2015 to test new measures and diversify energy savings away from lighting. The pilots were designed to encourage installation of multiple measures and a departure from lighting retrofits. Marketing changes included offering smart thermostat cards and campaign fact sheets.

The comprehensive pilot offered three campaigns: 1) The Works, through which customers bundle three measures such as envelope (insulation), controls, smart thermostats, HVAC, refrigeration and kitchen equipment; 2) The Big Blast (Compressed Air Pilot), through which customers pick from a menu of

[1] PY8 began June 1, 2015 and ended May 31, 2016.
[2] The IPA funding mechanism was created by Illinois Public Acts 97-0616 ("PA 97-0616") and 97-0824 ("PA 97-0824").
[3] To qualify, participants must be ComEd commercial or industrial customers with monthly peak demand levels no greater than 100 kW.
[4] No-cost direct-install measures include low-flow showerheads and faucet aerators, pre-rinse spray valves, vending machine controls, cooling and vending misers, and LED lamps.
[5] For PY9, direct install LEDs are being removed, and a Smart Strip direct install measure is being added.

compressed air measures, such as leak repair or nozzle replacement, and pair with a smart thermostat or other measure to qualify; and 3) The Big Chill (Refrigeration Pilot), through which customers pick from a menu of refrigeration measures, such as case lighting, EC Motor or strip curtains, and pair with another measure, such as a smart thermostat or Building Energy Management System (BEMS) to qualify.

Navigant's evaluation involved verifying the compliance of the program gross savings with the Illinois Technical Reference Manual version 4.0 (TRM v4.0)[6] and applying research adjustments to non-deemed savings in the tracking database. Navigant calculated PY8 verified net impact savings using the approved net-to-gross ratio (NTGR) deemed through Illinois Stakeholder Advisory Group (SAG) consensus.[7]

Navigant conducted surveys of participants in the three comprehensive campaign pilots and interviews with the trade allies supporting those campaigns. The research goal was to assess their satisfaction and perspectives with the programs and to suggest possible program improvements.

E.1. Program Savings

The SBES PY8 program was fully funded under IPA, hence the savings were all counted towards the IPA portfolio.[8] As shown in Table E-1, the total verified net energy savings for the SBES program in PY8 was 153,724 megawatt-hours (MWh), the net demand reduction was 39.46 megawatts (MW), and the net summer peak demand reduction was 23.68 MW.

Table E-1. Total PY8 SBES Electric Savings

Savings Category	Energy Savings (MWh)	Demand Savings (MW)	Peak Demand Savings (MW)
Ex-Ante Gross Savings	167,017	NR[9]	NR
Verified Gross Savings	168,928	43.37	26.02
Verified Net Savings	153,724	39.46	23.68

Source: ComEd tracking data and Navigant team analysis
NR = Not Reported

E.2. Program Savings by Channel

The PY8 SBES program involved pre- and post-overlap adjustments with the Business Instant Lighting Discounts (BILD) program. The SBES-BILD overlap adjustment results in a reduction in the savings for lighting because some lighting products incentivized through the SBES program are also incentivized through the BILD program. Because these measures are tracked under both programs and each cannot claim full savings for these measures, adjustments are made to properly allocate the savings between the two programs. Details of the SBES-BILD overlap analysis are provided in Section 2.

The breakdown of the electricity savings by program channel is summarized in Table E-2, showing the overlap adjustment between the SBES and the BILD programs. The SBES Basic delivery channel

[6] Illinois Statewide Technical Reference Manual for Energy Efficiency Version 4.0, available at: http://www.ilsag.info/technical-reference-manual.html.
[7] See http://ilsag.info/net-to-gross-framework.html.
[8] In PY6 and PY7 the program savings were split between the IPA and the Energy Efficiency Portfolio Standard (EEPS) due to the respective portfolio budget allocation.
[9] Estimates of ex ante demand and summer peak demand savings are not reported in the tracking database provided to the evaluation team.

contributed 131,022 MWh net savings, representing 85 percent of total verified net savings. The Multi-Family Common Area delivery contributed 3,852 MWh, or 2 percent. The combined contribution of the three Campaigns was 18,851 MWh, representing 12 percent of total net savings: The Works (4 percent), The Big Chill (6 percent) and The Big Blast (3 percent).

The overall verified gross realization rate for energy savings is 101 percent[10], after Navigant made several needed adjustments to the ex ante savings for some end-use product categories, including: lighting, refrigeration, variable speed drives, compressed-air systems, and water efficiency measures.

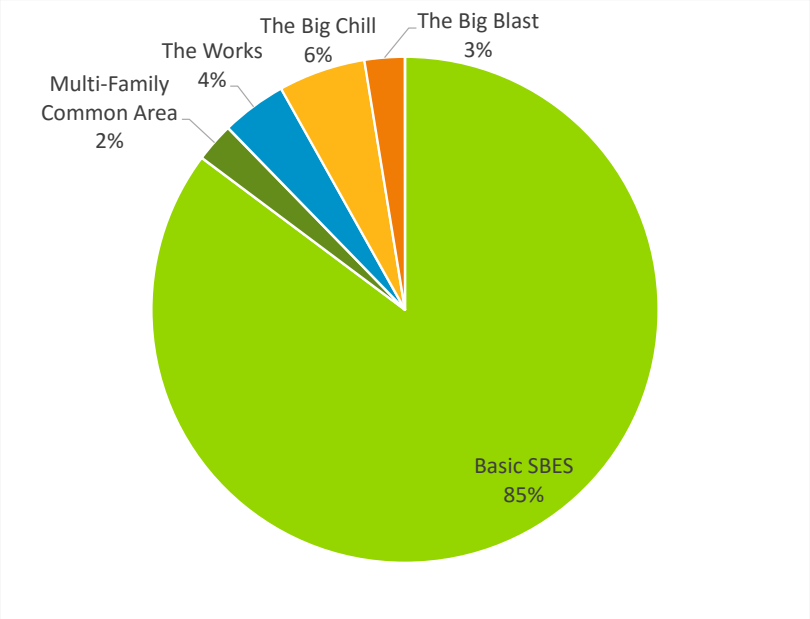
Table E-2. PY8 SBES Program Ex ante and Verified Savings by Channel

Measure	Ex Ante Gross Savings (MWh), Pre-OVLP Adjust	Ex Ante Gross Savings (MWh), Post-OVLP Adjust	Verified Gross Savings (MWh), Post-OVLP Adjust	Verified Gross Peak Demand Reduction (MW)	Verified Gross kWh Realization Rate	NTGR*	Verified Net Savings (MWh)	Verified Net Peak Demand Reduction (MW)
Basic SBES	147,356	142,165	143,980	23.30	101%	0.91	131,022	21.21
Multi-Family Common Area[11]	4,961	4,387	4,233	0.53	96%	0.91	3,852	0.48
The Works	7,109	6,999	7,015	0.82	100%	0.91	6,384	0.75
The Big Chill	9,195	9,164	9,372	0.67	102%	0.91	8,528	0.61
The Big Blast	4,314	4,302	4,328	0.69	101%	0.91	3,939	0.62
PY8 Total	172,935	167,017	168,928	26.02	101%	0.91	153,724	23.68

Source: ComEd tracking data and Navigant team analysis.
* A deemed value. Source: ComEd_NTG_History_and_PY8_Recommendation_2016-02-26_Final_EMV_Recommendations.xlsx, available at the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html
OVLP = SBES-BILD overlap

[10] The gross realization rate is the ratio of the adjusted verified gross savings to the adjusted ex ante gross savings.
[11] Some of the projects implemented through the Campaign Offering -The Works consisted of multi-family common area measures. For the purpose of this evaluation, the gross savings of 389 MWh from these projects is reported under the Campaign Offering -The Works.

Figure 1-1. Verified Net Savings by Channel



Source: ComEd tracking data and Navigant team analysis.

E.3. Impact Estimate Parameters for Future Use

The evaluation did not conduct any specific research on parameters for deeming in future versions of the Illinois TRM.

E.4. Program Volumetric Detail

The SBES program touched 5,124 participant customers, who implemented 7,537 projects comprising a total of 784,534 measures.[12] Table E-3 summarizes the PY8 volumetric findings. The SBES Basic program channel represented 90 percent of total project volume, the Multi-Family Common Area delivery represented 2 percent, and the combined Pilot Campaigns with a total of 600 projects, represented 8 percent of total project volume. A total of 549 customers participated in the Campaigns. Details of the volumetric analysis are provided in Section 3.

[12] For evaluation reporting purpose, if a lighting measure quantity is reported in the tracking system as connected watts, watt reduced, or watts controlled, Navigant treated each row entry of such measure as one measure quantity in this table.

Table E-3. PY8 Volumetric Findings Detail

Participation	Basic SBES	Multi-Family Common Area	Campaign Offering-The Works	Campaign Offering-The Big Chill	Campaign Offering-The Big Blast	Overall Total
Total Implemented Projects	6,751	186	149	346	105	7,537*
Direct Install Projects	2,208	67	25	35	6	2,341
Prescriptive Projects	6,734	185	149	346	105	7,519
Participant Customers	4,557	115	126	332	94	5,124†
Total Program Measures	738,409	19,910	8,035	15,666	2,514	784,534

Source: ComEd tracking data and Navigant team analysis.
* Unique projects: excludes 2323 duplicate projects with both prescriptive and DI measures.
† Unique customers: excludes 100 duplicate customers with more than one project. A total of 549 customers participated in the campaigns.

E.5. Results Summary

The key metrics from the PY8 SBES program are summarized Table E-4.

Table E-4. PY8 Results Summary

Participation	Units	PY8
Verified Net Savings	MWh	153,724
Verified Net Demand Reduction	MW	39.46
Verified Net Peak Demand Reduction	MW	23.68
Verified Gross Savings	MWh	168,928
Verified Gross Demand Reduction	MW	43.37
Verified Gross Peak Demand Reduction	MW	26.02
Program Realization Rate	%	101%
Program NTG Ratio*	#	0.91
Total Projects	#	7,537
Total Measures Installed	#	784,534
Customers Touched	#	5,124

Source: ComEd tracking data and Navigant team analysis.
* A deemed value. Source: ComEd_NTG_History_and_PY8_Recommendation_2016-02-26_Final_EMV_Recommendations.xlsx, which may be found on the IL SAG web site (http://ilsag.info/net-to-gross-framework.html).

E.6. Findings and Recommendations

The following describes some of the key program findings and recommendations.[13]

Verified Gross Impacts and Realization Rate

Finding 1. The PY8 SBES program achieved 168,928 MWh of verified gross energy savings and 26.02 MW of verified gross summer peak demand reduction. These verified savings values reflect two types of adjustment. The SBES-BILD overlap adjustment, which allocated savings for certain lighting measures that were installed through the SBES program, but using devices incentivized through the BILD program, resulted in a reduction in the lighting savings by 5,918 MWh, changing the pre-overlap ex ante savings from 172,935 MWh to the post overlap adjustment ex ante savings of 167,017 MWh. In addition, Navigant adjusted the measure level default unit savings for some end-use product categories, including: lighting, refrigeration, variable speed drives, water efficiency measures and compressed-air systems. The overall verified gross realization rate for energy savings was 101 percent.

Recommendation 1. ComEd has determined that the SBES-BILD overlap issue is being resolved and that the SBES PY9 tracking is not expected to require an overlap adjustment with BILD. The evaluation team expects that this will be resolved ahead of the next evaluation cycle. If an overlap adjustment is required in PY9, we suggest that ComEd should engage the evaluation team to review the overlap adjustment model prior to data delivery for a more efficient evaluation.

Finding 2. Navigant's review found that the ex ante savings estimates for various compressed air and HVAC measures were based on custom inputs. The ex ante savings assume occupied hours for the projects' facilities to be 4,683 hours, similar to a facility with lighting fixture annual operating hours in the TRM (for unknown space type). Navigant reviewed the custom assumption and agrees with the assumed operating hours. We found an error in the ex ante kilowatt calculations which triggered the evaluation adjustment.

Recommendation 2. Although Navigant's retrospective verification of custom inputs was not constrained to using values provided on the application form or supplemental program tracking data provided by ComEd and Nexant, we recommend that ComEd should consider notifying the TRM Technical Advisory Committee (TAC) and evaluators prior to the start of each program year of instances where custom inputs will be collected to replace TRM deemed inputs for measure savings estimation.[14] In the case of PY8, the custom hours of use values used for the compressed air leakage and pressure reduction, as well as for the HVAC VSDs should have triggered TAC notification.

Verified Net Impacts & NTGR

Finding 3. The evaluation used a deemed net-to-gross (NTG) value 0.91 to calculate verified net savings of 153,724 MWh, verified net demand reduction of 39.46 MW and verified net summer coincidence peak demand reduction of 23.68 MW. The PY8 Savings were all counted towards the IPA portfolio. Overall, the PY8 program achieved 116 percent of its net energy savings planning estimate of 133,000 MWh[15] through direct installation activities and prescriptive incentive offerings, coupled with the three campaign initiatives in PY8.

[13] This is a subset of our findings and recommendations. Numbering on the findings and recommendations in this section are the same as those found in the Findings and Recommendations section of the evaluation report for ease of reference between each section.

[14] ICC Docket No. 13-0077 (other sources: http://ilsagfiles.org/SAG_files/Technical_Reference_Manual/Policy%20Document%20for%20IL%20TRM%2010-25-12.pdf , page 9)

[15] http://ilsagfiles.org/SAG_files/Quarterly_Reports/ComEd/EPY8/ComEd_PY8_Q4_Report.pdf

Tracking System Review

Finding 5. Navigant's review of the gross savings found that in most cases the program default measure workbook savings assumptions are consistent with the TRM v4.0. However, the tracking system designation of measures with location or building-specific savings calculations did not always match the deemed hours of operation and interactive effects. In some cases for lighting, the delta watts did not match the value in the TRM. Nexant indicated that the facility type may be occasionally adjusted to be more conservative based upon a review of the operating hours; therefore, the assessment workbook might have a different facility type from the tracking system.

Recommendation 4. ComEd and Nexant should create a supplementary database of projects which have their facility type designation changed in the tracking system during the course of the project savings calculation. The supplemental data should be provided together with the tracking database submitted for evaluation verification.

Program Participation

Finding 6. The PY8 SBES program impacted 5,124 participant customers, who implemented 7,537 projects comprising a total of 784,534 measures. Eighty-two percent of the projects installed a type of lighting measure; the lighting measures with the most energy savings were LED fixtures, T8/T5s, and HP/RW T8s. Most of the lighting measures were implemented through the traditional SBES offering, which represented approximately 90 percent of the total project volume. Generally, we see a downward trend in lighting projects from about 98 percent by volume in PY7 to 82 percent in PY8. The volume of non-lighting measures increased significantly; refrigeration represents 11 percent in the overall projects and 32 percent within the campaigns. Thermostats were introduced into the program as a new measure, and it represented 1 percent of the total SBES projects, and 8 percent in the campaigns. Compressed air projects represented 9 percent of the projects in the campaigns and Smart Strips were 15 percent in the campaigns.

Process Findings

Finding 9. The majority of trade allies were lighting specialists prior to the comprehensive campaigns. The program required them to rapidly develop a competency to promote, or an expertise to install, measures in new fields, such as refrigeration, compressed air, and building envelopes. Trade allies specializing in the new fields faced similar challenges promoting or installing measures that were new to them.

Finding 10. Small business customers were primarily interested in lighting measures because they are highly visible, while other issues addressed through the program such as compressed air and motors operate in the background without visual clues to their performance. The less visible measures require additional awareness to drive customers to address them before they fail.

Recommendation 6. Incent measures that are less obvious to customers and challenging to TAs at a level that will drive TAs to promote and install them.

Finding 11. Smart thermostats offered challenges to trade allies because the incentive was only available to upgrade from a manual thermostat, not from a programmable thermostat; the electrical infrastructure required to support a smart thermostat (additional wires, common wire or "a fifth wire") was often not available, and running additional wires eliminated their profit margin; this customer base was not eager to upgrade beyond a programmable thermostat.

1. INTRODUCTION

1.1 Program Description

The SBES program is designed to assist qualified ComEd non-residential customers, with monthly peak demand levels no greater than 100 kW, to achieve electric energy savings by educating them about energy efficiency (EE) opportunities through no-cost on-site energy assessments conducted by preapproved or specially-trained Trade Allies (TAs) and installation of no-cost Direct-Install (DI) measures. Further savings are available to participating customers through incentives of 30 to 75 percent offered for select Contractor-Installed (CI) measures. Nexant, Inc. (Nexant) is the implementation contractor for the SBES program throughout ComEd's service territory.

Notable program changes made from PY7 to PY8 included:

- Initiated pre-approval of all applications to minimize disruptions from mid-year budget overages.
- Started program year early to offer TA training or assessments before program year launch, including roundtable discussions with TAs for feedback.
- Initiated TA eNewsletter to keep TAs informed (Fund-o-meter to inform TAs of incentive funding availability).
- Initiated Excel-based online Energy Assessment Tool to streamline the paperwork, eliminate need for incentive worksheets, and generate customer facing reports.
- Removed SBES self-service option.
- Removed incandescent-to-CFL retrofit measures and added incandescent-to-LED DI measures, with a $125 per project cap.
- Decreased certain lighting incentives.
- Added new measures, including Ecobee smart thermostat and VSDs.
- Initiated three new pilot initiatives to expand beyond lighting into refrigeration, compressed air and comprehensive measures.

For the comprehensive campaign offering The Works, customers bundled three measures such as envelope (insulation), controls, smart thermostats, HVAC, refrigeration and kitchen equipment. The Big Blast (Compressed Air Pilot) customers picked from a menu of compressed air measures, such as leak repair or nozzle replacement, and pair with a smart thermostat or other measure to qualify. The Big Chill (Refrigeration Pilot) customers picked from a menu of refrigeration measures, such as case lighting, EC Motor, or strip curtains, and pair with another measure, such as smart thermostats or Building Energy Management System (BEMS), to qualify.

The SBES program ended early in October 2015, as high customer demand exhausted the budget. The new campaigns were launched in November 2015 to test new measures and diversify energy savings away from lighting. Marketing changes included offering smart thermostat cards and campaign fact sheets.

1.2 Evaluation Objectives

The PY8 evaluation involved verifying compliance of the PY8 SBES program gross savings calculations with the Illinois Technical Reference Manual version 4.0 (TRM v4.0)[16] and applying research adjustments to non-deemed savings in the tracking database, especially for some of the new measures introduced in PY8. Navigant calculated PY8 verified net impact savings using the approved net-to-gross ratio (NTGR) deemed through Illinois Stakeholder Advisory Group (SAG) consensus.[17] We conducted participant

[16] Illinois Statewide Technical Reference Manual for Energy Efficiency Version 4.0, available at: http://www.ilsag.info/technical-reference-manual.html
[17] http://ilsag.info/net-to-gross-framework.html

surveys and trade ally interviews with participants of the three pilot programs introduced in PY8 with the goal of assessing their satisfaction and perspectives on the programs and to identify possible program improvements.

The evaluation team identified the following key researchable questions for PY8:

1.2.1 Impact Questions

1. What are the program's verified gross savings?
2. What are the program's verified net savings?
3. What are the program's demand savings?

1.2.2 Process Questions

1. What is the customer experience and satisfaction with the new pilot initiatives?
2. What is the trade allies' experience with comprehensive measures that required them to expand their business model?

2. EVALUATION APPROACH

To determine verified gross savings, the evaluation team verified per unit savings for each program measure by (1) reviewing the tracking database, (2) comparing the use of measure algorithms in the tracking database to their use in the Illinois TRM v4.0 to ensure that they were appropriately applied, or reviewing the secondary research performed for custom inputs, and (3) cross-checking totals. Navigant multiplied measure quantities reported in the program tracking database by the verified per unit savings values. The verified net savings were calculated using a net-to-gross ratio (NTGR) that was deemed for PY8. Navigant had regular telephone meetings with program staff to verify information about the program operation and tracking system.

Subsequent to the beginning of the PY7 evaluation year, an overlap was identified between the ComEd SBES program and the Business Instant Lighting Discounts (BILD) program. The SBES program, in addition to offering direct install services and products and providing prescriptive contractor installed incentives for upgrades, also includes lighting retrofits with BILD-qualified products. SBES trade allies receive a combined materials and labor incentive for installing energy efficient lighting for small businesses, which also includes the BILD discount through a BILD distributor trade ally. In PY7, it was not possible to determine record-level overlap between the two programs. For this reason, savings from any BILD-qualified product installed through the SBES program were subtracted from SBES program savings, regardless of whether that product actually received a BILD discount. In PY8, ComEd decided to allocate the savings between the two programs rather than subtracting all of the relevant savings from SBES. The SBES tracking data still does not allow for a record-level accounting, but ComEd and the evaluation team developed a methodology to attribute savings to the two programs based on the relative incentive amounts paid by each program, weighted by the total savings for each lighting product category.

2.1 Overview of Data Collection Activities

The core data collection activities included review of the program's tracking data and materials for savings verification and process research. The full set of data collection activities is shown in the following table.

Table 2-1. Primary Data Collection Activities

What	Who	Target Completes	Completes Achieved	When
Tracking System & Desk Review	Participating Customers	Census	All	March – September 2016
Review Program Measures in TRM	Illinois Statewide Technical Reference Manual for Energy Efficiency Version 4.0	Census	All	March – September 2016
Program Material Review	Program Documents	Census	All	March – June 2016
In-depth Interviews	Program Management	2	All	March – May 2016
In-depth Process Interviews†	Trade Allies	6-15	8	October 2016
In-depth Process Interviews*	Participating Customers	40	20	September – October 2016

* PY8 process research focused on three new comprehensive pilots: Big Chill, Big Blast and The Works

2.2 Verified Savings Parameters

Navigant calculated the verified gross and net savings (energy and coincident peak demand) using the deemed impact algorithms found in the TRM v4.0. Table 2-2 presents the parameters that were used in the verified gross and net savings calculations, indicating which were examined through evaluation activities and which were deemed.

Table 2-2 Verified Savings Parameter Data Sources

Savings Input Parameters	Data Source	Deemed * or Evaluated?
NTGR	SAG Agreement*	Deemed
Gross Realization Rate[18]	Tracking data and evaluation research	Evaluated
Program Bulbs	PY8 Program Tracking Data	Evaluated
Lighting Delta Watts	Illinois TRM v4.0 and secondary research	Partially Deemed
Lighting In-Service Rate	Illinois TRM v4.0†	Deemed
Aerators Usage	Illinois TRM v4.0†	Partially Deemed
Hours of Use (HOU)	Illinois TRM v4.0†	Deemed
Summer Peak Coincidence Factor (CF)	Illinois TRM v4.0†	Deemed
Energy Interactive Effects	Illinois TRM v4.0†	Deemed
Demand Interactive Effects	Illinois TRM v4.0†	Deemed
HVAC, VSDs & Compressed Air Systems Inputs	Illinois TRM v4.0† & Research	Partially Deemed/Evaluated
Refrigeration Inputs	Illinois TRM v4.0†	Deemed
Weather Stripping	Research	Evaluated
Programmable Thermostats	Illinois TRM v4.0† & Research	Partially Deemed

Source: Navigant analysis

* Deemed values. Source: ComEd_NTG_History_and_PY8_Recommendation_2016-02-26_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html

† Illinois Statewide Technical Reference Manual for Energy Efficiency Version 4.0, available at: http://www.ilsag.info/technical-reference-manual.html

2.2.1 Verified Gross Program Savings Analysis Approach

Navigant used the TRM v4.0 methodology to calculate verified gross savings for measures with deemed savings. Navigant estimated verified unit savings values for each program measure and made adjustments to ex ante unit savings values based on the measure savings input assumptions found in the TRM v4.0. Navigant reviewed the program tracking system and procedures to verify that the program accurately reported measure counts. The verified gross savings are the product of verified unit savings values (energy and demand savings) and verified measure quantities.

[18] The verified gross realization rate is the ratio of verified gross savings to ex ante gross savings from the program tracking database.

2.2.2 Verified Net Program Savings Analysis Approach

Navigant calculated verified net energy and demand (coincident peak and overall) savings by multiplying the verified gross savings estimates by a net-to-gross ratio (NTGR). In PY8, the NTGR estimates used to calculate the net verified savings were based on past evaluation research and defined by a consensus process through SAG, as documented in a spreadsheet.[19]

2.3 Process Evaluation

Navigant focused the PY8 process evaluation exclusively on three pilot campaigns offering comprehensive services through bundled measures. ComEd launched the pilots to eliminate a reliance on lighting retrofits, encourage adoption of new technologies and further customer engagement.

The process evaluation of the comprehensive campaign pilots relied on interviews with utility and implementer staff, participating customers, and trade allies. Our focus was on impact and benefits of bundled measures, program awareness, technologies, barriers, and satisfaction.

The study included inquiry into changes to the trade ally structure; new relationships with subcontractors; changes in the customer base and outreach; and economic impact. The study also investigated customer perspectives on marketing, implementation, and the impact of exposure to different trades under one program.

[19] Source: ComEd_NTG_History_and_PY8_Recommendation_2016-02-26_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html

3. GROSS IMPACT EVALUATION

Navigant reviewed the SBES program tracking database to examine the values used to calculate program savings, including the pre- and post-overlap adjustments with the BILD program, as discussed in Section 2. The PY8 overlap deduction from lighting ex ante gross savings was 5,918 MWh. The evaluation verified gross savings estimate is 168,928 MWh, which is 1,911 MWh more than the ex ante estimate of 167,017 MWh. The difference is due to evaluation adjustments made to the measure level default unit savings for some end-use product categories, including lighting, refrigeration, variable speed drives, water efficiency measures and compressed air systems. The overall verified gross realization rate for energy savings is 101 percent.[20]

3.1 Tracking System Review

Navigant downloaded the final tracking data for the SBES PY8 impact evaluation from the ComEd Evaluation Sharefile site. We relied on the following documents to verify the per-unit savings for each program measure. The measure workbooks and wattage tables were downloaded from the ComEd Sharefile site between February and July 2016.

- Final PY8 tracking database file: “SBES_PY8_EOY_Evaluation_Data_Rev1A_07262016.xlsx”.
- Measure workbook of default savings: “SBES PY8 Campaign Measure Workbook-Navigant.xlsx”.
- Appendix A PY8 Measure Recap_ComEd 012716.xlsx.
- PY8 Default wattage table.xlsx.
- PY8 ComEd Measure Workpapers 12-3-15.pdf.
- Illinois Technical Reference Manual (TRM v4.0) for deemed input parameters or secondary evaluation research to verify any custom inputs used in the ex ante calculations.
- Other supplemental data from Nexant on air leakage and pressure reduction measures
- Campaign materials

Key findings from the tracking data review included:

- **Lighting: 101 Percent Realization Rate (RR), 92 Percent of Program Net Savings.** The evaluation team applied adjustments to several lighting technologies implemented in PY8 using deemed assumptions from the TRM v4.0. Navigant found that in most cases the measure workbook default savings assumptions are consistent with the TRM, but the tracking system measure description and designated installed location or building type did not always match the deemed hours of use and savings interaction factors. In some cases, the delta watts were incorrect compared to the TRM (e.g., the evaluation decreased the delta watts for CFLs and increased delta watts for metal halides with occupancy sensors). Nexant explained that there were times when the facility type was adjusted to be more conservative based upon their review of the operating hours, which means the assessment workbook might have a different facility type from the tracking system. While we agree with this approach, we emphasize the challenge for the evaluation team to identify which tracking system entries were adjusted or which were possibly a tracking error. Our recommendation is that Nexant should consider creating, and provide for evaluation, a supplemental database documenting which projects had their building type designation adjusted to adequately reflect the operating hours and conditions.

- **Refrigeration: 102 Percent RR, 7 Percent of Program Net Savings.** Most of the refrigeration measures had a 100 percent gross realization rate. Navigant adjusted the default savings for anti-

[20] The gross realization rate is the ratio of the post adjustment verified gross savings and the post adjustment ex ante gross savings.

sweat heater controls, LED refrigerated display case lighting, and EC motor with evaporator fan controls for cooler and freezer. The evaluation added savings for strip curtains from two projects (#34962 and #34964) which were not included in the tracking system although the customer received the full project incentive. Nexant clarified that the error was a calculation transition error for the measure savings which was not detected.

- **Compressed Air System (condensate drains, air leakage and pressure reduction): 108 Percent RR, 0.29 Percent of Program Net Savings.** Savings from no-loss condensate drains and high efficiency air nozzles were consistent with the TRM (v4.0). The compressed air leak repair and pressure reduction default savings were based on custom inputs, particularly the operating hours of the facilities. The ex ante savings assumes occupied hours for project facilities to be 4,683 hours, similar to a facility with lighting fixture annual operating hours in the TRM (for unknown space). Navigant reviewed the custom assumption and found the unit savings estimate, 428 kWh per leak repair and 863 kWh per annual pressure reduction, to be reasonable. We found an error in the ex ante kilowatt calculations which triggered the evaluation adjustment. We recommend that for facilities operating on two shifts for compressed air systems, the program should consider using the TRM (version 5.0) comparable value 4,452 hours, which is applicable in PY9.

- **HVAC VSDs & Compressed Air with VSDs**: **103 Percent RR, 0.33 Percent of Program Net Savings.** Evaluation found the savings for air compressors with integrated VSDs to be reasonable. The savings calculation for variable speed drives was adjusted. We agree that using the 4,683 hours assumption for unknown space is reasonable for application to savings from all projects. We found an error in the ex ante kilowatt calculations which triggered the evaluation adjustment.

- **Water Efficiency Devices: 121 Percent RR, 0.02 Percent of Program Net Savings.** The ex ante savings for the direct install faucet aerators assumes an average usage of 2,961 gallons of water per year, based on selected small business building types. Navigant agrees with this approach; however, we found this number came from a previous TRM (v2.0). The applicable TRM (v4.0) for PY8 average value is 3,748 gallons. The adjustment resulted in estimates of 91.61 kWh for bathroom aerators and 111.71 kWh for kitchen aerators, producing a 121 percent gross realization rate. We recommend Nexant use the average usage input 3,748 gallons per year for faucet aerators in PY9.

- **Programmable and Smart Thermostats: 97 Percent RR, 0.04 Percent of Program Net Savings.** The ex ante savings utilizes TRM v4.0 input assumptions for Small Commercial Programmable Thermostats. Commercial Smart Thermostat is not a deemed measure in the TRM. The evaluation agrees with using the deemed assumptions from Small Commercial Programmable Thermostats for Smart Thermostat savings, until the TRM provides deemed assumptions for the commercial Smart Thermostat measure. Evaluation adjustments of the PY8 thermostat savings were based on applying the TRM v4.0 inputs to the appropriate project facility types as reported in the tracking system.

- **Weather Stripping: 99 Percent RR, less than 0.01 Percent of Program Net Savings.** Navigant agrees with the use of custom inputs from TMY3 data and ASHRAE to normalize weather factors and estimate the impact of air infiltration and savings. We adjusted the savings in the tracking database slightly from 14.0 kWh to 13.8 kWh to match the estimate in the default savings workbook.

- **Smart Strip: 100 Percent RR, less than 0.04 Percent of Program Net Savings.** The evaluation agrees with the ex ante approach for estimating savings and so the realization rate is 100 percent.

3.2 Program Volumetric Findings

The SBES program had 5,124 participants who implemented 7,537 projects and installed 784,534 measures[21] (see details in Table 3-1). The SBES Basic program offering represented 90 percent of the total project volume, the Multi-Family Common Area delivery represented 2 percent, and the combined Pilot Campaigns with a total of 600 projects represented 8 percent of total project volume. A total of 549 customers participated in the Campaigns. A total of 2,323 projects were identified to have both direct install and prescriptive measures. The prescriptive projects overall comprise approximately 99 percent of the project and measure volume.

Table 3-1. PY8 Volumetric Findings Detail

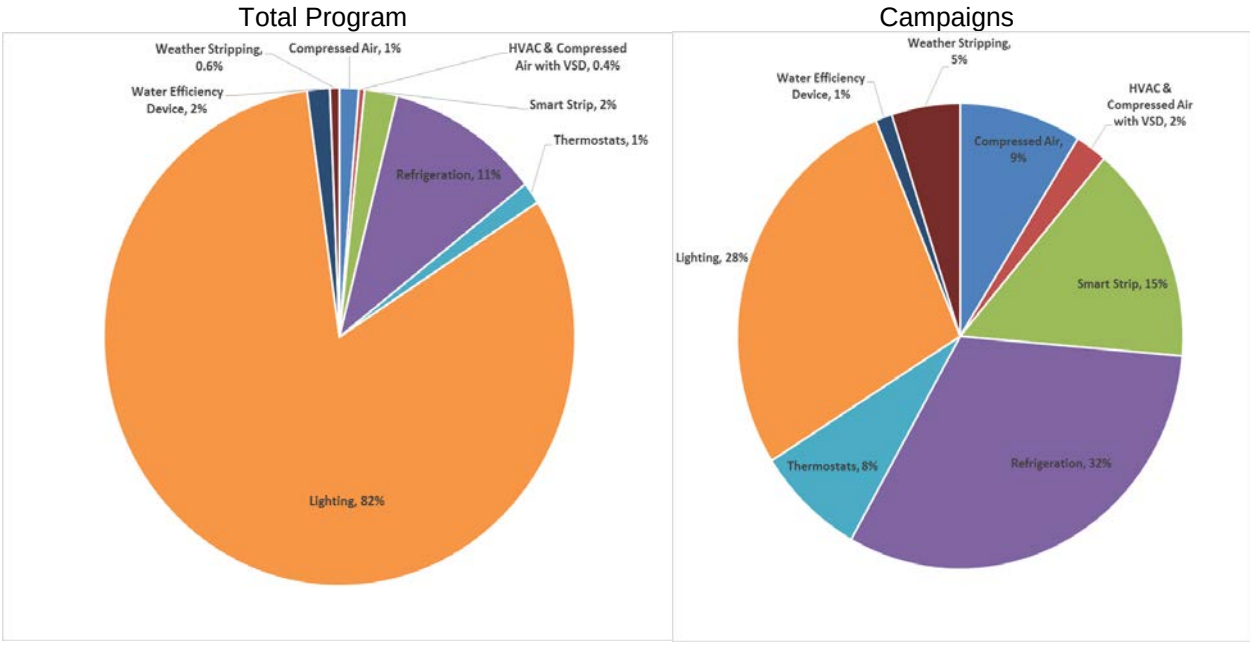
Participation	Basic SBES	Multi-Family Common Area	Campaign Offering-The Works	Campaign Offering-The Big Chill	Campaign Offering-The Big Blast	Overall Total
Total Implemented Projects	6,751	186	149	346	105	7,537*
Direct Install Projects	2,208	67	25	35	6	2,341
Prescriptive Projects	6,734	185	149	346	105	7,519
Participant Customers	4,557	115	126	332	94	5,124†
Total Program Measures	738,409	19,910	8,035	15,666	2,514	784,534

Source: ComEd tracking data and Navigant team analysis.
* Unique projects: excludes 2,323 duplicate projects with both prescriptive and DI measures.
†Unique customers: excludes 100 duplicate customers with more than one project. A total of 549 customers participated in the Campaigns.

Figure 3-1 shows the PY8 measure mix by percentage of end-use for the whole program and for the campaign.

[21] For evaluation reporting purpose, if a lighting measure quantity is reported in the tracking system as connected watts, watt reduced, or watts controlled, Navigant treated each row entry of such measure as one measure quantity in this table. The actual connected watts, reduced watts, or watts controlled are reported in Section 3.2 at the program-level analysis.

Figure 3-1. PY8 Measure Percentages by End-use Category



Source: Navigant analysis

Key findings from the volumetric details include:

1. Of the 7,537 projects implemented in PY8, 82 percent installed a type of lighting measure; the lighting measures with the most savings were LED fixtures, T8/T5s, and HP/RW T8s. Most of the lighting measures were implemented through the traditional SBES offering, which represented approximately 90 percent of the total project volume in PY8.

2. Generally, we see a downward trend in the number of lighting projects from about 98 percent of projects in previous years to 82 percent in PY8. The number of projects for other measures increased significantly; refrigeration represents 11 percent in the total projects and 32 percent within the campaigns. Thermostats were introduced into the program as a new measure, and they represented one percent of the total SBES projects, and 8 percent in the campaigns.

3. The PY8 mix of measures for the campaigns looks much different than the traditional program (see Figure 3-1), with fewer lighting retrofits (28 percent), and much more refrigeration (32 percent). Compressed air savings is 9 percent in the campaigns compared to 1 percent in the total program. Smart Strips grew from 2 percent to 15 percent in the campaigns. Water efficiency projects declined to 1 percent from 2 percent in the full program.

4. The Big Chill campaign implemented the most projects from the refrigeration measure bundles, with 5 percent representation in the total volume of projects (see details in Table 3-1, that is 346 out of 7,537 projects), followed by The Works (2 percent, and The Big Blast (1 percent).

5. The Multi-Family Common Area offering implemented 186 projects which represented 2 percent of all SBES projects (see details in Table 3-1). Most of the SBES overlap adjustment with BILD occurred in the common area and traditional measure mix of lighting measures.

3.3 Gross Program Impact Parameter Estimates

Navigant estimated verified unit savings for each program measure using impact algorithm sources found in the TRM v4.0 or through secondary research. Table 3-2 presents the key parameters and the references used in the verified gross and net savings calculations.

Table 3-2. Verified Gross Savings Parameters

Measure	Ex Ante Gross Value (kWh/unit)	Verified Gross Value, (kWh/unit)	Deemed * or Evaluated?	Source (TRM V4.0)
Lighting Measures	Vary	Vary. Adjusted based on verified delta watts or building type interactive effects	Deemed	Section 4.5
Refrigeration Measures	Vary	Most verified as acceptable with comments. See tacking system review section	Deemed	Section 4.6
Compressed Air System	Vary	Custom inputs with TRM adjustment	Partially Deemed/ Evaluated	Section 4.7, Research
Smart Strip	80 kWh, Average of Types	Acceptable as is	Deemed	Section 5.2.1
Thermostats	Vary	Acceptable as is with adjustment based on reported building type using TRM	Deemed	Section 4.4
Water Efficiency Device	Vary	Usage changed to increase savings. See tracking system discussion	Deemed	Section 4.3
Weather Stripping	14.0	13.8	Evaluated	Research
HVAC & Compressed Air with VSD	Vary	Most verified as acceptable with comments. See tacking system review section	Partially Deemed/ Evaluated	Section 4.4, Research

Source: Navigant Analysis
* Deemed values are from Illinois TRM v4.0, available at http://www.ilsag.info/technical-reference-manual.html.

3.4 Verified Gross Program Impact Results

The total verified gross savings is 168,928 MWh and the total verified gross peak demand reduction is 26.02 MW as shown in Table 3-3. The table presents savings at the measure group level including groups where the estimate is not statistically significant at the 90/10 level. The program achieved a 101 percent gross realization rate on energy savings.

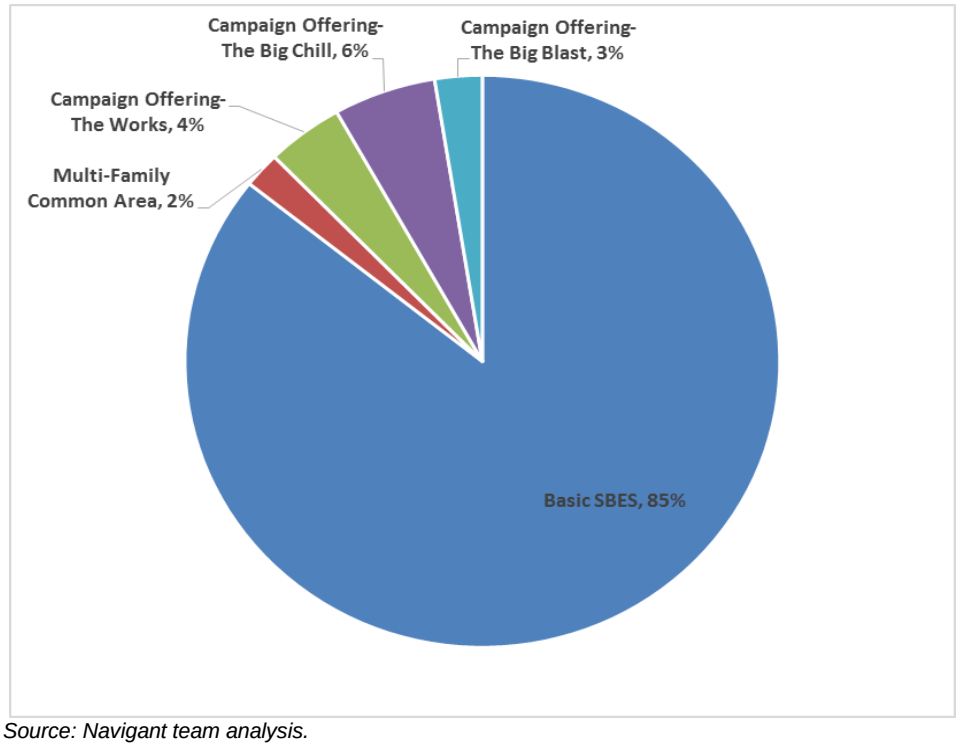
Table 3-3. PY8 Verified Gross Impact Savings Estimates by End-use

Measure Category	Ex Ante Gross Savings (MWh), Pre-OVLP Adjust	Ex Ante Gross Savings (MWh), Post-OVLP Adjust	Verified Gross kWh Realization Rate *	Verified Gross Savings (MWh), Post-OVLP Adjust	Verified Gross Peak Demand Reduction (MW)
Compressed Air	458	458	108%	492	0.09
Lighting	159,474	153,555	101%	155,188	24.83
HVAC & Compressed Air with VSD	539	539	103%	557	0.13
Refrigeration	12,284	12,284	102%	12,505	0.96
Smart Strip	73	73	100%	73	0.01
Thermostats	73	73	97%	71	-
Water Efficiency Device	33	33	121%	40	0.005
Weather Stripping	1.29	1.29	99%	1.27	-
PY8 Total	172,935	167,017	101%	168,928	26.02

Source: ComEd tracking data and Navigant team analysis.
* Based on evaluation research findings.

The breakdown of the verified gross energy savings by program channel is shown in Figure 3-2. These percentages also represent the percentage contribution of each channel in net savings, presented in the next section of this report.

Figure 3-2. PY8 Verified Gross Savings Estimate by Program Channel



Source: Navigant team analysis.

4. NET IMPACT EVALUATION

Verified net energy and demand (coincident peak and overall) savings were calculated by multiplying the verified gross savings estimates by a NTG ratio. This section presents the estimated PY8 net savings. The table below shows the deemed NTG values for PY8.

Table 4-1. PY8 Verified Net Impact Parameters

Measure	Net-to-Gross Ratio (NRGR)	Source*
Lighting	0.91†	IL SAG
Non-Lighting	0.91†	IL SAG

Source: ComEd tracking data and Navigant team analysis.
* A deemed value. Source: ComEd_NTG_History_and_PY8_Recommendation_2016-02-26_Final_EMV_Recommendations.xlsx, available on the IL SAG website: http://ilsag.info/net-to-gross-framework.html

The program net savings at the measure group level is presented in Table 4-2, including groups where the NTGR estimate is not statistically significant at the 90/10 confidence level. The PY8 SBES program evaluation calculated verified net savings of 153,724 MWh and verified net peak demand reduction of 23.68 MW. Lighting represents 92 percent of the net savings and refrigeration end-use represent 7 percent, and the remaining 1 percent is shared among the other end-uses.

Table 4-2. PY8 Verified Net Impact Savings Estimates by End-use

Measure Category	Ex Ante Gross Savings (MWh), Pre-OVLP Adjust	Ex Ante Gross Savings (MWh), Post-OVLP Adjust	Verified Gross Savings (MWh), Post-OVLP Adjust	Verified Gross Peak Demand Reduction (MW)	Verified Gross kWh Realization Rate*	NTGR†	Verified Net Savings (MWh)	Verified Net Peak Demand Reduction (MW)
Compressed Air	458	458	492	0.09	108%	0.91	448.16	0.08
Lighting	159,474	153,555	155,188	24.83	101%	0.91	141,221	22.60
HVAC & Compressed Air with VSD	539	539	557	0.13	103%	0.91	507	0.12
Refrigeration	12,284	12,284	12,505	0.96	102%	0.91	11,379	0.87
Smart Strip	73	73	73	0.01	100%	0.91	66	0.01
Thermostats	73	73	71	-	97%	0.91	65	-
Water Efficiency Device	33	33	40	0.005	121%	0.91	37	0.00
Weather Stripping	1.29	1.29	1.27	-	99%	0.91	1.16	-
PY8 Total	172,935	167,017	168,928	26.02	101%	0.91	153,724	23.68

Source: ComEd tracking data and Navigant team analysis.
* Based on evaluation research findings.
† A deemed value. Source: ComEd_NTG_History_and_PY8_Recommendation_2016-02-26_Final_EMV_Recommendations.xlsx, which may be found on the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html.

The breakdown of the net savings by program channel is shown in Table 4-3. The SBES Basic delivery channel contributed 131,022 MWh net savings, representing 85 percent of total verified net savings. The Multi-Family Common Area delivery contributed 3,852 MWh, which is 2 percent. The combined contribution from the three Pilot Campaigns was 18,851 MWh representing 12 percent of total net savings – The Works (4 percent), The Big Chill (6 percent) and The Big Blast (3 percent).

Table 4-3. PY8 Verified Net Impact Savings Estimates by Channel

Measure	Ex Ante Gross Savings (MWh), Pre-OVLP Adjust	Ex Ante Gross Savings (MWh), Post-OVLP Adjust	Verified Gross Savings (MWh), Post-OVLP Adjust	Verified Gross Peak Demand Reduction (MW)	Verified Gross kWh Realization Rate	NTGR*	Verified Net Savings (MWh)	Verified Net Peak Demand Reduction (MW)
Basic SBES	147,356	142,165	143,980	23.30	101%	0.91	131,022	21.21
Multi-Family Common Area[22]	4,961	4,387	4,233	0.53	96%	0.91	3,852	0.48
The Works	7,109	6,999	7,015	0.82	100%	0.91	6,384	0.75
The Big Chill	9,195	9,164	9,372	0.67	102%	0.91	8,528	0.61
The Big Blast	4,314	4,302	4,328	0.69	101%	0.91	3,939	0.62
PY8 Total	172,935	167,017	168,928	26.02	101%	0.91	153,724	23.68

Source: ComEd tracking data and Navigant team analysis.
* A deemed value. Source: ComEd_NTG_History_and_PY8_Recommendation_2016-02-26_Final_EMV_Recommendations.xlsx, available at the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html
OVLP = SBES-BILD overlap

In the following Table 4-4 we present the summary of the program savings by the prescriptive and the direct install (DI) offerings.

Table 4-4. PY8 Verified Net Impact Savings Estimates by Prescriptive vs Direct Install

Measure	Ex Ante Gross Savings (MWh), Pre-OVLP Adjust	Ex Ante Gross Savings (MWh), Post-OVLP Adjust	Verified Gross Savings (MWh), Post-OVLP Adjust	Verified Gross Peak Demand Reduction (MW)	Verified Gross kWh Realization Rate	NTGR*	Verified Net Savings (MWh)	Verified Net Peak Demand Reduction (MW)
Prescriptive	171,117	165,587	167,471	25.72	101%	0.91	152,399	165,587
Direct Install	1,818	1,430	1,457	0.30	102%	0.91	1,325	1,430
PY8 Total	172,935	167,017	168,928	26.02	101%	0.91	153,724	167,017

Source: ComEd tracking data and Navigant team analysis.
* A deemed value. Source: ComEd_NTG_History_and_PY8_Recommendation_2016-02-26_Final_EMV_Recommendations.xlsx, available at the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html
OVLP = SBES-BILD overlap

Overall, the PY8 program achieved 116 percent of its net energy savings planning estimate of 133,000 MWh,[23] although the PY8 net MWh savings was lower than its PY7 achievement (173,705 MWh) by 12 percent, partly because of the differences in program target in each year.

[22] Some of the projects implemented through the Campaign Offering -The Works consisted of multi-family common area measures. For the purpose of this evaluation, the gross savings of 389 MWh from these projects is reported under the Campaign Offering -The Works.
[23] http://ilsagfiles.org/SAG_files/Quarterly_Reports/ComEd/EPY8/ComEd_PY8_Q4_Report.pd

5. PROCESS EVALUATION

The process evaluation of the comprehensive campaign pilots included in-depth computer-aided telephone surveys of 20 participants from The Works (n=14), The Big Blast (n=4), and The Big Chill (n=2). Questions addressed program awareness, drivers to participate in energy efficiency projects, influence of the program, the decision making process, online content, and satisfaction with the program.

The sampling frame consisted of the 600 Campaign projects and 549 participants identified through the program tracking system. Navigant employed a random selection process to identify survey candidates.

We experienced challenges surveying the participants, first in reaching them without access to email addresses, and then in conducting the complete, 20-minute survey. We found that participants in The Big Blast and The Big Chill campaigns were the most reluctant to speak with us because they could not step away from their customers to complete the survey. A convenience store owner, and participant in The Big Chill, told us, “I’m always busy with the lottery, and can't talk because I might enter wrong numbers. I liked the service, but can't talk about it.” We found that participants in The Works who had fewer customer demands (e.g., stable and kennel owners, condominium and church managers) were more willing to participate in the survey.

Eight of the 23 pilot trade allies, responsible for 66 percent of the attributable energy savings from their customers, were interviewed over the phone. Questions addressed impact and benefits of bundling measures, future interest in offering comprehensive measures, program awareness, and marketing to customers, smart thermostats, recommended technologies, barriers to participation for trade allies and their customers, and satisfaction with the program for trade allies and their customers.

5.1 Bundling Requirement of the Comprehensive Measures

5.1.1 Impact on Trade Allies

Seven of the eight trade allies cited favorable impacts from the bundling requirement, including an expansion of their services and customer base. One reported that it was “a little rough at first, pushing us outside our comfort zone.”

One trade ally said “it was not a very good thing” because “some customers who would have qualified for the standard program now didn’t.” “I’m saying that [the bundling] held us back and cost us some customers.” A second trade ally also reported that they could not find enough applicable measures for some customers to be able to participate in the program.

Trade allies reported that their customers were initially reluctant to participate, saying, “They wonder why they can’t keep it at just one thing,” because “they see a difference with lighting, but motors are harder to see.”

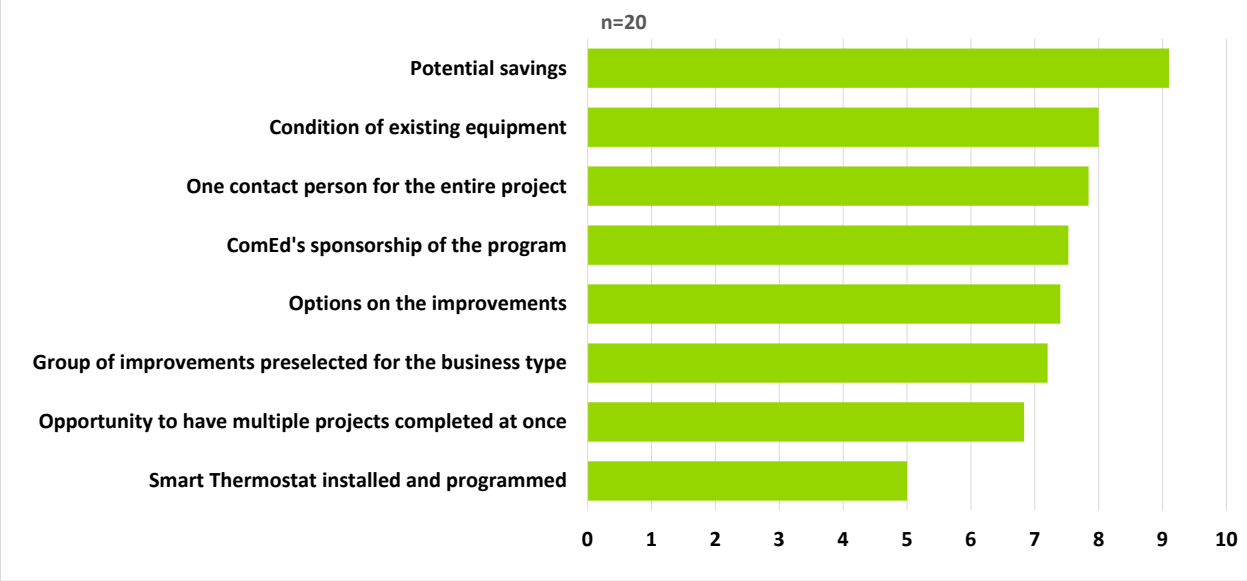
5.1.2 Training and Operations for Trade Allies

Non-lighting trade allies offered training on their specialty to fellow trade allies. While those offering the training reaped no benefit other than “helping others in the program,” the trade allies who attended the training rated the benefit at 8.5 on a 0-10 scale, where zero means not at all beneficial and 10 means extremely beneficial. Typical of the comments, one trade ally said, the trainer “spoke for 1.5 hours and educated us on what to look for on AC and heaters. They were very, very helpful in educating us.”

5.1.3 Influence on Participants

Seventy-nine percent of the surveyed participants originally intended to engage in a lighting project. Only 47 percent would have considered adding a second measure if they had not been required to; all surveyed participants rated the influence of the bundling requirement on their participation in the program at a 5.8 on a scale of 0-10, where zero means not at all influential and 10 means extremely influential. Additional aspects of the program that influenced participation are shown in Figure 5-1. The greatest influencer was potential savings, at an average of 9.1. The least influential aspect of the program was having a smart thermostat installed and programmed, at an average influence of 5.0.

Figure 5-1. Participant Ratings of Influence to Participate in Campaigns



Source: Navigant team analysis.

Typical of those participants who found the bundling beneficial, they were motivated "to get more of a discount [with the projects] all done together," and "to not have multiple interruptions to the business." A customer who was not motivated by the bundling requirement said, "I didn't care that the other things were done, I was only interested in outdoor lighting."

5.1.4 Trade Ally Interest in Comprehensive Measures

The trade allies rated their interest in continuing to offer comprehensive measures at 7.6 on a scale of 0-10 where zero means not at all interested and 10 means extremely interested. Those trade allies interested in continuing said they would do so "To go along with program and offer customers more" and that it is "better for the customer to have one company offer all energy efficient solutions and better for my company to [be the one with the] offer."

A trade ally with little intention of continuing to offer the comprehensive measures (rating his interest as a 2) said that "I do something really well and don't risk much. [Continuing to offer services that I don't excel in] doesn't make much sense to me."

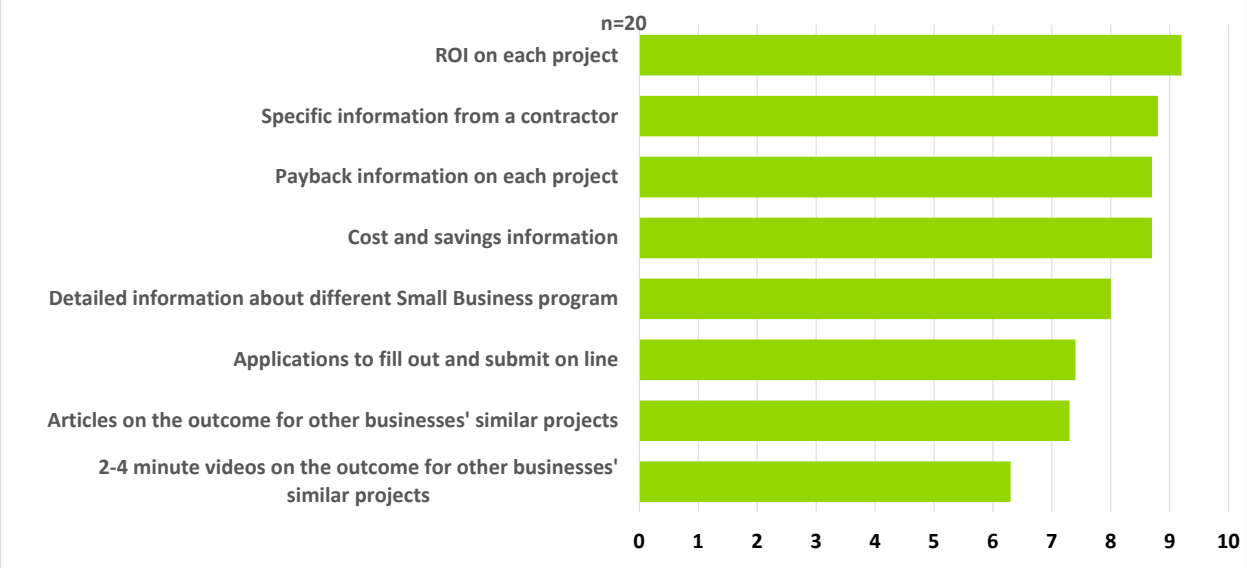
Another trade ally with moderate interest (rated at a 7) said that "When you are not as good at other bundles [ComEd] is pushing, they are harder to sell. I like the idea of them asking us to do this because I think it's important. Mandating it is hard."

Trade allies intending to continue to offer comprehensive services “find it mutually beneficial to subcontract” in the near future.

5.1.5 Participant Interest in Future Comprehensive Measures

Participants rated the likelihood of considering a second measure from a list of all measures available to them at 7.3 on a 0-10 scale where zero means not at all likely and 10 means extremely likely. When asked to rate what information would help them decide which, if any, additional energy efficiency projects to add, participants were most interested in the Return on Investment (ROI). Ratings for all options are shown in Figure 5-2 based on a 0-10 scale where zero means not at all helpful and 10 means extremely helpful.

Figure 5-2. Value of Information on Participant Decision Making



Source: Navigant team analysis.

5.2 Program Awareness

5.2.1 Marketing of Program by Trade Allies

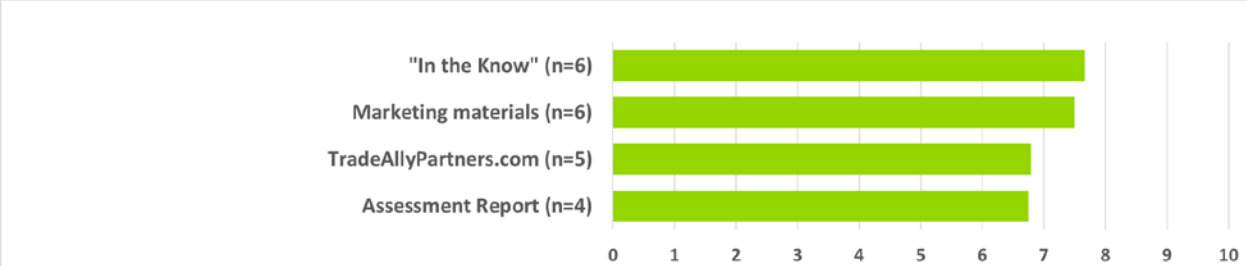
Three of eight trade allies promote the program by cold calling and marketing door to door. The remaining trade allies rely on repeat business with established customers and benefit from leads generated by ComEd, or acquire new customers through word of mouth (WOM).

Although most trade allies view WOM as the best promotion for their services, one has reservations due to the changing nature of the program and frequent oversubscriptions, saying: “Word of mouth is not always to your advantage. Customers wonder why someone else has it cheaper. This is happening right now. Someone signed up two months ago [with a standard incentive] and is now finding out someone down the street is getting it almost free because of bonus programs. It’s a hit or miss. I try to explain it to them, but there are a lot of conflicts.”

5.2.2 Program Communications with Trade Ally

When asked how the program and implementer could better aid them with promoting the comprehensive campaigns, trade allies turned to a discussion of incentives. They rated the perceived benefit from materials that are currently available to them on a 0-10 scale where zero means not at all beneficial and 10 means extremely beneficial, as shown in Figure 5-3. Up to six trade allies were familiar with the marketing material, and rated the trade ally newsletter, “In the Know,” as most beneficial with an average score of 7.7.

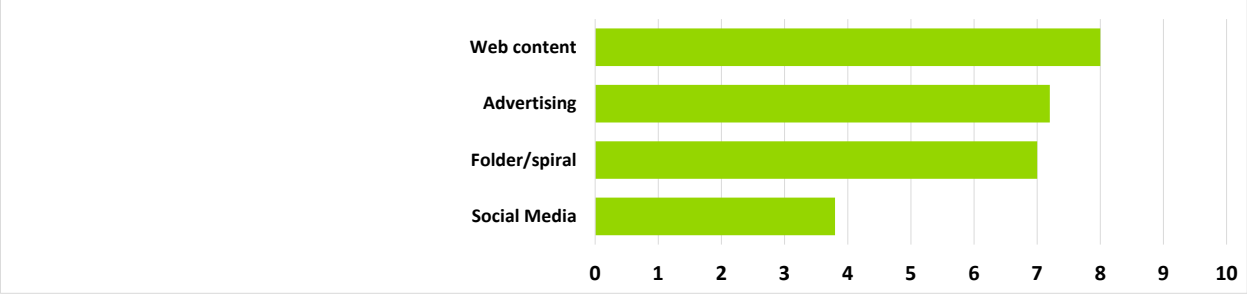
Figure 5-3. Benefit of Marketing Material to Trade Allies (n=6)



Source: Navigant team analysis.

Trade ally interest in channels Nexant may employ to more effectively communicate with small business customers are shown in Figure 5-4. The trade allies said that they would most appreciate the program offering web content that they could link to, because an association with the utility validates their marketing of the program. The responses are on a 0-10 rating scale, where zero means not at all interested and 10 means extremely interested.

Figure 5-4. Trade Ally Interest in Communication Channels (n=5)



Source: Navigant team analysis.

5.2.3 Incentive Structure

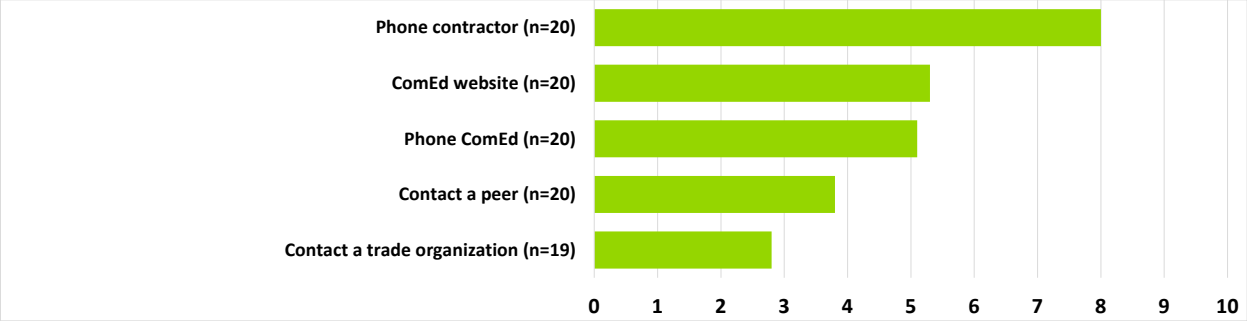
Trade allies are motivated by incentives and bonuses to sell measures, saying, “as long as the incentive is there to make it worthwhile for us and the customer, there is no reason not to do it.” Financial drivers are particularly relevant when asking a trade ally to stretch beyond their former area of expertise to promote comprehensive measures. A common response is that, “when you get to comprehensive [measures], it helps when ComEd gives a little bonus or incentive because [the new] specialty makes our job harder.”

Non-lighting measures may require greater incentives. Lighting remains a top driver for customers “because [they] hear about it and see it everywhere they go.” “A lot of people don’t think of their motors too much because they are not tangible. I’d say those are higher priority [for incentives].”

5.2.4 Participant Decision Making

Half of the participants would turn to their contractors for information on future energy efficiency projects. We asked them to rate on a 0-10 scale, where zero means not at all likely and 10 means extremely likely, the likelihood of turning to several resources for information, as shown in Figure 5-5. Phoning their contractor rated an 8, followed by visiting ComEd's website at 5.3.

Figure 5-5. Participant Ratings of Information Sources for Future Energy Efficiency Projects

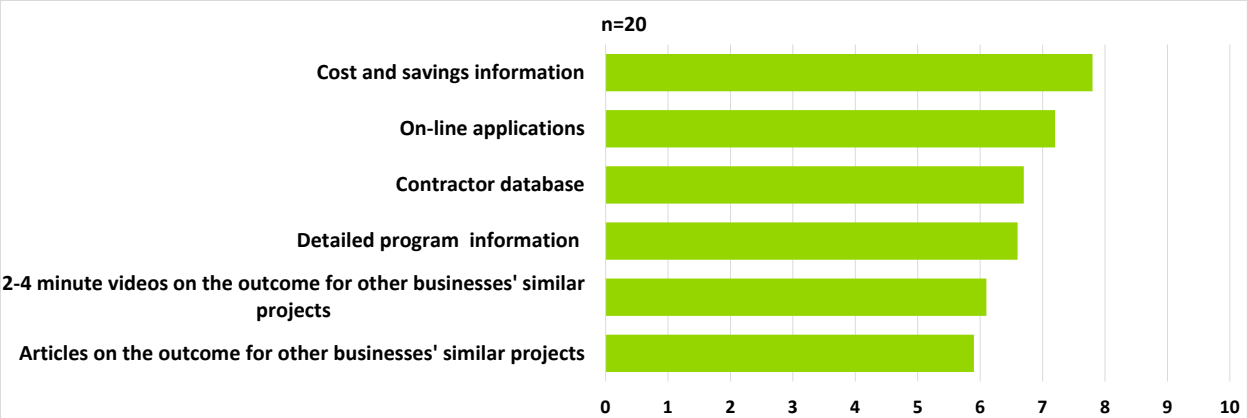


Source: Navigant team analysis.

While two thirds of the participants we surveyed would prefer to have their contractor submit program applications, the remaining would like to complete and submit the application themselves online.

When participants research future energy efficiency projects, they are most interested in cost and savings information, followed by on-line applications. Figure 5-6 shows the average ratings on a 0-10 scale, where zero means not at all likely and 10 means extremely likely, of various items participants say they are likely to search for on ComEd's website.

Figure 5-6. Participant Ratings of Influence to Participate in Campaigns



Source: Navigant team analysis.

We took a closer look at what information would entice participants to read or watch information about another business owner's experience with energy efficiency projects through the SBES program. Participants said it was most important to hear about other local businesses of similar size from their industry (8.3 on a 0-10 scale, where zero means not at all important and 10 means extremely important) or businesses in the same industry (8.2). Fifty-five percent said that information on the experience of a local business of similar size in the same industry would be most likely to offer important information upon which to base a project decision, while 35 percent said that information about a business in their industry would be most important.

5.3 Technologies

5.3.1 Incented Technology

All trade allies reported that the incented technologies available through the pilots were relevant to their customers. One trade ally found refrigeration measures difficult to sell while another found that this customer group did not use enough water to justify the incented hot water heaters. More trade allies said that they were challenged by the smart thermostat measure.

5.3.2 Smart Thermostats

Half of the trade allies we interviewed installed smart thermostats through the pilot. Two trade allies participating in The Works campaign did not install the thermostats, with one saying, "We got really excited when [the smart thermostat] was announced. But all of our customers already have programmable thermostats and there was no incentive to upgrade from programmable to smart."

The smart thermostat was listed as the most difficult technology to sell by two of those trade allies who installed them, saying that "programmable thermostats are sufficient" because "it's easier for [customers] to walk to the thermostat and push a button."

Another trade ally mentioned their margin to install the smart thermostat as a reason they did not consider the technology, saying, "It is because of the 5-wire system, and most places have 4 wires. You have to have a professional come in and add the 5th wire, and by the time you're done you don't have any money."

5.3.3 Future Technologies

Trade Allies mentioned the following technologies they would like to see added to the program:

- Outdoor signs ("Everyone wants them done and they are all high output T12 bulbs.")
- Sensors for walk-in coolers ("When you walk in [a light] automatically turns on [with a] timer to go off when you leave.")
- Advanced lighting controls ("Having lights dim when you're not in a room, and then off, and back on when you walk in. The small places like this too because they see it's saving them money.")
- Half of the participants who answered questions about future technologies available through the program said that they would be more likely to consider a technology that was supported by ComEd through this program because "the utility would only support technology that works" and "would help pay for it".

5.4 Barriers

All the trade allies expressed appreciation for the program and pilots, but were consistent when mentioning barriers that they faced, including:

- Incentives that change or run out, damaging credibility with their customer base.
- Turn-around time for project approvals, impacting customer service.

- Turn-around time for incentive payments, disrupting their cash flow.
- Required number of measures, eliminating repeat customers with recently installed measures.
- Paperwork that changes, is longer than for other ComEd programs, or requires three signatures, consuming additional time and staff to complete.

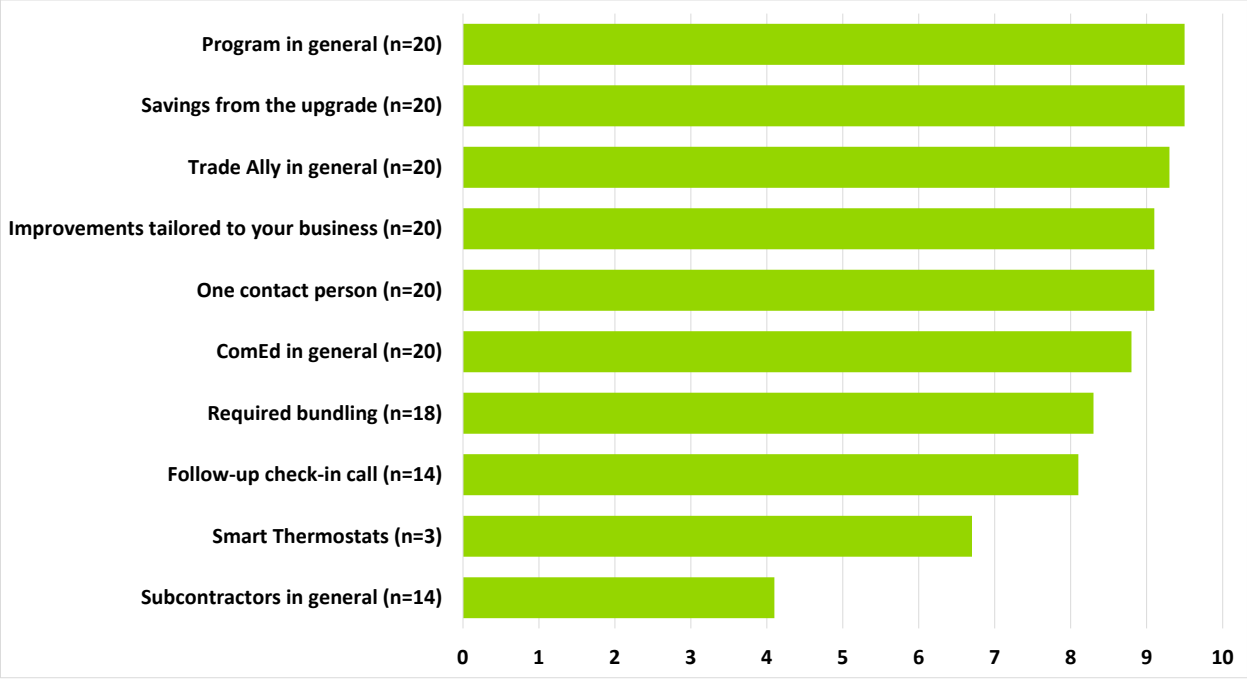
The only barrier trade allies reported that impacted their customers was the time for a project to be approved, saying, “a job was on hold for two months by ComEd. Our customer was livid because normally our time period is 3-4 weeks.”

5.5 Satisfaction

Trade allies rated their satisfaction with the program at 9.1 on a 0-10 scale, where zero means not at all satisfied and 10 means extremely satisfied, and reported that their customers were extremely satisfied with the program.

Participants were quite satisfied with most aspects of the program. Participants responded to a series of questions to elicit their satisfaction about aspects of the program, as shown in Figure 5-7. Their satisfaction with the program in general and their energy savings from the upgrades both averaged 9.5 on a 0-10 scale, where zero means not at all satisfied and 10 means extremely satisfied.

Figure 5-7. Participant Satisfaction



Source: Navigant team analysis.

5.6 Key Process Findings

- The campaigns encouraged a strategy of trade allies focusing their outreach efforts on PY4-PY7 program participants. While logical to exploit an existing customer base, revisiting recent customers limited the number of measures some customers were eligible to receive, thereby preventing them from participating in the Campaign.

- The majority of trade allies were lighting specialists prior to the comprehensive campaigns. The program required them to rapidly develop a competency to promote, or an expertise to install, measures in new fields, such as refrigeration, compressed air, and building envelopes. Trade allies specializing in the new fields faced similar challenges promoting or installing measures that were new to them.

- Trade allies reported that small business customers were primarily interested in lighting measures because they are highly visible, while other issues addressed through the program, such as compressed air and motors, operate in the background without visual clues to their performance. Seventy nine percent of the surveyed participants confirmed that they originally intended to address lighting measures. The less visible measures require additional awareness to drive customers to address them before they fail.

- Smart thermostats offered challenges to trade allies because the incentive was only available to upgrade from a manual thermostat, not from a programmable thermostat, the electrical infrastructure required to support a smart thermostat (a common wire required to power the thermostat) was often not present in participant sites, and running additional wires eliminated their profit margin. Trade allies reported that this customer base was not eager to upgrade beyond a programmable thermostat.

- The greatest influence on customers to engage in energy efficiency projects is the money they will save on their utility bills, measured by a return on their investment in the energy efficiency project.

- Trade allies were frustrated with changing workbooks, lengthy application forms, and delays in project approvals and incentive payments.

6. FINDINGS AND RECOMMENDATIONS

This section summarizes the key impact and process findings and recommendations.

Verified Gross Impacts and Realization Rate

Finding 1. The PY8 SBES program achieved 168,928 MWh of verified gross energy savings and 26.02 MW of verified gross summer peak demand reduction. These verified savings values reflect two types of adjustment. The SBES-BILD overlap adjustment, which allocated savings for certain lighting measures that were installed through the SBES program but using devices incentivized through the BILD program, resulted in a reduction in the lighting savings by 5,918 MWh, changing the pre overlap ex ante savings from 172,935 MWh to the post overlap adjustment ex ante savings of 167,017 MWh. In addition, Navigant adjusted the measure level default unit savings for some end-use product categories, including: lighting, refrigeration, variable speed drives, water efficiency measures and compressed-air systems. The overall verified gross realization rate for energy savings was 101 percent.

Recommendation 1. ComEd has determined that the SBES-BILD overlap issue is being resolved and that the SBES PY9 tracking is not expected to require an overlap adjustment with BILD. The evaluation team expects that this will be resolved ahead of the next evaluation cycle. If an overlap adjustment is required in PY9, we suggest that ComEd should engage the evaluation team to review the overlap adjustment model prior to data delivery for a more efficient evaluation.

Finding 2. Navigant's review found that the ex ante savings estimates for various compressed air and HVAC measures were based on custom inputs. The ex ante savings assume occupied hours for the projects facilities to be 4,683 hours, similar to a facility with lighting fixture annual operating hours in the TRM (for unknown space). Navigant reviewed the custom assumption and agrees with the assumed operating hours. We found an error in the ex ante kilowatt calculations which triggered the evaluation adjustment.

Recommendation 2. Although Navigant's retrospective verification of custom inputs was not constrained to using values provided on the application form or supplemental program tracking data provided by ComEd and Nexant, we recommend that ComEd should consider notifying the TRM Technical Advisory Committee (TAC) and evaluators prior to the start of each program year of instances where custom inputs will be collected to replace TRM deemed inputs for measure savings estimation.[24] In the case of PY8, the custom hours of use values used for the compressed air leakage and pressure reduction, as well as for the HVAC VSDs should have triggered TAC notification.

Recommendation 3. We also emphasize that, for consistency, when custom inputs are available, even when lowering the savings compared with the deemed TRM value, the custom input should be applied to the ex ante savings. The same is true when the custom input increases the savings compared with the deemed value. Following these steps will reduce the potential for an unexpected retrospective savings verification adjustment. Since the program assumes most of these compressed air operations and facilities operate on two-shift, the program should consider using the TRM (version 5.3) comparable value 4,452 hours which is applicable in PY9.

[24] ICC Docket No. 13-0077 (other sources: http://ilsagfiles.org/SAG_files/Technical_Reference_Manual/Policy%20Document%20for%20IL%20TRM%2010-25-12.pdf , page 9)

Verified Net Impacts & NTGR

Finding 3. The evaluation used a deemed net-to-gross (NTG) value 0.91 to calculate verified net savings of 153,724 MWh, verified net demand reduction of 39.46 MW and verified net summer coincidence peak demand reduction of 23.68 MW. The PY8 Savings were all counted towards the IPA portfolio. Overall, the PY8 program achieved 116 percent of its net energy savings planning estimate of 133,000 MWh[25] through direct installation activities and prescriptive incentive offerings, coupled with the three campaign initiatives in PY8.

Finding 4. For the five program delivery channels, the SBES Basic delivery channel contributed 131,022 MWh of the savings, representing 85 percent of total verified net savings. The Multi-Family Common Area delivery contributed 3,852 MWh, which represents 2 percent. The combined contribution from the three Campaigns was 18,851 MWh representing 12 percent of total net savings: The Works (4 percent), The Big Chill (6 percent) and The Big Blast (3 percent). Overall, the lighting end-use category contributed 92 percent of the total net savings, followed by refrigeration with 7 percent, with the remaining one percent shared among the other end-use categories.

Tracking System Review

Finding 5. Navigant's review of the gross savings found that in most cases the program default measure workbook savings assumptions are consistent with the TRM (4.0). However, the tracking system designation of measures with location or building-specific savings calculations did not always match the deemed hours of operation and interactive effects. In some cases for lighting, the delta watts did not match the value in the TRM. Nexant indicated that the facility type may be occasionally adjusted to be more conservative based upon a review of the operating hours, therefore the assessment workbook might have a different facility type from the tracking system.

Recommendation 4. ComEd and Nexant should create a supplementary database of projects which have their facility type designation changed in the tracking system during the course of the project savings calculation. The supplemental data should be provided together with the tracking database submitted for evaluation verification.

Program Participation

Finding 6. The PY8 SBES program impacted 5,124 participant customers, who implemented 7,537 projects comprising a total of 784,534 measures. Eighty-two percent of the projects installed a type of lighting measure; the lighting measures with the most energy savings were LED fixtures, T8/T5s, and HP/RW T8s. Most of the lighting measures were implemented through the traditional SBES offering, which represented approximately 90 percent of the total project volume. Generally, we see a downward trend in lighting projects from about 98 percent by volume in PY7 to 82 percent in PY8. The volume of non-lighting measures increased significantly; refrigeration represents 11 percent in the overall projects and 32 percent within the campaigns. Thermostats were introduced into the program as a new measure and represented one percent of the total SBES projects and 8 percent in the campaigns. Compressed air projects represented 9 percent of the projects in the campaigns and Smart Strips were 15 percent in the campaigns.

Finding 7. The Big Chill campaign implemented the most projects from the refrigeration measure bundles with 5 percent representation in the total volume of projects, followed by The Works (2 percent), and The Big Blast (1 percent). Comparing the direct install and the contractor

[25] http://ilsagfiles.org/SAG_files/Quarterly_Reports/ComEd/EPY8/ComEd_PY8_Q4_Report.pdf

installed prescriptive projects, there were 2,341 direct install projects and 7,519 prescriptive projects with 2,323 projects which implemented both direct install and prescriptive measures.

Process Findings

Finding 8. The comprehensive campaigns encouraged trade allies to focus their efforts on PY4-PY7 program participants. While a logical strategy to exploit an existing customer base, revisiting recent customers limited the number of measures some customers were eligible to receive, thereby preventing them from participating in the Campaign.

Recommendation 5. Remove the required number of measures, and continue to incent Trade Allies to promote comprehensive measures. Navigant acknowledges that this change was made for PY9.

Finding 9. The majority of trade allies were lighting specialists prior to the comprehensive campaigns. The program required them to rapidly develop a competency to promote, or an expertise to install, measures in new fields, such as refrigeration, compressed air, and building envelope. Trade allies specializing in the new fields faced similar challenges promoting or installing measures that were new to them.

Finding 10. Small business customers were primarily interested in lighting measures because they are highly visible, while other issues addressed through the program such as compressed air and motors operate in the background without visual clues to their performance. The less visible measures require additional awareness to drive customers to address them before they fail.

Recommendation 6. Incent measures that are less obvious to customers and challenging to TAs at a level that will drive TAs to promote and install them.

Finding 11. Smart thermostats offered challenges to trade allies because the incentive was only available to upgrade from a manual thermostat, not from a programmable thermostat; the electrical infrastructure required to support a smart thermostat (additional wires, common wire or “a fifth wire”) was often not available, and running additional wires eliminated their profit margin; this customer base was not eager to upgrade beyond a programmable thermostat.

Finding 12. The greatest influence on customers to engage in energy efficiency projects is the money they will save on their utility bills, measured by a return on their investment in the energy efficiency project.

Recommendation 7. Utilize online and print media channels to promote the savings that previous customers enjoyed. Direct prospective participants to stories about customers from the same field and geographical territory, and, as possible, of a similar size.

Finding 13. Some trade allies were frustrated with changing workbooks, lengthy application forms, and delays in project approvals and incentive payments.

Recommendation 8. Streamline the administrative processes that drive the program, and offer training as needed to the trade allies.

7. APPENDIX A

7.1 Trade Ally Interview Guide

ComEd Evaluation for the Small Business Program
Trade Ally In-Depth Interview Guide October 20, 2016

Section	Topics	Questions
Background	What type of business does the trade ally conduct and what types of experience does this trade representative have?	1-5
Program Design	Participation and training in new fields Impact and benefits of bundling measures Interest in offering comprehensive measures in the future	6-10 9-11 12-13
Marketing	Awareness, impact of marketing efforts, word of mouth promotion.	14-20
Technology	Smart thermostats Future technology	21-24 25-28
Program Barriers	Barriers to participation for trade allies and participants	29-32
Satisfaction *with the Small Business Program*	Satisfaction among trade allies and participants.	33-36

[Note to Reviewer] The Interview Guide is a tool to guide process evaluation interviews. The guide helps to ensure the interviews include questions concerning the most important issues being investigated in this study. Follow-up questions are a normal part of these types of interviews. Therefore, there will be sets of questions that will be more fully explored with some individuals than with others. The depth of the exploration with any particular respondent will be guided by the role that individual played in the program, i.e., where they have significant experiences for meaningful responses. The interviews will be audio taped and transcribed.

Introduction

(Note: the interviewer should change the introduction to match his/her own interviewing style)
Hi, may I please speak with [NAME]?
My name is ___ and I'm calling from Navigant Consulting. We are part of the team hired to conduct an evaluation of the ComEd Small Business Energy Efficiency Program. At this time we are interested in asking you some questions about your experiences with the Small Business Program. The questions will only take about a half hour. Is this a good time to talk? [IF NOT, SCHEDULE A CALL BACK.]
I want to let you know that this call will be recorded for quality control purposes. Responses will remain confidential and only be reported in aggregate.

We are evaluating last year's program that began June 1, 2015 and ended May 31, 2016.

Background

1. Could you please tell me your title at <COMPANY>?

2. How many years have you worked there?

3. What is your role there with respect to the Small Business program?

4. Prior to the Comprehensive Campaigns pilot programs in 2015-2016 year and the bundled offerings, what was the main focus of your company?
   1. Lighting
   2. Refrigeration
   3. Compressed Air
   4. Envelope Measures
   5. Other
   6. Refused

5. Which of the Campaigns did you participate in:
   1. The Works
   2. Big Blast
   3. Big Chill

Program Design

6. Did you partner with Trade Allies from other fields to offer these bundled measures, or did you install them with your own staff?
   1. Partner [specify: Lighting, Refrigeration, Compressed Air, Envelope Measures]
   2. Address on our own
   98. Don't Know
   99. Refused

[Ask if 6=1,2, Else Skip to 9]

7. Did you offer training to trade allies from other fields?
   1. Yes, for [Lighting, Refrigeration, Compressed Air, Envelope Measures]
   2. No
   98. Don't Know
   99. Refused

[Ask if 7=1, Else skip to 11]

7A. How beneficial to your company did you find the trainings you offered to other trade allies? Could you rate it on a scale of 0-10, where 0 means not at all beneficial, and 10 means extremely beneficial?

[Ask if 6=1,2, Else Skip to 11]

8. Did you participate in training offered by trade allies from other fields?
   1. Yes, from [Lighting, Refrigeration, Compressed Air, Envelope Measures]
   2. No
      98. Don't Know
      99. Refused

[Ask If 8=1, Else Skip to 11]

8A. How beneficial to your company did you find the training sessions that you attended? Could you rate it on a scale of 0-10, where 0 means not at all beneficial, and 10 means extremely beneficial?

9. What was the impact of measure bundles on your business during the pilot? (Probe for issues, like new insurance requirements to cover spoiled food in refrigerator units)

10. How did customers respond to the bundled measures?

11. What are the benefits, if any, of offering bundled services to small business customers? [Prompt for:

ease of promoting bundled requirement to customers, customers' ability to interpret and select measures, disadvantages to bundled services.]

12. How interested is your company in continuing to offer comprehensive, bundled services to your customers? Again, could you please use the same scale of 0-10, where 0 means not at all interested and returning to your former specialty, and 10 means extremely interested in continuing to expand your services?

[Ask if 12= 8, 9, 10]

12A. Why did you decide to change your business model to offer these comprehensive services?

[Ask if 12 = 0-7]

12B. Why are you considering returning to your original business model?

13. What is your plan for offering comprehensive services in the future?
    1. Continue to sub-contract
    2. Train our staff in these fields
    3. Hire new staff qualified in these fields
    4. Not offer comprehensive services
    00. Other (Detail)
    98. Don't Know
    99. Refused

Marketing

Now, I would like to ask you about the marketing of the Small Business Program.

14. How do your customers hear about the program?

15. Did notice any spontaneous word- of-mouth marketing among ComEd customers? (*Probe: do customers know of other participating businesses?*)

16. How can ComEd and Nexant, the implementer, encourage program partners like you to promote comprehensive measures to your small business customers?

17. Using our 0-10 rating scale, How beneficial to you find: [*where 0 means not at all beneficial and 10 means extremely beneficial*]
    A. 'In The Know'? [*Probe for: desired content*]
    B. TradeAllyPartners.com?
    C. Current marketing materials (including: fact sheet, project snapshot, customer report, thank you package, campaign materials, spiral, etc.)
    D. The Assessment Report campaign sections

18. What kind of support, if any, does Nexant provide for marketing the Small Business Program to your customers?

19. How can they more effectively support your program marketing?

20. I'm going to mention a few ways that Nexant might help you more effectively communicate to customers about the program. Could you please rate your interest in these methods on the 0-10 scale, where 0 means not at all interested and 10 means extremely interested? How interested are you in having Nexant create:
    A. Social Media posts?
    B. Web content that you can link to?
    C. Folder/spiral
    D. Radio/print/online advertising for Small Biz
    E. Something else?

Technology

21. Did you install smart thermostats as part of this program?
    1. Yes
    2. No
    98. Don't Know
    99. Refused

22. Do customers program the smart thermostats themselves, do you apply a standard programming, or do you customize the program for each customer?
    1. Customer programs
    2. TA uses standard programming
    3. TA customizes programming
    00. Other (detail)
    98. Don't Know
    99. Refused

23. Do you continue to manage your customer's smart thermostats for them or do they do it themselves?
    1. Yes
    2. No
    98. Don't Know
    99. Refused

24. Did you receive the level of support from both in class and in field training you were looking for on the smart thermostats?
    1. Yes
    2. No (explain)
    98. Don't Know
    99. Refused

25. If the program introduces a new technology, are you looking to have the program train you:
    1. In class?
    2. In field?
    3. Both?
    4. Sales training?

26. Were the technologies offered during the campaigns relevant to your small business customers?
    1. Yes
    2. No (explain)
    98. Don't Know
    99. Refused

[Ask if 26=2]

26A. Which technologies were not relevant?

27. Which technologies did you have the hardest time selling and why?

28. What new technologies do you think ComEd should offer to the small business customers?

Program Barriers

29. What barriers have you encountered with the program?

30. How could the program be changed to improve it for partners like you?

31. What barriers have your customers encountered?

32. How could the program be changed to improve it for the small business customer?

Satisfaction with the Small Business Program

33. How satisfied are you with the program? Could you rate your satisfaction on the 0-10 scale, where 0 means not at all satisfied and 10 means extremely satisfied?

34. Are your customers satisfied with the program? Why or why not?

35. Are the incentives levels effective at encouraging customers to install equipment they would not have considered without the program?

36. If you could change one thing, what would it be?

Closing section

That brings us to the end of my questions. Is there anything else that you would like to let us know based on the topics we covered today?

On behalf of ComEd we thank you for your time today. If in reviewing my notes, I discover a point I need to clarify, is it all right if I follow-up with you by phone or email? [IF YES, VERIFY PHONE NUMBER OR EMAIL ADDRESS]

7.2 Participant Survey

ComEd Small Business Energy Savings (SBES)
PY8 Participant Survey
October 1, 2016

Purpose of this Survey Guide (not to be read to Participants)

The purpose of this survey guide is to collect information from participating customers in the ComEd Small Business Energy Savings Program. Questions in this survey guide are designed to ask participating customers about their experience with the three pilot programs offered in PY8. The table below outlines the sections, topics and questions of the interview guide to cross-reference them with the goals and objectives of the Small Business Energy Savings Program.

Survey Guide: Topics and Corresponding Questions

Section	Topics	Questions
Introduction and Screening	Verification respondent is SBES decision making customer.	IS1-IS2
Program Awareness	How did the business learn about the program? When do they consider energy efficiency?	PA1-PA2
Program Influence	How influential were aspects of the program? What motivated participation? How should information on additional measures be presented?	PI1-PI8
Future Technologies	What energy efficient technologies are they interested in? What energy efficient challenges are they aware of?	FT1-FT2
Satisfaction	How satisfied are participating customers with aspects of the program? What opportunities exist to improve program processes to increase customer satisfaction? What have they told peers about the program?	S1-S5
Decision Making	When and why are decisions made? How would the business interact with the utility in the future? What methods should be employed to promote future programs?	DM1-DM5
On-Line Access	What online features would interest them? How would they use the website?	OL1-OL5

Introduction and Screen

Hello, this is [INTERVIEWER'S NAME] calling from Navigant on behalf of ComEd. This is not a sales call. We are contacting people who have participated in the ComEd Small Business program.
The purpose of this call is to ask you about your satisfaction with the program. We are conducting an independent study to evaluate the program and would like to include your opinions. Your answers will be confidential and included with answers from other program participants. We would be grateful for your participation in our research. This survey should take about 20 minutes. Is this a good time for you?
If Needed: Your local electric utility, ComEd, sponsors the <Big Blast, Big Chill, The Works> programs for small businesses. The Illinois Commerce Commission (ICC) requires certain

utilities to submit an evaluation report each year. ComEd hired our firm to prepare an independent evaluation of their energy efficiency programs. Your feedback will be used to help evaluate the effectiveness of the program and to design future programs. The information that we gather will help the ICC determine if existing programs should continue while assisting in the design of future programs.
(If Needed: This survey will take about 20-25 minutes.)

IS1 Are you the person who is most familiar with your participation in this program?

1. Yes [go to PA1]
2. No [go to IS2]

IS2. Is there someone who may be more knowledgeable about the equipment upgrades or improvements that I could speak with?

A. Name
B. Contact Phone
C. Contact Email

[Thank and end call]

Program Awareness

I'd like to ask you a few questions about how you became aware of this program, and what would be the best ways to let you know about future opportunities to save energy. I'm very interested in your comments, but will sometimes need you to rate options on a 0-10 scale, or a yes or no. Let's get started.

PA1 How did you first learn about the program? [select first 3 mentioned. DO NOT READ. Prompt as necessary]

1. From my contractor
2. From a new contractor
3. From a peer
4. Saw an ad
5. At a trade event or conference
6. Noticed it on the ComEd website

00. Other (detail)

96. Don't remember
98. Don't know
99. Refused

Program Influence

PI1 I'd like to ask you how influential some aspects of the program were in your decision to participate. I'm still very interested in any comments you may have, but need you to rate the influence they each had on your decision using a 0-10 scale, where 0 means not at all influential and 10 means extremely influential. How influential was: [Rate 0-10, 98=Don't Know, 99=Refused]

A. Having one contact person for the entire project
B. Having a group of improvements preselected for your business type
C. Having an option on some of the improvements
D. The opportunity to have more than one project completed at the same time
E. Potential savings from the upgrades
F. The condition of your existing equipment that was addressed through the program
G. Having a Smart Thermostat installed and programmed
H. The program is from ComEd

PI2 What was the one most significant aspect that interested you in this program? [select one]

1. Having one contact person for the entire project
2. Having a group of improvements preselected for your business type
3. Having an option on some of the improvements
4. The opportunity to have more than one project completed at the same time
5. Potential savings from the upgrades
6. The condition of your existing equipment that was addressed through the program
7. Having a Smart Thermostat installed and programmed
8. The program is from ComEd

00. Other (detail)
98. Don't Know
99. Refused

[ASK IF a highest rated option from PI1 is NOT SELECTED in PI2]
PI3 Could you tell me why you selected that for the most significant influence? [OPEN END, 98=Don't' Know, 99=Refused]

PI4 This program required that you select a combination of options from a list that was geared to your business. If you had not been required to select more than one, what do you think you would have done? [Select first 4 mentioned, Record all comments for Other. Probe for number of measures, what the decision would be based on. DO NOT READ]

1. Only the original measure

2. One more measure
3. Two more measures
4. 3-5 more measures
5. Additional measures if the contractor could make a case
6. Additional measures if their payback was less than 18 months
7. Additional measures if their payback was less than 12 months
00. Other (detail)
98. Don't know
99. Refused

PI5 What energy efficiency option did you originally intend to address when you first thought about this project? [Select first 4 mentioned, Record all comments for Other]

1. Compressed air
2. Exterior lighting
3. Lighting controls
4. Lighting fixtures
5. Refrigerated Case lighting
6. Refrigeration, other
7. Smart thermostat
00. Other (detail)
96. Don't remember
98. Don't know
99. Refused

[ASK if PI5 is NOT 98 or 99]

PI5A Would you have added the other improvements to the project if you weren't required to?

1. Yes
2. No
98. Don't Know
99. Refused

PI6 How important to your participation was the required bundling? Please use the 0-10 scale, where 0 means not at all important and 10 means extremely important. [Rate 0-10, 98=Don't Know, 99=Refused]

[ASK If PI6=8, 9, 10]

PI6A Why was the bundling very important? [OPEN END, 98=Don't Know, 99=Refused]

[ASK If PI6=0, 1, 2, 3, 4]

PI6B Why was the bundling requirement not important? [OPEN END, 98=Don't Know, 99=Refused]

PI7 If the bundling requirement was removed, and you had a list of all the energy efficient options available through ComEd Small Business programs, how likely would you be to consider more than one option? Please use the 0-10 scale, where 0 means not at all likely and 10 means extremely likely. [Rate 0-10, 98=Don't Know, 99=Refused]

PI8 What information would help you decide which, if any, additional energy efficient projects to add? Could you please use the 0-10 scale, where 0 means not at all helpful and 10 means extremely helpful. How helpful would you find: [Rate 0-10, 98=Don't Know, 99=Refused]

A. Detailed information about different Small Business programs
B. Articles on the outcome for other businesses who participated in ComEd's programs
C. 2-4 minute videos on the outcome for other businesses who participated in ComEd's programs
D. Cost and savings information about projects supported by ComEd
E. Payback information on each project
F. ROI on each project
G. Applications that you can fill out and submit on line
H. Specific information from a contractor about the project
00. Other energy efficiency information [detail]
98. Don't Know
99. Refused

PI9 Are there any benefits to having energy efficiency projects grouped or bundled for different types of businesses?

1. Yes
2. No
98. Don't Know
99. Refused

[ASK If PI9=1, Else Skip to FT1]

PI9A What do you think those benefits are? [OPEN END, 98=Don't Know, 99=Refused]

Future Technologies

Now I'd like to ask you to think about technologies, equipment or operations that are not currently offered as ComEd programs, but you wish were.

FT1 Have you heard about any interesting energy efficiency technologies, equipment, or practices?

1. Yes

2. No
98. Don't Know
99. Refused

[ASK If FT1=1, ELSE Skip to FT2]

A. Could you tell me what they are? [LIST] [INTERVIEWER NOTE: Specific information such as models is preferred, but general concepts are acceptable.]

1. Item (Detail)
2. Item (Detail)
3. Item (Detail)
4. Item (Detail)
98. Don't Know
99. Refused

[DETAIL THREE MOST INTERESTING TECH, EQUIPMENT OR PRACTICE, LOOPING THROUGH FT1B AND FT1C FOR EACH]

B. What makes [1, 2, OR 3] interesting to you? [Select first 4 mentioned, Record all comments for Other. DO NOT READ.]

1. Improve operations
2. Save energy
3. Save money
4. Better control
5. Less waste
6. Does more with less
00. Other (detail)
98. Don't Know
99. Refused

C. What prevents you from installing or initiating [1, 2, OR 3] ? [Select first 4 mentioned, Record all comments for Other. DO NOT READ]

1. No time to learn more about it
2. Don't know enough
3. Not my area of expertise
4. Don't have the funding now
5. Don't need it yet
6. Don't have a contractor

7. Not enough testing or data yet

00. Other (detail)

98. Don't Know
99. Refused
[END OF LOOP]

[ASK FT1D ONCE TO COVER ALL TECH, EQUIPMENT OR PRACTICES]

D. Would you be more likely to consider the new technologies if they were part of a ComEd program?

1. Yes

2. No

98. Don't Know
99. Refused

[ASK IF FT1D=1, ELSE SKIP to FT2]

FT1E If so, why? [Select first 3 mentioned, Record all comments for Other. DO NOT READ]

1. Trust the utility
2. ComEd would only support technology that works
3. ComEd would only support technology that is efficient
4. ComEd would help me pay for it
5. ComEd would help me find a contractor to install it
00. Other (detail)
98. Don't Know
99. Refused

FT2 What challenges do you face that you think might be solved by more energy efficient equipment, even if you have not heard of equipment that can solve the problem for you? [OPEN END, 98=Don't Know, 99=Refused]

Satisfaction

S1 Now that you've been through the program, I'd like to ask how satisfied you were with various elements. Again, I'll ask you to rate your satisfaction on a scale of 0-10, where 0 means not at all satisfied, and 10 means extremely satisfied. Your comments are very important to me, but I also need you to give a number value. [Rate 0-10, 98=Don't Know, 99=Refused]

A. The bundling requirement that you select more than one improvement
B. Having one contact person for the entire project
C. Having a group of improvements tailored to your business
D. Any savings from the upgrades

E. The Smart Thermostat
F. <The Works only> The follow-up check-in call
G. Any subcontractors brought in to complete your project
H. Your Trade Ally/General Contractor in general
I. The program in general
J. ComEd in general

S2 Did you face any barriers or challenges participating in this program?

1. Yes
2. No
98. Don't Know
99. Refused

[ASK If S2=1, ELSE SKIP to S3]

S2A What were they? [Select first 4 mentioned, Record all comments for Other. DO NOT READ]

1. Scheduling the contractor
2. Scheduling the work
3. Funding the project
4. Application
5. Understanding the options
6. Valuing the options
7. Getting approval from the owner/manager
00. Other (detail)
98. Don't Know
99. Refused

S2B How did you overcome them? [OPEN END, 98=Don't Know, 99=Refused]

S3 Have you used the BEA tool to find additional savings? (INTERVIEWER NOTE: The **B**usiness **E**nergy **A**dvisor was launched in June.)

1. Yes
2. No
98. Don't Know
99. Refused

[ASK S3A & S3B If S3=1; ASK S3C if S3=2, ELSE SKIP to S4]

A. Could you rate how useful you found the BEA tool on the same 0-10 scale, where 0 means not at all useful and 10 means extremely useful? [0-10, 98=Don't Know, 99=Refused]

B. What could be improved to make it more useful? [OPEN END, 98=Don't Know, 99=Refused]

[ASK If S3=2]

C. Why haven't you used it? [Select first 3 mentioned, Record all comments for Other. DO NOT READ]

1. Already did my Energy Efficiency project, moving on
2. No Time
3. Don't understand it
4. Don't see any need
5. Didn't know about it
00. Other (detail
98. Don't Know
99. Refused

S4 Have you told anyone about this program?

1. Yes
2. No
98. Don't Know
99. Refused

[ASK S4A&B If S4=1; ASK S4C if S4=2, ELSE SKIP to S5]

A. How many people have you told? [NUMBER, 98=Don't Know, 99=Refused]

B. What did you tell them? [OPEN END, 98=Don't Know, 99=Refused]

[ASK If S4=2]

C. If you were going to tell someone about it, what would you say? [OPEN END, 98=Don't Know, 99=Refused]

S5 What do you think could be improved for this program? [OPEN END, 98=Don't Know, 99=Refused]

Decision Making

DM1 Now let's assume you are thinking about starting another energy efficiency project and hope there is a utility program to help you. When you do this research, do you do it: [select one]

1 All at once
2 Bit by bit as you have time

3 Assign it to someone
4 Rely on my contractor
00. Something else (detail)
98. Don't know
99. Refused

[Ask if DM1=1, 2, 3, Else Skip to DM4]
DM2 Is this type of research something that you are likely to do: [select one]
1 Monday-Friday between 9 and 5
2 Nights, weekends or early morning
98. Don't know
99. Refused

DM3 What is going on in your business at that time? Is it [select one]
1 Open but quiet
2 Normally busy
3Closed to customers
00. Something else? (detail)
98. Don't know
99. Refused

DM4 Still assuming you are thinking about starting another energy efficiency project and are looking for a utility program to help you. Using a 0-10 scale, where 0 means "not at all likely," and 10 means "extremely likely," how likely are you to: [Rate 0-10, 98=Don't Know, 99=Refused]
A Go to the Small Business section on ComEd's website
B Phone your contractor
C Phone ComEd's customer service number
D Contact another local business
E Look to a trade organization
F Something else (detail)

DM5I believe that your contractor completed your application for this program, but I wonder how else you would prefer to do this. When you complete an application for an incentive or rebate, do you prefer to: [select one]

1. Complete and submit it online
2. Print it from a website and mail it in
3. Receive a paper form, and mail it in
4. Have your contractor complete it for you

00. Something else [detail]
98. Don't Know
99. Refused

On-Line Access

OL1 Have you ever visited the Small Business pages on ComEd's website?
1. Yes

2. No

98. Don't Know
99. Refused

[ASK If QL1=1, Else, skip to OL2]

A. If so, what were you looking for? [Select first 5 mentioned, Record all comments for Other. DO NOT READ]

1. Energy efficiency information
2. Energy efficiency programs
3. Ways to save energy
4. Ways to save on my bill
5. Compare different equipment or technology
6. Compare different operations
7. List of approved contractors/trade allies
8. Applications for programs
9. Articles about how other businesses saved energy
10. Videos about how other businesses saved energy

00. Other (detail)

98. Don't Know
99. Refused

[Ask if OL1A <>98, 99. LOOP for each mentioned issue looked for]

B. Did you find it?

1. Yes
2. No
3. Some of it

98. Don't Know
99. Refused

OL2 Now, please tell me how likely you would be to use the following features on ComEd's website if they were available. Please use the 0-10 scale, where 0 means not at all likely and 10 means extremely likely. Would you use: [Rate 0-10, 98=Don't Know, 99=Refused]

A. Detailed information about different Small Business programs
B. Articles on the outcome for other businesses who participated in ComEd's programs
C. 2-4 minute videos on the outcome for other businesses who participated in ComEd's programs
D. Cost and savings information about projects supported by ComEd
E. Applications that you can fill out and submit on line
F. Search for contractors approved to offer the type of work you're considering

G. Other energy efficiency information [detail]

OL3 When you consider energy efficiency information, how important is it to you that the information be about a business like your own? Please rate this on a 0-10 scale, where 0 means not at all important and 10 means extremely important. How important is information about: [Rate 0-10, 98=Don't Know, 99=Refused]

A. Business in general
B. Businesses that are about your size
C. Businesses that are in your industry
D. Businesses that are in your local area
E. Businesses that are about your size, in your industry and local area
F. Something else [detail]

OL4 Which of these similarities is most likely to get you to watch a short video or read a short article about energy efficiency programs at ComEd? [select one]

1. Business in general
2. Businesses that are about your size
3. Businesses that are in your industry
4. Businesses that are in your local area
5. Businesses that are about your size, in your industry and local area

00. Something else [detail]
98. Don't Know
99. Refused

OL5 Which of these similarities is most likely to offer you important information you would use to decide to participate in a project? [select one]

1. Business in general
2. Businesses that are about your size
3. Businesses that are in your industry
4. Businesses that are in your local area
5. Businesses that are about your size, in your industry and local area

00. Something else [detail]
98. Don't Know
99. Refused

Those are all the questions I have today. Is there anything you would like to add? Thank you very much for your time.