NAVIGANT

SMALL BUSINESS ENERGY SAVINGS PROGRAM

FINAL

Energy Efficiency/Demand Response Plan:
Plan Year 7
(6/1/2014-5/31/2015)

Presented to
Commonwealth Edison Company

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Prepared by:

Paul Higgins
Navigant Consulting, Inc.

Charles Ampong
Navigant Consulting, Inc.

Argene McDowell
Navigant Consulting, Inc.

www.navigant.com

NAVIGANT

Submitted to:

ComEd
Three Lincoln Centre
Oakbrook Terrace, IL 60181

Submitted by:

Navigant Consulting, Inc.
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

Rob Neumann, Assoc. Dir.
312.583.2176
Rob.Neumann@Navigant.com

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This report includes contributions from Rob Slowinski and Mary Thony, in addition to those individuals listed above.

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E. Executive Summary

This report presents a summary of the findings and results from the impact and process evaluation of the program year seven (PY7) [1] Small Business Energy Savings (SBES) program, ComEd's primary energy efficiency program for small business customers. PY7 represents the program's fourth full year of operation.

The SBES program is designed to assist qualified ComEd non-residential customers[2] to achieve electric energy savings by educating them about energy efficiency (EE) opportunities through on-site assessments conducted by specially-trained trade allies (TAs) and installation of no-cost direct-install (DI) measures.[3] Further savings are available to participating customers through incentives of 30 percent to 75 percent offered for select contractor-installed (CI) measures.

Notable program changes in PY7 included:

- Additional measures: Multi-Family program common area measures moved from the Multi-Family program to the SBES program, including LED lamps and fixtures, HP/RW T8s, LED exit signs, new T8/T5 fixtures, occupancy sensors, and photocells.
- Change in implementation contractor: Nexant, Inc. (Nexant) became the sole implementer for the SBES program throughout ComEd's service territory.[4]
- Status as joint program: Starting in PY7 ComEd's SBES program was no longer a joint program with any of the gas companies operating in ComEd's territory.[5]

The Small Business Program PY7 gross impact evaluation was based on engineering review and verification of program measure savings using deemed input parameters and algorithms from the Illinois Statewide Technical Reference Manual (TRM version 3.0).[6] The PY7 net verified savings were calculated based on net-to-gross ratio (NTGR) estimates from past evaluation research (PY5) and established by a consensus process with the Illinois Statewide Advisory Group (SAG).[7]

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[1] The PY7 program year began June 1, 2014, and ended May 31, 2015.
[2] To qualify, participants must be ComEd commercial or industrial customers with monthly peak demand levels no greater than 100 kW.
[3] No-cost direct-install measures include low-flow showerheads and faucet aerators, pre-rinse spray valves, vending machine controls, cooling and vending misers, and compact fluorescent lamps (CFLs).
[4] In PY4 and PY5 Nexant implemented the program for customers served by ComEd and Nicor Gas, while Franklin Energy Services implemented the program for customers served by ComEd and Peoples Gas or North Shore Gas. Nicor Gas de-linked its small business EE program from ComEd's at the end of PY5. Peoples Gas and North Shore Gas de-linked their small business EE programs from ComEd's after PY6.
[5] In PY4 and PY5 the program was joint between ComEd, Nicor Gas, Peoples Gas and North Shore Gas; in PY6 the program was joint between ComEd, Peoples Gas and North Shore Gas.
[6] State of Illinois Technical Reference Manual v3.0. Final as of June 24, 2014, effective June 1, 2014. http://ilsagfiles.org/SAG_files/Technical Reference Manual
[7] Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html

E.1 Program Savings

Table E-1 summarizes the electricity savings from the SBES Program. The program achieved verified net energy savings of 173,705 megawatt-hours (MWh), verified net demand reduction of 33.74 megawatts (MW) and verified net peak demand reduction of 29.37 MW.

Navigant calculated the SBES program's verified net savings to be 173,705 MWh, its verified net demand savings as 33.74 MW, and its verified net peak demand savings as 29.37 MW. These were allocated between the EEPS and IPA portfolios as follows: IPA net energy savings of 100,001 MWh and net peak demand savings of 16.22 MW. EEPS net energy savings of 73,704 MWh and net peak demand savings of 13.15 MW.

Table E-1. PY7 Total Program Electric Savings

Savings Category	Energy Savings (MWh)	Demand Savings (MW)	Peak Demand Savings (MW)
Ex Ante Gross Savings	182,959	35.82	31.22
Verified Gross Savings	182,847	35.51	30.91
Verified Net Savings	173,705	33.74	29.37

Source: ComEd tracking data and Navigant team analysis.

Table E-2 and Table E-3 summarize the allocation of PY7 SBES electricity savings between the Energy Efficiency Portfolio Standard (EEPS) and Illinois Power Agency (IPA) portfolios.[8]

Table E-2. PY7 Total IPA Program Electric Savings

Savings Category	Energy Savings (MWh)	Demand Savings (MW)	Peak Demand Savings (MW)
Ex Ante Gross Savings	103,298	20.64	17.38
Verified Gross Savings	105,265	20.32	17.08
Verified Net Savings	100,001	19.31	16.22

Source: ComEd tracking data and Navigant team analysis.

Table E-3. PY7 Total EEPS Program Electric Savings

Savings Category	Energy Savings (MWh)	Demand Savings (MW)	Peak Demand Savings (MW)
Ex Ante Gross Savings	79,661	15.18	13.84
Verified Gross Savings	77,582	15.19	13.83
Verified Net Savings	73,704	14.43	13.15

Source: ComEd tracking data and Navigant team analysis.

[8] ComEd allocated 100,000 net MWh to IPA based on the IPA budget, with the rest going to EEPS (ComEd PY7 Ex Ante Savings.xlsx, 9-05-2015, and correspondence from ComEd program manager). Navigant identified 100,001 net MWh for IPA and 73,704 net MWh for EEPS in the tracking data.

E.2 Program Savings by Measure

Table E-4 summarizes the PY7 SBES program savings by measure end-use category.

Table E-4. PY7 Program Results by Measure End-use

Measure Category	Ex Ante Gross Savings (MWh)	Ex-Ante Gross Peak Demand Reduction (MW)	Verified Gross Savings (MWh)	Verified Gross Peak Demand Reduction (MW)	Verified Gross MWh Realization Rate	NTGR	Verified Net Savings (MWh)	Verified Net Peak Demand Reduction (MW)
Lighting	178,293	30.7	178,465	30.7	100%	0.95*	169,542	29.16
Refrigeration	4,618	0.49	4,325	0.18	94%	0.95*	4,109	0.18
Hot Water Efficiency	29	0.01	38	0.01	131%	0.95*	36	0.01
HVAC	19	0.02	19	0.02	100%	0.95*	18	0.02
Total	182,959	31.22	182,847	30.91	100%	0.95*	173,705	29.37

Source: ComEd tracking data and Navigant team analysis.
* A deemed value. Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is available at http://ilsag.info/net-to-gross-framework.html.

E.3 Impact Estimate Parameters for Future Use

Navigant conducted NTG and spillover research in latter part of PY6 and early PY7 for future program application. We estimated a combined participant free ridership and trade ally free ridership value of 0.11. Our research showed participant spillover was zero from the sample. However, we believe the spillover estimate from our previous spillover study is still valid and will include that estimate (0.02) in our draft recommendation for PY9 NTG values.

E.4 Program Volumetric Detail

As shown in the following Table E-5, the SBES program implemented 10,141 projects and installed 959,103 measures in PY7.

Table E-5. PY7 Volumetric Findings Detail

Participation	Direct-Install	Contractor-Installed	Total
Total Implemented Projects	205	10,120	10,141*
Total Participant Customers	203	9,792	9,800**
Total Program Measures[9]	422	958,681	959,103

Source: ComEd tracking data and Navigant team analysis.
* Unique projects: excludes 184 duplicate projects which had both CI and DI measures installed.
** Unique customers: excludes 195 duplicate customer account numbers with both CI and DI measures installed.

[9] 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.

E.5 Results Summary

The following table summarizes the key metrics from PY7.

Table E-6. PY7 Results Summary

	Units	PY7
Net Energy Savings	MWh	173,705
Net Summer Demand Reduction	MW	33.74
Net Summer Coincident Peak Demand Reduction	MW	29.37
Gross Savings	MWh	182,847
Gross Summer Demand Reduction	MW	35.51
Gross Summer Peak Demand Reduction	MW	30.91
Program Realization Rate	%	100%
Program NTG Ratio*	#	0.95
Lighting Measures Installed	#	941,994
Non-Lighting Measures Installed	#	17,109
Participants (Tenant Units or Projects)	#	10,141
Customers Touched (Property Accounts)	#	9,800

Source: ComEd tracking data and Navigant team analysis.
*A deemed value. Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is available at http://ilsag.info/net-to-gross-framework.html.

E.6. Findings and Recommendations

Navigant's key findings and recommendations for the SBES program from the PY7 evaluation include:

Verified Net Impacts & NTGR

Finding 1. Navigant used deemed net-to-gross (NTG) ratio estimates from the Illinois SAG consensus process to calculate net verified savings for both EEPS and IPA measures.[10] The overall net energy savings of 173,705 is 104 percent of the SBES PY7 net savings goal of 167,582 MWh. Navigant conducted customer and trade ally NTG research in PY7, the results of which will form the basis for our recommended NTG ratio for prospective application in PY9 (June 1, 2016 to May 31, 2017), to be submitted to the Illinois SAG in January 2016.

Verified Gross Impacts and Realization Rates

Finding 2. The PY7 SBES program achieved 182,847 MWh of verified gross energy savings and 30.91 MW of verified gross peak demand savings. The total verified gross energy savings is 112 MWh lower than the ex ante gross savings of 182,959 MWh, with an approximate 100 percent overall verified gross realization rate on energy savings.[11] The program default

[10] ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which may be found on the IL SAG web site (http://ilsag.info/net-to-gross-framework.html).
[11] Verified Gross Realization Rate (RR) = ratio of verified gross savings over ex ante gross savings.

lookup values and ex ante savings for most measures were consistent with the TRM (v3.0), but some measures' default savings values required further review. Most lighting measures had verified gross realization rates of 100 percent. Some lighting measures required adjustment to the correct TRM (v3.0) lighting interactive factors and hours of use values for the installed space type reported in the tracking database. The evaluation adjustment for bathroom and kitchen faucet aerators resulted in increased savings with a 194 percent measure gross savings realization rate.

Recommendation 1. ComEd and Nexant should review the PY8 savings input assumptions for refrigeration coolers and freezers with strip curtains to be consistent with the TRM (v4.0) deemed values of 422 kWh savings per cooler and 2,978 kWh savings per freezer with strip curtains. ComEd should track the actual quantity of refrigeration coolers and freezers with strip curtains installed.

Recommendation 2. ComEd should ensure the lighting savings and input assumptions are consistent with the building type reported in the tracking system. ComEd should update the tracking system default input values for bathroom and kitchen aerators to reflect the approved version of the TRM (v4.0) for PY8. The current ex ante savings per aerator ranges from 70 to 88 kWh, and this should be updated to 137 kWh per faucet aerator.

Peak Demand Reduction

Finding 3. The program tracking database does not include peak demand and non-peak demand savings. The evaluation team estimated peak (summer and winter) and non-peak demand savings for each program measure and project using the applicable Illinois TRM (v3.0) assumptions and research.

Program Participation

Finding 4. Navigant worked with ComEd and Nexant to identify and remove overlapping projects and measure counts to avoid attributing savings to both the PY7 Small Business and PY7 Business Instant Lighting Discounts (BILD) programs.[12] The approach was based on periodic tracking by ComEd of funds to both programs through IPA and EEPS. Navigant reviewed the final projects, measure counts, and savings attributed to the SBES program. Navigant verified that ComEd attributed 182,959 MWh as the ex ante savings for SBES after the removal of the overlap savings, and 34,921 MWh were allocated to BILD as overlap savings from SBES. The overlap comprised 204,119 lighting measure units, including Metal Halides, Directional and Omnidirectional LEDs, LED Exit Signs, and Incandescent Bulbs retrofit to LEDs or CFLs or Cold Cathode.

Recommendation 3. ComEd has proposed an attribution model for PY8 to identify and attribute overlap savings to SBES or BILD based on program participation and the incentive proportion paid by each program. Navigant's initial assessment of the proposed model suggests that the approach needs further review and refinement, considering the obvious differences in program metrics such as building types or installed space, tracking measure descriptions and incentive levels.

[12] BILD is a midstream program that sells some of the equipment installed through the SBES Program. ComEd allows SBES Trade Allies to buy eligible products from BILD distributors. ComEd allocated energy savings between SBES and BILD for these common measures.

Recommendation 4. ComEd should consider standardizing and updating the measure descriptions in the SBES tracking system to help streamline the overlap attribution process. (For example, some measures in the SBES tracking system have bracketed numbers before the measure ID – "[DI03] Incandescent 100W - 23W CFL," versus "100W Incandescent to 23W CFL".) Several other measures may need standardized descriptions.

Process Findings

Finding 6. Some participants and trade allies expressed frustration at the spending cap, which caused the SBES program manager to restrict program activities beginning in early January 2015. Some trade allies maintained that stopping funding midyear had hurt their businesses, and the issue was also mentioned by some participants. Trade allies and customers make plans assuming that advertised SBES program measures will be available.

Recommendation 6. ComEd should explore ways to bring the demand for subsidized EE measures offered to its small C&I customers through the SBES program into better balance with the available budget. We understand that ComEd has already taken an initial step toward this goal in PY8, by implementing a pre-application step that must be completed and submitted by the trade ally prior to undertaking any SBES-approved work through the program. This should provide some much-needed insight into the program's burn rate.

1 Introduction

1.1 Program Description

This report presents a summary of the findings and results from the impact and process evaluation of the program year seven (PY7)[13] Small Business Energy Savings (SBES) Program, ComEd's primary energy efficiency program for small business customers. PY7 represents the program's fourth full year of operation.

The SBES program is designed to assist qualified ComEd non-residential customers[14] to achieve electric energy savings by educating them about energy efficiency (EE) opportunities through on-site assessments conducted by specially-trained trade allies (TAs) and installation of no-cost direct-install (DI) measures.[15] Further savings are available to participating customers through incentives of 30 percent to 75 percent offered for select contractor-installed (CI) measures.

Notable program changes in PY7 include:

- Additional measures: Multi-Family program common area measures moved from the Multi-Family program to the SBES program, including LED lamps and fixtures, HP/RW T8s, LED exit signs, new T8/T5 fixtures, occupancy sensors, and photocells.
- Change in implementation contractor: Nexant, Inc. (Nexant) became the sole implementer for the SBES program throughout ComEd's service territory.[16]
- Status as joint program: Starting in PY7 ComEd's SBES program was no longer a joint program with any of the gas companies operating in ComEd's territory.[17]
- In PY8, ComEd plans to introduce a new customer assessment tool to be used by TAs, which will provide new customers with more insight into potential energy savings opportunities. Also in PY8, ComEd instituted a pre-application step to gain more real-time insight into the program's burn rate and also spur customers and TAs to give greater consideration to non-lighting measures.

The evaluation team relied solely on the Illinois Statewide Technical Reference Manual (TRM)[18] for deemed gross savings verification for each program measure. The verified net impact evaluation

[13] The PY7 program year began June 1, 2014, and ended May 31, 2015.
[14] To qualify, participants must be ComEd commercial or industrial customers with monthly peak demand levels no greater than 100 kW.
[15] No-cost direct-install measures include low-flow showerheads and faucet aerators, pre-rinse spray valves, vending machine controls, cooling and vending misers, and compact fluorescent lamps (CFLs).
[16] In PY4 and PY5 Nexant implemented the program for customers served by ComEd and Nicor Gas, while Franklin Energy Services implemented the program for customers served by ComEd and Peoples Gas or North Shore Gas. Nicor Gas de-linked its small business EE program from ComEd's at the end of PY5. Peoples Gas and North Shore Gas de-linked their small business EE programs from ComEd's after PY6.
[17] In PY4 and PY5 the program was joint between ComEd, Nicor Gas, Peoples Gas and North Shore Gas; in PY6 the program was joint between ComEd, Peoples Gas and North Shore Gas.
[18] Illinois Statewide Technical Reference Manual for Energy Efficiency Version 3.0, available at: http://www.ilsag.info/technical-reference-manual.html

approach applied the net-to-gross (NTG) ratios deemed through the Illinois State Advisory Group (IL SAG) consensus process.[19]

1.2 Evaluation Objectives

The evaluation team identified the key researchable questions listed in the following sections.

1.2.1 Impact Questions

1. What are the program's verified gross energy savings?
2. What are the program's verified net energy savings?
3. What are the program's verified demand savings?
4. What is the researched value for Net-to-Gross (NTG) ratio?
5. What updates are recommended for the Illinois Technical Reference Manual (TRM)?

1.2.2 Process Questions

1. What was the effectiveness of program implementation and program changes?
2. How effective was program administration and delivery?
3. How effective was the program design and processes?
4. How satisfied were participating customers and trade allies with the program?
5. What opportunities exist for program improvement?

[19] ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, found on the IL SAG website: http://ilsag.info/net-to-gross-framework.html

2 Evaluation Approach

Navigant's evaluation team reviewed the program tracking data and performed gross and net impact calculations to inform verified energy and demand savings for PY7. The evaluation team evaluated the gross savings by (1) reviewing the tracking system, (2) comparing the use of measure algorithms in the tracking database to their use in the Illinois TRM v3.0 to ensure that they are appropriately applied and (3) cross-checked totals.

2.1 *Overview of Data Collection Activities*

The core data collection activities included review of the program's tracking data and verification of measures savings against the Illinois TRM v3.0. The full set of data collection activities is shown in the following table.

Table 2-1. Primary Data Collection Activities

What	Who	Target Completes PY7	When	Comments
Review Program Tracking Database	Participants	All	Jun - Oct 2015	Source of information for verified gross analysis
Review Program Measures in TRM	Illinois Statewide Technical Reference Manual for Energy Efficiency Version 3.0	All	Jun - Oct 2015	Source of information for verified gross analysis
Program Material Review	Program Documents	All	Apr - Aug 2015	Source of information for process research
NTG Telephone Survey	Participating Customers	70	Jan - Jun 2015	Source of information for NTG research
NTG Telephone Interviews	Trade Allies	12	Aug - Oct 2015	Source of information for NTG research
Process Telephone Survey	Participating Customers	102	Jun 2014 - Mar 2015	Source of information for process research
In Depth Interviews	Program Management	2	Mar - May 2015	Includes interviews with staff from ComEd and Nexant

2.2 *Verified Savings Parameters*

2.2.1 Verified Gross Program Savings Analysis Approach

Navigant estimated verified unit savings for each program measure using deemed impact algorithm sources found in the Illinois TRM v3.0. Verified unit savings values reflect evaluation adjustments to ex-ante unit savings values based on Navigant's measure review. The tracking data for the PY7 SBES program evaluation came from ComEd's program tracking system, uploaded on the ComEd SharePoint site for evaluators, and extracted by Navigant on October 7, 2015. Navigant reviewed the program tracking system and procedures to verify that the program accurately reported measure counts. Navigant engaged with ComEd and the IC to resolve the issue with overlap of savings and projects/measures installed through the SBES program and the BILD program. The SBES program verified gross savings

were determined as the product of verified unit savings values (energy and demand savings) and verified measure quantities.

2.2.2 Verified Net Program Savings Analysis Approach

Verified net energy and demand (coincident peak and overall) savings were calculated by multiplying the verified gross savings estimates by a net-to-gross ratio (NTGR). In PY7, the NTGR estimates used to calculate the net verified savings were based on past evaluation research and deemed through the Illinois Stakeholder Advisory Group (IL SAG) consensus process.

Table 2-2 presents the key parameters and the references used in the verified gross and net savings calculations.

Table 2-2. Verified Savings Parameter Data Sources

Verified Gross and Net Input Parameter	Value	Data Source	Deemed or Evaluated
NTGR – all program measures	0.95	IL SAG Spreadsheet†	Deemed
Measure Quantity Installed	Vary	Program Tracking System	Evaluated
Verified Energy Gross Realization Rate	100%	Program Tracking Data Review	Evaluated
Verified Peak Demand Gross Realization Rate	100%	Program Tracking Data Review	Evaluated
All lighting measures delta watts	Vary	Illinois TRM v3.0, Section 4.5.1	Deemed
Lighting In-Service Rate	1.00	Illinois TRM v3.0, Section 4.5.1	Deemed
DI Showerhead In-Service Rate	0.98	Illinois TRM v3.0, Section 4.3.3	Deemed
DI Bathroom & Kitchen Aerator In-Service Rate	0.95	Illinois TRM v3.0, Section 4.3.2	Deemed
HVAC & Refrigeration Measures Inputs	Vary	Illinois TRM v3.0, Sections 4.6	Deemed

Source: Navigant analysis of ComEd tracking data (10-07-2015 data extract).
Note: Gross realization rate is 100% for all measures' peak and non-peak demand savings.
† Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is available at http://ilsag.info/net-to-gross-framework.html

Navigant conducted NTG research in PY7 through a participant NTG survey and in-depth interviews with TAs, for the purpose of updating the recommended NTGR. Key results are shown in Table 2-3. Additional details are presented in section 4.2.

Table 2-3. PY7 SBES NTG Research Results

Data Collection Method	Sampling Frame	Number of Completes	Free-Ridership Score
NTG Participant Survey	6,209 Projects	70	16%
Trade Ally Interviews	74 Trade Allies	12	5%

Source: Navigant analysis of primary research data.

2.3 Process Evaluation

PY7 process evaluation activities involved information gathering on effectiveness of the current program design, administration, delivery, implementation processes, customer and program partner experience and satisfaction, and opportunities for program improvement. The process analysis included a synthesis of both qualitative and quantitative data collected during the program implementer and program coordinator interviews, the end-user customer surveys and the trade ally surveys or in-depth interviews.

Navigant conducted participant process surveys on a rolling basis beginning with the latter part of PY6 and continuing through the first half of PY7[20], and also conducted in-depth interviews with trade allies in the latter half of PY7. The decision to conduct the participant surveys in small batches over an extended period of time[21] was part of an effort, undertaken at ComEd's suggestion, to move toward a more "real-time" evaluation of the SBES program, to allow the evaluation team to alert program managers if any problems were encountered that could be addressed before the end of the program year.[22] Navigant conducted NTG research through a separate customer survey and in-depth interviews with TAs for the purpose of updating the recommended NTGR value for future use.

[20] The process survey instrument is included as an attachment in the Appendix.
[21] Previously, Navigant has conducted similar participant process surveys in batch mode.
[22] Navigant did encounter one complaint from a program participant in PY7 involving a dispute with a trade ally that was passed along to SBES program managers. We understand that this led to ComEd and the implementer taking corrective action.

3 Gross Impact Evaluation

The PY7 SBES program achieved 182,847 MWh of verified gross savings, 35.51 MW of verified gross demand savings, and 30.91 MW of verified gross peak demand savings. The program's verified gross realization rate was 100 percent for energy and 100 percent for demand savings. The high realization rate on energy and demand savings was due mainly to only minor needs for evaluation adjustments to some input assumptions used to calculate ex-ante measure savings.

3.1 Tracking System Review

Navigant worked with ComEd and Nexant during the course of PY7 to review the SBES program and the Standard program brochures of default lighting fixture wattages used to assist customers and trade allies with wattage reduction calculations. Navigant identified discrepancies between the fixture default wattage tables in the two brochures. For the fixture types with discrepancies, Navigant determined whether the fixture wattage was identified within the Illinois TRM. Additional sources were also reviewed to further verify the fixture wattage as needed. Details of the findings presented to ComEd and Nexant are provided in Appendix 6.1.1.

Navigant also worked with ComEd and Nexant to identify and remove overlapping projects and measure counts to avoid attributing savings to both the PY7 Small Business and PY7 Business Instant Lighting Discounts (BILD) programs.[23] The approach was based on periodic tracking by ComEd of funds to both programs through IPA and EEPS. Navigant reviewed the final projects, measure counts, and savings attributed to the SBES program, as reported and downloaded from ComEd evaluation SharePoint site on October 7, 2015. Navigant verified that ComEd attributed 182,959 MWh as the ex ante savings for SBES after the removal of the overlap savings, and 34,921 MWh were allocated to BILD as overlap savings from SBES. The overlap comprised 204,119 lighting measure units, including Metal Halides, Directional and Omnidirectional LEDs, LED Exit Signs, and Incandescent Bulbs retrofit to LEDs or CFLs or Cold Cathode.

Navigant reviewed the tracking data to verify the completeness and accuracy of the tracking system default measure savings inputs, using the TRM (v3.0), ComEd's SBES program default measure lookup savings spreadsheet[24], and supporting ComEd work papers where relevant[25], to verify input assumptions for other deemed or non-deemed measures. Navigant verified that the program ex ante savings for most measures were consistent with the TRM and ComEd's work paper and default lookup tables, with exceptions noted below that need an update of the default savings input assumptions.

Key findings from the tracking system review include the following:

[23] BILD is a midstream program that sells some of the equipment installed through the SBES Program. ComEd allows SBES Trade Allies to buy eligible products from BILD distributors. ComEd allocated energy savings between SBES and BILD for these common measures.
[24] PY7 Measure Savings by Facility_w_ComEd IDs - v4.xlsx
[25] PY7 ComEd Measure Work papers 3-25-2015.pdf

1. The tracking default savings for most refrigeration measures were consistent with the TRM (v3.0) and ComEd's work paper and default lookup tables. The tracking measure count and ex ante savings for refrigeration coolers and freezers with strip curtains installed deserve further review. Navigant inquired about the assumptions built into the measure savings calculation and the tracking measure quantity. Upon additional data submitted by ComEd, Navigant verified that ex ante energy savings reported in the tracking system have been revised over the course of the program year. Within some periods of the program year, Nexant calculated savings on a per-unit (cooler or freezer) basis, but in other periods Nexant calculated savings by linear feet or by square feet of refrigeration cooler or freezer with strip curtains installed.[26] The former approach is consistent with the TRM (v3.0) which actually deemed the measure savings by unit cooler or freezer with curtains installed.

   Due to lack of uniform methodology to classify the unit of measure quantity and savings to allow the use of the TRM deemed values, Navigant determined that this measure should be treated as a custom measure for PY7. In this regard, Navigant reviewed the custom savings input assumptions in the tracking system. The evaluation verified total gross savings for coolers and freezer with strip curtains were 243 MWh rather than 536 MWh total ex ante savings (a reduction of 293 MWh which is 45 percent realization rate for the measure). The reduction of the measure claimed savings by 293 MWh was consistent with ComEd's estimate after Navigant brought the savings discrepancy to its attention. ComEd and Nexant should revise the PY8 savings input assumptions for refrigeration coolers and freezers with strip curtains to be based on the TRM (v4.0) deemed values of 422 kWh savings per cooler or 2,978 kWh savings per freezer with strip curtains installed. Nexant should track the actual quantity of refrigeration coolers and freezers with strip curtains installed. Additional fields can be added to the tracking system to track the total linear feet or square feet of strip curtains installed.

2. The tracking system default savings for bathroom and kitchen faucet aerators have not been updated from the PY6 ex ante values, which had an errata and were corrected by Navigant using the TRM (v3.0) in reported in the PY6 evaluation report. The PY7 tracking default savings ranges from 70 kWh to 88 kWh per faucet aerator. Navigant calculated 137.48 kWh as the savings per faucet aerator, assuming an average of 5,000 annual gallons of mixed water (mixture of hot water from water heater line and cold water line) per faucet. The verified gross savings from faucet aerators were 9 MWh more compared to the ex ante savings, with a 194 percent verified gross realization rate.

3. The tracking system default savings and delta watts assumptions for lighting measures were consistent with the TRM and ComEd's SBES program default measure lookup savings spreadsheet. Most of the lighting measures had a verified gross realization rate of 100 percent, but there were a few projects with lighting savings that Navigant changed, based on the reported

[26] Navigant followed up with ComEd on the measure discrepancy, and feedback from ComEd on December 3, 2015 indicated that the ex ante savings were calculated as 120.8 kWh *per linear foot* of cooler and 848.0 kWh *per linear foot* of freezer (for curtains installed between June 1, 2015 to March 31, 2015). The ex ante savings were calculated as 15.1 kWh *per square foot* of cooler and 106.0 *per square foot* of freezer (for curtains installed between April 1, 2015 to May 31, 2015). The lack of uniform approach for calculating savings could be resolved if ComEd tracked all savings by unit cooler or freezer with strip curtains as deemed by the TRM (v3.0).

building type and the TRM interactive factors and hours of use for lighting measures. The lighting verified gross savings was 172 MWh more than the ex ante savings.

4. Navigant found some measures with negative quantities and savings which in some cases aggregated to make some projects have negative overall savings. Previous conversation with Nexant revealed that "when errors or adjustments are found after a project has already been processed, Nexant does not go back and change the project in the tracking system, but [instead] creates a subproject with the corrections."[27] Navigant did not adjust the reported measure quantities based on this observation.

5. Navigant observed that several of the program measures have multiple descriptions in the tracking system. ComEd should consider standardizing and updating tracking measure descriptions from the program implementer (ComEd can use either "[L47] Occupancy Sensor" or "Occupancy Sensors" but not both. This change may apply to several other measures with multiple descriptions).

6. Navigant verified that ComEd attributed 182,959 MWh as the ex ante savings for SBES program, and 34,921 MWh were allocated to BILD as overlap savings from SBES program. The overlap comprised of 204,119 unit quantities of lighting measures including Metal Halides, Directional and Omnidirectional LEDs, LED Exit Signs, and Incandescent Bulbs retrofit to LEDs or CFLs or Cold Cathode.

7. ComEd moved the Multi-Family program common area measures to other *Smart Ideas for Your Business* portfolio programs, including the SBES program. These measures included LED lamps and fixtures, HP/RW T8s, LED exit signs, new T8/T5 fixtures, occupancy sensors, and photocells. Navigant found the tracked ex ante savings from multi-family common area measures summed to 5,582 MWh. Of this, ComEd allocated 1,639 MWh to the SBES program and the remaining 3,943 MWh to the BILD program as overlap savings.

3.2 Program Volumetric Findings

Table 3-1 shows the program volumetric findings disaggregated by program delivery channel. The SBES program in PY7 implemented 10,141 projects and 959,103 measures, with 9,800 participants.

[27] Email correspondence with the Program Manager at Nexant on 10-30-2014.

Table 3-1. PY7 Volumetric Findings Detail By Program Channel

Participation	Direct-Install	Contractor-Installed	Total
Total Implemented Projects	205	10,120	10,141*
Total Participant Customers	203	9,792	9,800**
Total Program Measures[28]	422	958,681	9,59,103

Source: ComEd tracking data and Navigant team analysis.
* Unique projects: excludes 184 duplicate projects which had both CI and DI measures installed.
** Unique customers: excludes 195 duplicate customer account numbers with both CI and DI measures installed.

Table 3-2 shows the program volumetric findings disaggregated for the IPA and EEPS program categories. The IPA program comprised 2,105 projects with 454,677 contractor installed measures. The EEPS program comprised 8,036 projects with 504,426 measures (422 direct install measures and 504,004 contractor installed measures).

Table 3-2. PY7 Volumetric Findings Detail for IPA and EEPS Programs

Participation	IPA	EEPS	Total
Total Implemented Projects	2,105	8,036	10,141
Total Participant Customers	2,076	7,724	9,800
Total Program Measures	454,677	504,426	9,59,103

Source: ComEd tracking data and Navigant team analysis.

[28] For evaluation purposes, if lighting measure quantity is reported in the tracking system as connected watts, watt reduced or watts controlled, each row entry of such measure is treated as one measure quantity in this table. The actual connected watts, reduced watts or watts controlled are reported in Table 3-3.

Table 3-3 below provides additional measure details for the direct install and the contractor installed measures.

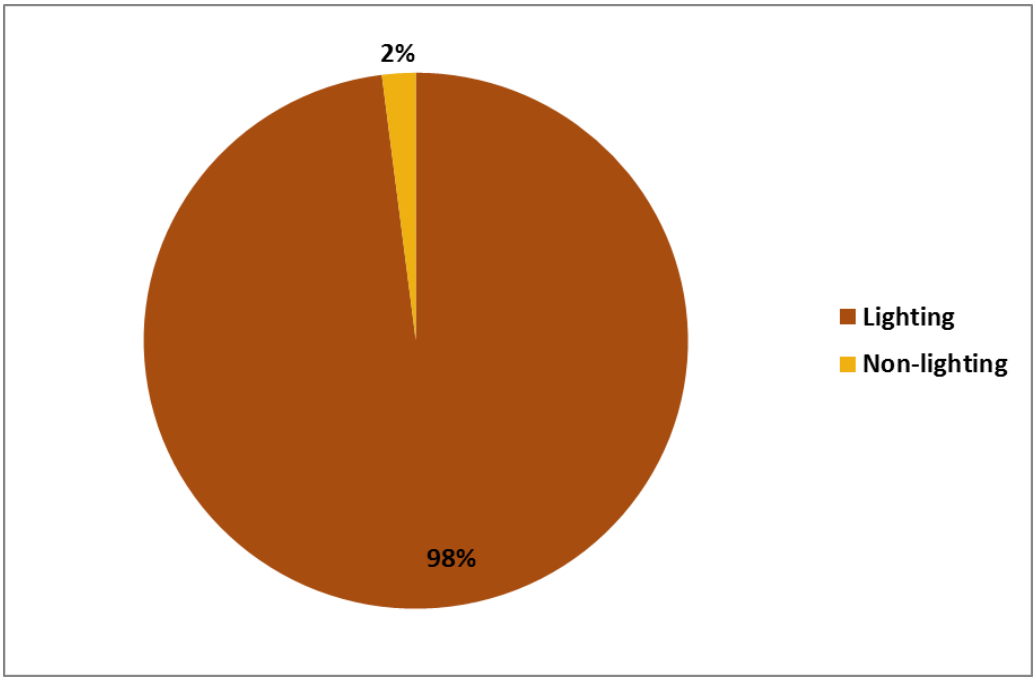
Table 3-3. PY7 Volumetric Findings Detail

Measure	Unit	Install Type	Ex Ante Measure Count	Verified Measure Count
Bath & Kitchen Aerators	Each	Direct Install	141	141
Vending Miser	Each	Direct Install	36	36
Showerheads	Each	Direct Install	21	21
Pre Rinse Sprayers	Each	Direct Install	7	7
Cooler Miser	Each	Direct Install	17	17
Beverage Machine Controls	Each	Direct Install	49	49
Reach-in (Novelty) Cooler Controls	Each	Direct Install	150	150
Snack Machine Controls	Each	Direct Install	1	1
T12 to HPT8/LW Retrofit	Fixture	Contractor Install	266,535	266,535
LED Exit Sign	Sign	Contractor Install	5,195	5,195
Exterior LED	Each	Contractor Install	399	399
Delamping T12 w/wo Reflector to HPT8	Fixture	Contractor Install	45,036	45,036
4, 6-Lamp HPT8 w/HBF High-bay	Fixture	Contractor Install	5,031	5,031
Occupancy Sensors	Watt Controlled	Contractor Install	463,943	463,943
GREM – PTAC	Each	Contractor Install	17	17
Night Covers/Curtains	Each	Contractor Install	6	6
Standard T8 to HPT8/RW	Lamp	Contractor Install	454,109	454,109
2,3-Foot T8 Lamp and Ballast	Fixture	Contractor Install	13,819	13,819
Removed 2,4,8-Foot Lamp w/wo Reflector	Fixture	Contractor Install	148,288	148,288
LED Fixtures	Watt Reduced	Contractor Install	3,845,006	3,845,006
New T8/T5 Fixtures with Electronic Ballasts	Watt Reduced	Contractor Install	4,581,111	4,581,111
LED Refrigerated Display Case Lighting Open/Closed	Door	Contractor Install	793	793
Photocells	Watt Controlled	Contractor Install	47,984	47,984
Outdoor LED Channel Sign ≤ 2 Feet	Letter	Contractor Install	36	36
Induction Fixtures	Watt Reduced	Contractor Install	5,687	5,687
Daylighting Controls	Watt Controlled	Contractor Install	2,184	2,184
EC Motor for Walk-in Cooler or Freezer	Motor	Contractor Install	1,137	1,137
Anti-Sweat Heater Controls for Glass Door Cooler or Refrigerator	Linear Foot	Contractor Install	9,131	9,131
Strip Curtains for Cooler/Freezer	Sq. Ft, or Ln Ft of Door	Contractor Install	Sf= 4,085, Lf= 941	Sf= 4,085, Lf= 941
Auto Closer for Walk-in Cooler/Freezer	Each	Contractor Install	301	301
Evaporator Fan Controls on EC Motor	Motor	Contractor Install	1,069	1,069
Time Clocks for Lighting	Connected Watts	Contractor Install	2,349	2,349
Total			**9,904,614**	**9,904,614**

Source: ComEd tracking data and Navigant team analysis.

Figure 3-1 disaggregates the gross savings type. Overall, lighting measures contributed 98 percent of the ex ante gross savings in PY7, and non-lighting measures (including hot water efficiency measures, refrigeration measures and GREM-PTAC) contributed the remaining 2 percent.

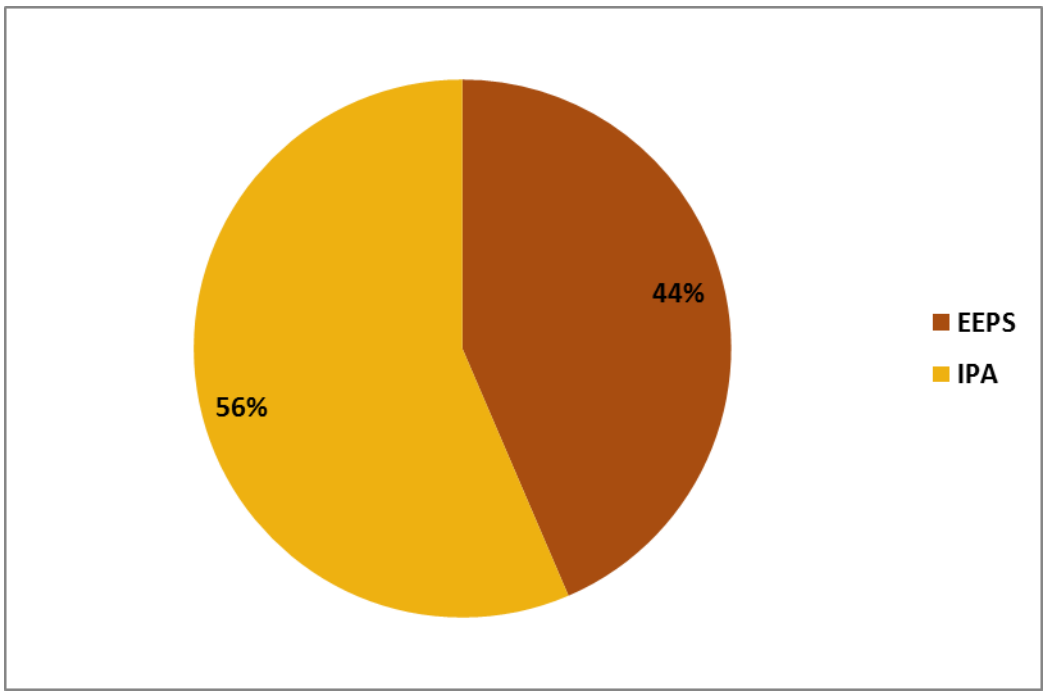
Figure 3-1. Share of SBES Ex Ante Energy Savings by End-use Type



Source: Navigant analysis of ComEd tracking data

Figure 3-2 disaggregates the total program ex ante gross savings into its IPA and EEPS program shares. The IPA and EEPS shares were 56 percent and 44 percent, respectively.

Figure 3-2. Share of SBES Ex Ante Gross Energy Savings by Program Channel



Source: Navigant analysis of ComEd tracking data

3.3 Gross Program Impact Parameter Estimates

Navigant estimated verified per-unit savings for each program measure using impact algorithm sources found in the TRM for deemed measures[29], and using evaluation research for non-deemed measures. Navigant used ComEd's SBES program default measure lookup savings spreadsheet[30] with the supporting ComEd work papers[31] to verify input assumptions for other deemed or non-deemed measures. Table 3-4 presents the key parameters and the references used in the verified gross and net savings calculations.

[29] Source: http://www.ilsag.info/technical-reference-manual.html
[30] PY7 Measure Savings by Facility_w_ComEd IDs - v4.xlsx
[31] PY7 ComEd Measure Work papers 3-25-2015.pdf

Table 3-4. PY7 SBES Ex-Ante and Verified Gross Savings Parameters

Measure	Ex-Ante Gross Savings (kWh/unit)	Verified Gross Savings (kWh/unit)	Method*	Source
Beverage Machine and Snack Machine Controls	1613 343	1613 343	Deemed	IL TRM v3.0, Section 4.5.8
Cooler Miser, Reach-in (Novelty) Cooler Controls	1,210	1,210	Deemed	IL TRM v3.0, Section 4.5.1
Showerheads	436.1	436.1	Deemed	IL TRM v3.0, Section 4.5.2
Pre-rinse Sprayer	1,385	1,385	Deemed	IL TRM v3.0, Section 4.5.2
Vending Miser	1,613	1,613	Deemed	IL TRM v3.0, Section 4.5.4
Bath & Kitchen Aerators	Vary from 70 kWh to 88 kWh	137.48	Deemed	IL TRM v3.0, Section 4.3.2
HPT8/LW Retrofit	Vary	Vary. Adjusted based on verified delta watts or building type interactive effects	Deemed	IL TRM v3.0, Section 4.5
Delamping T12 to HPT8/RWT8				
LED Lamps and Fixtures				
Occupancy Sensors & Daylighting				
Exterior LED				
HID				
4, 6-Lamp HPT8 w/HBF High-bay				
Delamping & Removed Watts w/o reflector				
LED Exit Sign				
Time Clock & Photocell	Vary	Verified as acceptable	Evaluated	ComEd work papers
EC Motor, Walk-in & Reach-in	411 or 392 for walk-in, and 345 for reach in	401.04	Deemed	IL TRM v3.0, Section 4.6.4
Strip Curtains for Coolers Strip Curtain for Freezers	Based on linear foot or square foot with custom input	Verified with adjustments	Evaluated	ComEd work papers
Other Refrigeration Measures	Vary	Verified as acceptable with comments	Deemed	TRM./ComEd workpapers
GREM - PTAC	1,117	1,117	Evaluated	TRM/ComEd work papers

Source: Navigant analysis of ComEd tracking data

* Deemed values are from Illinois TRM v3.0, available at http://www.ilsag.info/technical-reference-manual.html.

3.4 *Verified Gross Program Impact Results*

The ComEd PY7 SBES program reported ex-ante gross energy savings of 182,959 MWh. Evaluation adjustments described in the previous sections resulted in evaluation verified gross energy savings of 182,847 MWh, verified gross peak demand savings of 30.91 MW. The program achieved 100 percent gross realization rate on electricity savings. Table 3-5 presents the details of the verified savings by end-use category and by program delivery channel.

Savings from DI measures contributed 378 MWh (0.2 percent) of the Program's PY7 verified gross savings. The CI measures contributed 185,068 MWh (99.8 percent) of PY7 verified gross savings. Verified gross savings from all lighting measures were 178,465 MWh (98 percent) of the PY7 gross savings, and verified gross savings from non-lighting measures were 4,382 MWh (2 percent). Details of the measure level verified gross savings and realization rates are provided in the Appendix 6.1.

Table 3-5. PY7 Verified Gross Impact Savings Estimates by End-use

Program Channel	Sample (90/10 Significance*)	Energy Savings (MWh)		Coincident Peak Demand Savings	
		Direct Install	Contractor Install	Direct Install	Contractor Install
Lighting					
Ex Ante Gross Savings	NA†	-	178,293	-	30.70
Verified Gross Realization Rate**		-	100%	-	100%
Verified Gross Savings		-	178,465	-	30.70
Lighting Sub-total		*178,465*		*30.70*	
Non-Lighting					
Ex Ante Gross Savings	NA†	368	4,298	0.01	0.52
Verified Gross Realization Rate**		103%	93%	100%	100%
Verified Gross Savings		378	4,004	0.01	0.20
Non-lighting Sub-total		*4,382*		*0.21*	
Program Total Savings					
Ex Ante Gross Savings	NA†	182,959		31.22	
Verified Gross Realization Rate**		100%		100%	
Verified Gross Savings		182,847		30.91	

Source: Navigant analysis of ComEd tracking data
NA† indicates that the Illinois TRM v3.0 determines the gross savings.
** Based on evaluation research findings

4 Net Impact Evaluation

4.1 Verified Net Impacts

Navigant calculated the SBES program's verified net savings to be 173,705 MWh, its verified net demand savings as 33.74 MW, and its verified net peak demand savings as 29.37 MW. These were allocated between the EEPS and IPA portfolios as follows: IPA net energy savings of 100,001 MWh and net peak demand savings of 16.22 MW. EEPS net energy savings of 73,704 MWh and net peak demand savings of 13.15 MW.

Based on the Illinois Stakeholder Advisory Group (IL SAG) consensus process, NTG values for this program are deemed prospectively and used to calculate verified net savings.[32] Table 4-1 shows deemed NTG values from the IL SAG consensus process.

Table 4-1. PY7 Verified Net Impact Parameters

End-use	NTGR	Source
Lighting	0.95	IL SAG
Non-lighting	0.95	IL SAG

Source: "ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx," available on the IL SAG website: http://ilsag.info/net-to-gross-framework.html

Table 4-2 presents the program net savings at the measure end-use level and by program channel. As indicated, the overall savings from DI measures was 359 MWh (0.2 percent) of the total SBES program net energy savings in PY7, whereas CI measures accounted for 173,346 MWh (99.8 percent) of the PY7 net savings. Net savings from all lighting measures accounted for 169,542 MWh (96 percent) of PY7 Program net savings, while net savings from non-lighting measures amounted to 6,631 MWh (4 percent).

The overall net energy savings of 173,705 is 104 percent of the SBES PY7 net savings goal of 167,582 MWh.

[32] Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, found on the IL SAG website: http://ilsag.info/net-to-gross-framework.html

Table 4-2. PY7 Verified Net Impact Savings Estimates by End-use for all Projects

Program Channel	Energy Savings (MWh)		Coincident Peak Demand Savings	
	Direct Install	Contractor Install	Direct Install	Contractor Install
Lighting				
Ex Ante Gross Savings	-	178,293	-	30.70
Verified Gross Realization Rate**	-	100%	-	100%
Verified Gross Savings	-	178,465	-	30.70
NTG Ratio*	0.95	0.95	0.95	0.95
Verified Net Savings		169,542		29.18
Non-Lighting				
Ex Ante Gross Savings	368	4,298	0.01	0.52
Verified Gross Realization Rate**	103%	93%	100%	100%
Verified Gross Savings	378	4,004	0.01	0.20
NTG Ratio*	0.95	0.95	0.95	0.95
Verified Net Savings	359	3,804	0.01	0.19
Program Total Savings				
Ex Ante Gross Savings		182,959		31.22
Verified Gross Realization Rate**		100%		100%
Verified Gross Savings		182,847		30.91
NTG Ratio*		0.95		0.95
Verified Net Savings	359	173,705		29.37

Source: Navigant analysis of ComEd tracking data
*A deemed value from the IL SAG consensus process "ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx," available on the IL SAG website: http://ilsag.info/net-to-gross-framework.html
† NA indicates that the Illinois TRM v3.0 was used to determine gross savings.

Table 4-3 summarizes the allocation of total electricity savings between the EEPS and IPA portfolios.[33] The IPA category realized net energy savings of 100,001 MWh and net peak demand savings of 16.22 MW. The EEPS category realized net energy savings of 73,704MWh and net peak demand savings of 13.15 MW.

Table 4-3. PY7 Verified Net Impact Savings Estimates For IPA and EEPS Programs

Savings Category	EEPS	IPA	Total
Verified Net Savings (MWh)	73,704	100,001	173,705
Verified Net Demand Savings (MW)	14.43	19.31	33.74
Verified Net Peak Demand Savings (MW)	13.15	16.22	29.37

Source: Navigant analysis of ComEd tracking data

[33] ComEd allocated 100,000 net MWh to IPA based on the IPA budget, with the rest going to EEPS (ComEd PY7 Ex Ante Savings.xlsx, 9-05-2015, and correspondence from ComEd program manager). Navigant identified 100,001 net MWh for IPA and 76,156 net MWh for EEPS in the tracking data.

4.2 Evaluation Research Net-to-Gross Findings

Navigant conducted net-to-gross research in PY7 using a participant customer survey and in-depth interviews with participating trade allies. The sampling frame consisted of 6,209 completed SBES projects obtained from an extract from the program tracking database performed in December 2014. After removing duplicate and unusable records, Navigant randomly selected a sample of 847 projects for study, from which a total of 70 finished the survey. The survey was conducted early in 2015.[34] Based on the survey results, Navigant calculated a free-ridership score of 16 percent.

Navigant also conducted net-to-gross research using in-depth interviews with twelve participating SBES TAs drawn from a list of 74 provided by the program implementer. Navigant merged the TA list with a project-level extract from the program tracking database containing project ex ante savings, sorted the TAs by the total ex ante energy savings their projects represented, and on that basis divided them into three groups: small, medium, and large. Navigant staff interviewed four TAs from each group to obtain a wide range of TA experiences and opinions. The interviewed TAs represented approximately 30 percent of the total ex ante energy savings in the extract. The interviews were conducted from August to October 2015.[35] Based on the results of the TA interviews, Navigant calculated a free-ridership score of 5 percent. These data, summarized in Table 4-4, will be used to update the recommended NTGR value for prospective use beginning in PY9.[36]

Table 4-4. PY7 Net-to-Gross Research Findings from PY7

Data Collection Method	Sampling Frame	Number of Completes	Free-Ridership Score
NTG Participant Survey	6,209 Projects	70	16%
Trade Ally Interviews	74 Trade Allies	12	5%

Source: Navigant analysis of primary research data.

We estimated a combined participant free ridership and trade ally free ridership value of 0.11. Our research showed participant spillover was zero from the sample. However, we believe the spillover estimate from our previous spillover study is still valid and will include that estimate (0.02) in our draft recommendation for PY9 NTG values.

[34] The survey instrument is included as an attachment in the Appendix.
[35] The interview guide is included as an attachment in the Appendix.
[36] The recommended prospective NTGR will be delivered in a separate memorandum in January 2016.

5 Findings and Recommendations

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

Verified Net Impacts & NTGR

Finding 1. Navigant used deemed net-to-gross (NTG) ratio estimates from the Illinois SAG consensus process to calculate net verified savings for both EEPS and IPA measures.[37] The overall net energy savings of 173,705 is 104 percent of the SBES PY7 net savings goal of 167,582 MWh. Navigant conducted customer and trade ally NTG research in PY7, the results of which will form the basis for our recommended NTG ratio for prospective application in PY9 (June 1, 2016 to May 31, 2017), to be submitted to the Illinois SAG in January 2016.

Verified Gross Impacts and Realization Rates

Finding 2. The PY7 SBES program achieved 182,847 MWh of verified gross energy savings and 30.91 MW of verified gross peak demand savings. The total verified gross energy savings is 112 MWh lower than the ex ante gross savings of 182,959 MWh, with an approximate 100 percent overall verified gross realization rate on energy savings.[38] The program default lookup values and ex ante savings for most measures were consistent with the TRM (v3.0), but some measures' default savings values required further review. Most lighting measures had verified gross realization rates of 100 percent. Some lighting measures required adjustment to the correct TRM (v3.0) lighting interactive factors and hours of use values for the installed space type reported in the tracking database. The evaluation adjustment for bathroom and kitchen faucet aerators resulted in increased savings with a 194 percent measure gross savings realization rate. Navigant determined that savings from refrigeration coolers and freezers with strip curtains should be treated as custom savings in PY7 because the ex ante savings were tracked in kWh per linear feet or square feet rather than per unit cooler or freezer with strip curtains as deemed in the TRM (v3.0). Navigant reviewed the savings discrepancy with ComEd and determined the measure ex ante savings should be reduced by 293 MWh, which produced 45 percent gross realization rate for the measure.

Recommendation 1. ComEd and Nexant should review the PY8 savings input assumptions for refrigeration coolers and freezers with strip curtains to be consistent with the TRM (v4.0) deemed values of 422 kWh savings per cooler and 2,978 kWh savings per freezer with strip curtains. ComEd should track the actual quantity of refrigeration coolers and freezers with strip curtains installed. Additional fields can be added to the tracking system to track the total linear feet or square feet of strip curtains installed.

Recommendation 2. ComEd should ensure the lighting savings and input assumptions are consistent with the building type reported in the tracking system. ComEd should update the tracking system default input values for bathroom and kitchen aerators to reflect the approved version of the TRM (v4.0) for PY8. The current ex ante savings per aerator ranges from 70 to 88 kWh, and this should be updated to 137 kWh per faucet aerator.

[37] ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which may be found on the IL SAG web site (http://ilsag.info/net-to-gross-framework.html).

[38] Verified Gross Realization Rate (RR) = ratio of verified gross savings over ex ante gross savings.

Peak Demand Reduction

Finding 3. The program tracking database does not include peak demand and non-peak demand savings. The evaluation team estimated peak (summer and winter) and non-peak demand savings for each program measure and project using the applicable Illinois TRM (v3.0) assumptions and research.

Program Participation

Finding 4. Navigant worked with ComEd and Nexant to identify and remove overlapping projects and measure counts to avoid attributing savings to both the PY7 Small Business and PY7 Business Instant Lighting Discounts (BILD) programs.[39] The approach was based on periodic tracking by ComEd of funds to both programs through IPA and EEPS. Navigant reviewed the final projects, measure counts, and savings attributed to the SBES program. Navigant verified that ComEd attributed 182,959 MWh as the ex ante savings for SBES after the removal of the overlap savings, and 34,921 MWh were allocated to BILD as overlap savings from SBES. The overlap comprised 204,119 lighting measure units, including Metal Halides, Directional and Omnidirectional LEDs, LED Exit Signs, and Incandescent Bulbs retrofit to LEDs or CFLs or Cold Cathode.

Recommendation 3. ComEd has proposed an attribution model for PY8 to identify and attribute overlap savings to SBES or BILD based on program participation and the incentive proportion paid by each program. Navigant's initial assessment of the proposed model suggests that the approach needs further review and refinement, considering the obvious differences in program metrics such as building types or installed space, tracking measure description and incentive levels. Navigant recommends that ComEd simplify the attribution model and use for instance, a simple weighting scheme based on the identified measure type and counts.

Recommendation 4. ComEd should consider standardizing and updating the measure descriptions in the SBES tracking system to help streamline the overlap attribution process. (For example, some measures in the SBES tracking system have bracketed numbers before the measure ID – "[DI03] Incandescent 100W - 23W CFL," versus "100W Incandescent to 23W CFL".) Several other measures may need standardized descriptions.

Finding 5. ComEd moved the Multi-Family program common area measures to other *Smart Ideas for Your Business* portfolio programs, including the SBES program. These measures included LED lamps and fixtures, HP/RW T8s, LED exit signs, new T8/T5 fixtures, occupancy sensors, and photocells. Navigant found the tracked ex ante savings from multi-family common area measures summed to 5,582 MWh. Of this, ComEd allocated 1,639 MWh to the SBES program and the remaining 3,943 MWh to the BILD program as overlap savings.

Recommendation 5. Navigant observed that ComEd may be tracking savings from multi-family common areas separately for the SBES and BILD programs. The SBES program evaluation team verified only the measures installed through the SBES program in PY7. Navigant suggests that, if it becomes necessary for ComEd to track specific program metrics for savings

[39] BILD is a midstream program that sells some of the equipment installed through the SBES Program. ComEd allows SBES Trade Allies to buy eligible products from BILD distributors. ComEd allocated energy savings between SBES and BILD for these common measures.

coming from multi-family business sector, ComEd should track the savings and measures installed in multi-family common areas under one program for evaluation.

Process Findings

Finding 6. Some participants and trade allies expressed frustration at the spending cap, which caused the SBES program manager to restrict program starting in early January 2015.[40] Some trade allies maintained that stopping funding midyear had hurt their businesses, and the issue was also mentioned by some participants. Trade allies and customers make plans assuming that advertised SBES program measures will be available.

Recommendation 6. ComEd should explore ways to bring the demand for subsidized EE measures offered to its small C&I customers through the SBES program into better balance with the available budget. We understand that ComEd has already taken an initial step toward this goal in PY8, by implementing a pre-application step that must be completed and submitted by the trade ally prior to undertaking any SBES-approved work through the program. This should provide some much-needed insight into the program's burn rate – previously the program did not know how much of the budget had been committed until trade allies submitted their invoices. However, if the program continues to exceed its budget level in the future, ComEd should consider reducing the incentive rates for SBES-approved measures, or reducing the number of SBES-approved measures.

[40] Letter from ComEd SBES Program manager to SBES trade allies dated January 5, 2015 ("Re: ComEd Smart Ideas for Your Business ® Small Business Energy Savings (SBES) Program Budget and Remainder of PY7").

6 Appendix

6.1 Evaluation Research Impact Approaches and Findings

6.1.1 Evaluation Research Gross Impact Parameter Estimates

As described in Section 2, gross energy and demand savings for lighting measures are estimated using the following formula as specified in the TRM:

Verified Gross Annual kWh Savings = Program bulbs * Delta Watts/1000 * HOU * IEe* ISR

Verified Gross Annual kW Savings = Program bulbs * Delta Watts/1000 * ISR

Verified Gross Annual Peak kW Savings = Gross Annual kW Savings * Peak Load CF * IEd * ISR

Where:

- Delta Watts = Difference between the Baseline Wattage and CFL Wattage
- HOU = Annual Hours of Use
- ISR = Installation Rate
- Peak Load CF = Peak Load Coincidence factor is calculated as the percentage of program bulbs turned on during peak hours (Central Time Zone weekdays from 1 to 5 p.m. for summer and between 6am-8am and 5pm-7pm for winter).
- IEe = Energy Interactive Effects
- IEd = Demand Interactive Effects

Table 6-1below presents the measure level gross impact findings. Table 6-2 below presents the gross impact findings by building type.

Table 6-1. Measure Level Gross Impact Results

Measure	Ex Ante Gross Savings (MWh)	Verified Gross Energy Savings (MWh)	Gross Energy RR	Notes on RR	Recommendation	Priority
Bath & Kitchen Aerators	10	19	194%	Updated ex ante values to use TRM (V3.0)	Update tracking default values to use current approved version of TRM	Low
Vending Miser	58	58	100%	No action	NA	Low
Showerheads	9	9	100%	No action	NA	
Pre Rinse Sprayers	10	10	100%	No action	NA	Low
Cooler Miser	21	21	100%	No action	NA	Low
Beverage Machine Controls	79	79	100%	No action	NA	Low
Reach-in (Novelty) Cooler Controls	181	182	100%	No action	NA	
Snack Machine Controls	0.343	0.343	100%	No action	NA	
T12 to HPT8/LW Retrofit	31,118	31,073	100%	2 projects defined with exterior space. Adjusted savings accordingly	NA	Low
LED Exit Sign	1,161	1,163	100%	No action?		
Exterior LED	334	334	100%	No action	NA	
Delamping T12 w/wo Reflector to HPT8	21,832	21,832	100%	No action	NA	

Measure	Ex Ante Gross Savings (MWh)	Verified Gross Energy Savings (MWh)	Gross Energy RR	Notes on RR	Recommendation	Priority
4, 6-Lamp HPT8 w/HBF High-bay	6,470	6,470	100%	No action	NA	
Occupancy Sensors	1,058	1,058	100%	No action	NA	
GREM - PTAC	19	19	100%	No action	NA	
Night Covers/Curtains	1	1	100%	No action	NA	
Standard T8 to HPT8/RW	44,441	44,441	100%	No action	NA	
2,3-Foot T8 Lamp and Ballast	838	841	100%	Adjustment due to building type and TRM interactive factors	Ensure TRM inputs matches defined space in tracking system	Low
Removed 2,4,8-Foot Lamp w/wo Reflector	26,678	26,738	100%	No action	NA	
LED Fixtures	19,756	19,964	101%	Changed space type savings input assumptions to match TRM e especially for religious space	Ensure TRM inputs matches defined space in tracking system	Medium
New T8/T5 Fixtures with Electronic Ballasts	24,251	24,196	100%	Changed space type savings input assumptions to match TRM e especially for religious space	Ensure TRM inputs matches defined space in tracking system	Medium
LED Refrigerated Display Case Lighting Open/Closed	305	304	100%	Adjusted for grocery space	Use default values for defined space	Medium
Photocells	13	13	100%	No action	NA	
Outdoor LED Channel Sign ≤ 2 Feet	6	6	100%	No action	NA	
Induction Fixtures	28	28	100%	No action	NA	
Daylighting Controls	2	2	100%	No action	NA	
EC Motor for Walk-in Cooler or Freezer	456	456	100%	No action	NA	
Anti-Sweat Heater Controls for Glass Door Cooler or Refrigerator	2,738	2,737	100%	Minor adjust due to 2 projects with higher per unit savings	NA	Low
Strip Curtains for Cooler/Freezer	536	242	45%	ex ante over estimated savings using wrong custom calculation	Use TRM for savings per cooler and freezer with strip curtains instead of custom savings in square foot	High
Auto Closer for Walk-in Cooler/Freezer	314	314	100%	No action	NA	
Evaporator Fan Controls on EC Motor	234	234	100%	No action	NA	
Time Clocks for Lighting	2	2	100%	No action	NA	

Source: Navigant Team Analysis

Table 6-2. PY7 Verified Gross Impact Savings Estimates by Building Type

Measure	Ex Ante Gross Savings (MWh)	Ex Ante Peak Demand Savings (MW)	Verified Gross Energy Savings (MWh)	Gross Energy Realization Rate	Verified Peak Demand Savings (MW)
Office	49,226	7.44	49,285	100%	7.44
Retail/Service	45,366	8.74	45,618	101%	8.74
Light Industry	15,731	2.71	15,732	100%	2.71
Miscellaneous	15,573	2.42	15,593	100%	2.42
Religious Organization	3,743	1.49	3,661	98%	1.49
Warehouse	29,209	4.13	29,217	100%	4.13
Restaurant	4,471	1.07	4,547	102%	1.07
Exterior	10	-	9	93%	-
Grocery	9,053	1.11	11,219	124%	1.11
Low-User Small Business	8,858	1.92	8,838	100%	1.92
Hotel / Motel	51	0.00	52	102%	0.00
Multi-Family Common Area	1,639	0.20	1,639	100%	0.20
Garage, 24/7 Lighting	25	0.00	33	132%	0.00
Garage	1	0.00	1	98%	0.00
Total	182,959	31.22	185,445	101%	31.22

Source: Navigant analysis of ComEd tracking data

6.2 *Detailed Process Findings*

PY7 process evaluation activities involved information gathering on the effectiveness of the current program design, administration, delivery, implementation processes, customer and program partner experience and satisfaction, and opportunities for program improvement. The process analysis included a synthesis of both qualitative and quantitative data collected during the program implementer and program coordinator interviews, the end-user customer surveys and the trade ally in-depth interviews.

The major process topics include:

- Effectiveness of program implementation and program changes
- Administration and Delivery
- Effectiveness of program design and processes
- Customer and program partner experience and satisfaction with the program
- Opportunities for program improvement

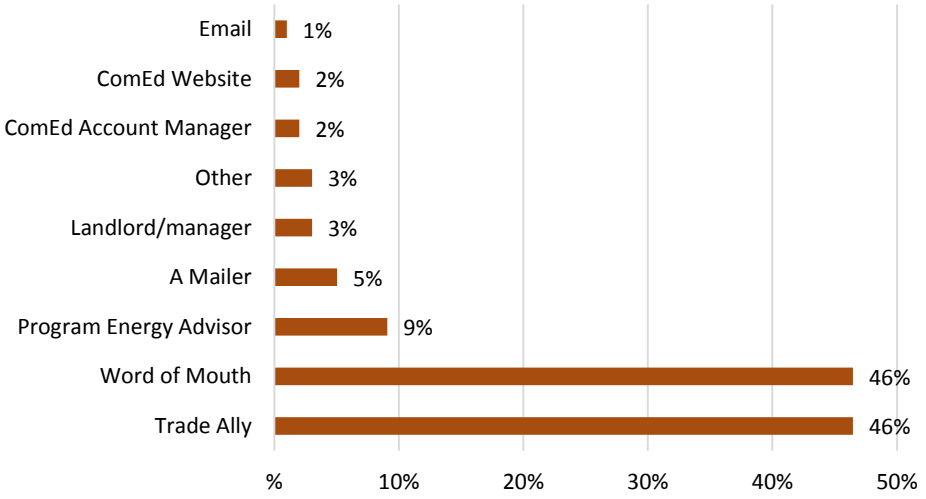
Navigant conducted rolling customer process surveys beginning with the latter part of PY6 and continued through the first half of PY7, and process research interviews in the latter part of PY7 with the trade allies.

6.2.1 Effectiveness of Program Implementation and Program Changes

6.2.1.1 Marketing

First Became Aware of the SBES Program
Customers participating in the SBES Program were equally likely to first hear about the program from trade allies (46 percent) and professional or family contacts (46 percent).

Figure 6-1. . First Became Aware of the SBES Program



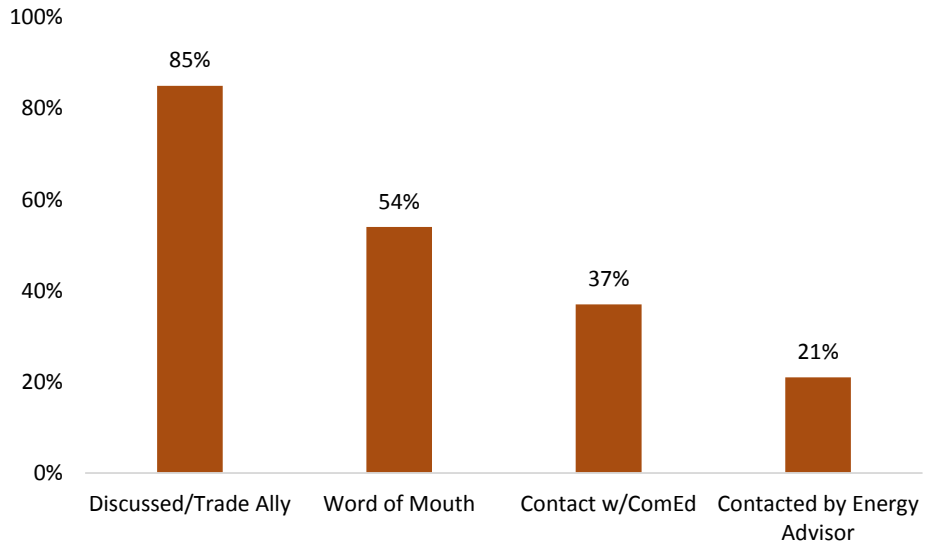
Source: CATI customer survey responses. Note: percentages do not sum to 100 percent because multiple response were permitted.

Four trade allies reported that they became aware of the SBES Program through their relationship with ComEd. Implementation contractors informed three trade allies about the program. Supply house and business associates were the source of program awareness for two trade allies each. One trade ally initiated contact because of his involvement with other ComEd programs and the last trade ally found out about the program at a trade show.

Received Information or Heard About the SBES Program

Almost all of the program participants surveyed discussed the program with their trade ally (85 percent). A majority of the customers said they heard about the program from a colleague or friend (54 percent). The information from ComEd included: information in email (11 percent), ComEd newsletter (10 percent), a web site visit (9 percent), an account manager contact (4 percent), a ComEd event (2 percent) and a ComEd Webinar (1 percent). Twenty-one percent said they were contacted by an energy advisor from the implementation contractor.

Figure 6-2. Received Information or Heard About SBES Program

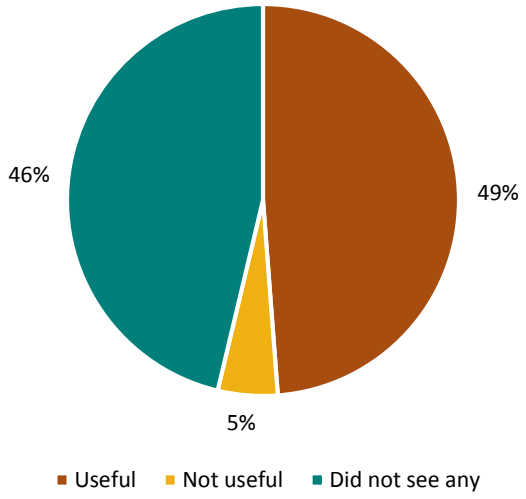


Source: CATI customer survey responses. Note: percentages do not sum to 100 percent because multiple response were permitted.

According to trade allies, customers heard about the Small Business Energy Efficiency Program in two main ways: through the trade ally knocking on their door and from referrals. One program partner reported that a handful of customers heard about the program from radio ads. All of the trade allies received at least a few referrals from other customers.

Most of the customers who received marketing materials found the materials useful. Forty-six percent of the program participants did not see any marketing materials. A small percentage (5 percent) saw the materials and did not find them useful.

Figure 6-3. Customers Found Marketing Materials Useful



Source: CATI customer survey responses.

The customer and trade ally data shows the growing importance of word-of-mouth in both customer and trade ally program awareness and the importance of the trade ally in marketing the program. Over three-fourths of the trade allies explained how the program worked, according to customer reports.

Trade allies were involved in the SBES Program for an average of 3.25 years.

6.2.1.2 Increasing Program Awareness

Seven of the twelve trade allies reported that they don't know how the IC can boost program awareness. One program partner said that there is no need to boost program awareness because the program can't keep up with the customer need for it. Another wished there were fewer contractors, not more. The two trade allies with ideas on how to boost program awareness said direct mailings and having shoes on the ground talking to contractors.

All of the trade allies in our study participated in other ComEd program such as the Standard or the Custom Program. All but one program partner refers customers to other ComEd business programs such as BILD and RCX.

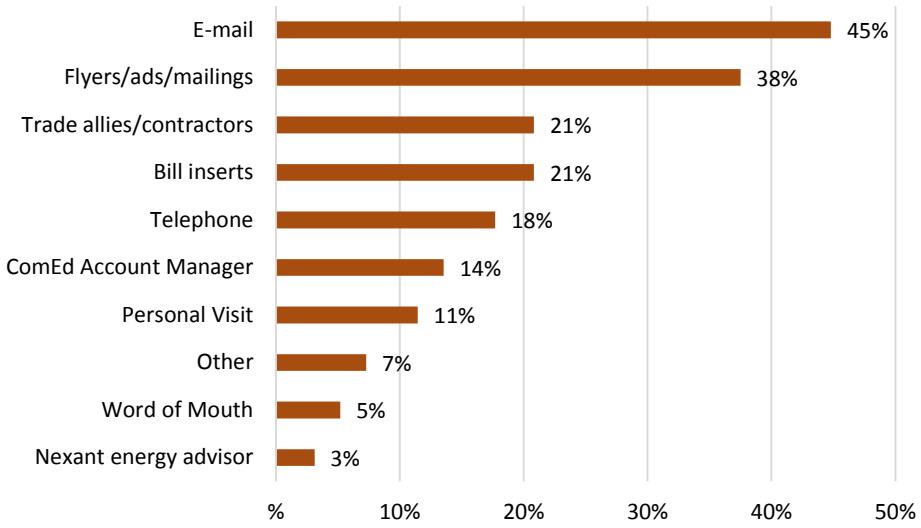
The implementation contractor provides appropriate marketing materials, such as flyers and brochures, to the trade allies to help them successfully market the program to customers. One program partner thought that the IC was not strong in this area.

Trade allies' answers ranged from:

- No changes are needed (3)
- They do a good job now (2)
- No answer/Don't know (2)
- Send free marketing materials
- Have better communication and outreach like the standard program
- Provide a database of customers who have not participated
- Advertise the program more or balance funding.

Customers reported that emails and flyers/ads/mailings are the best ways to reach small business customers like themselves. They mentioned other preferred marketing channels such as trade allies/contractors or bill inserts. Three of the top four channels are marketing channels that are usually implemented by ComEd.

Figure 6-4. Best Channels to Reach Small Business Customers



Source: CATI customer survey responses. Note: percentages do not sum to 100 percent because multiple response were permitted.

6.2.2 Administration and Delivery

6.2.2.1 Program Delivery

Ten of the trade allies actively market the program by knocking on the doors of their customers and others. Two of the trade allies relied more heavily on referrals. Forty percent of the trade allies marketed to both current and new customers. Thirty-three percent marketed mostly to new customers and twenty five percent marketed to current customers.

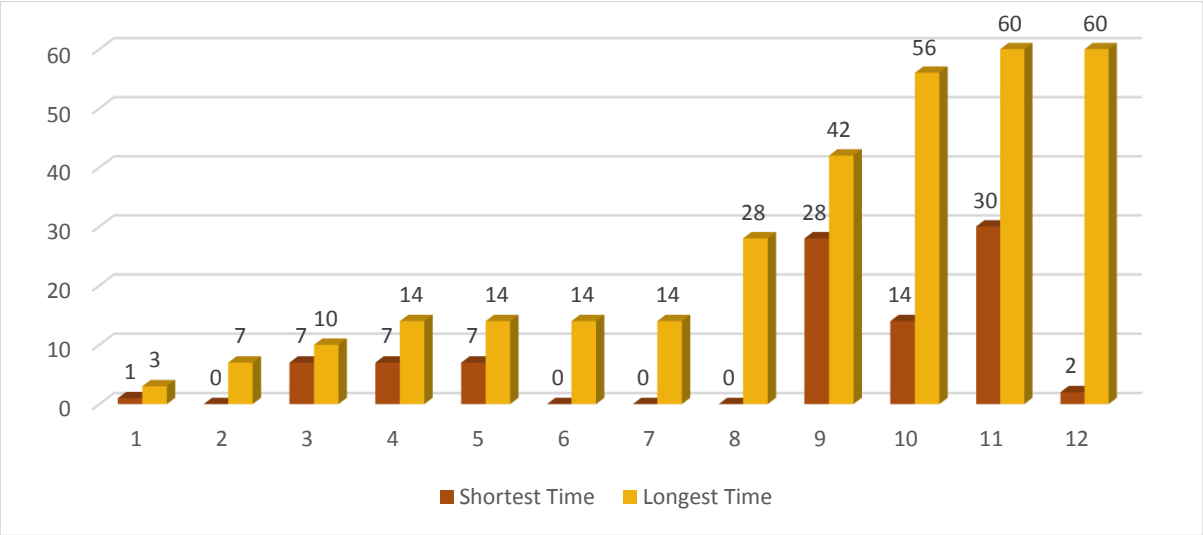
Program partners used different methods for marketing the SBES Program. For instance, two trade allies used a random process of contacting small businesses that might qualify for the program. Other filters

including square footage, size, electrical use, geography, existing customer status and through referrals. One program partner has an internal telephone sales group that call and pre-qualifies customers. Another program partner contacts any small business with an open sign on the door.

6.2.2.2 Days from Approval to Installation

Trade allies reported a wide range in the number of days from approval from the IC to equipment installation (from three days to two months). Trade allies may need to order energy efficient equipment depending on the scope of the project.

Figure 6-5. Days From Project Approval to Equipment Installation – Lower and Upper Bounds

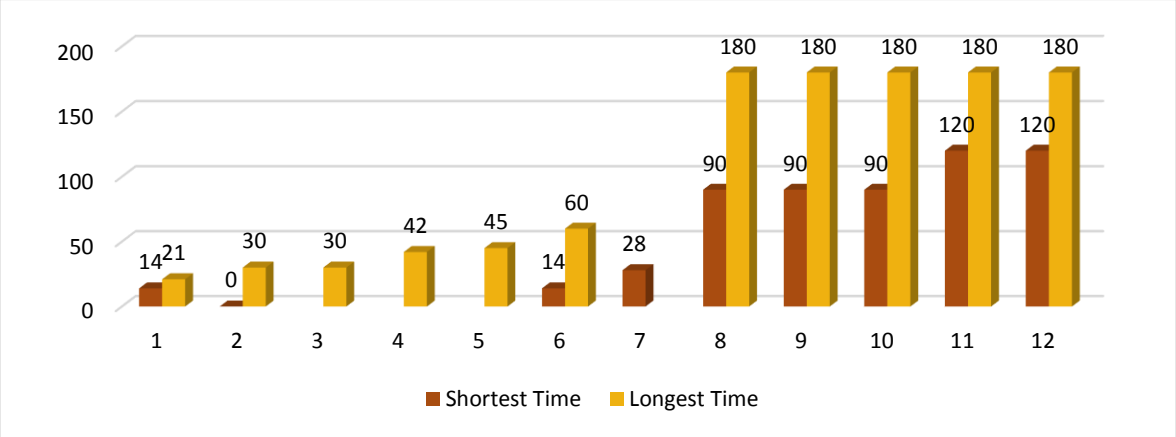


Source: Navigant evaluation of trade ally interview data

6.2.2.3 Number of Days to Payment Receipt

Trade allies said that it took from a few weeks to six months to receive payment for the SBES project after the paperwork was submitted and accepted.

Figure 6-6. Number of Days to Payment Receipt After Application Approved



Source: Navigant evaluation of customer survey data.

6.2.3 Effectiveness of Program Design and Processes

6.2.3.1 Trade Allies Program Barriers

Many trade allies found the SBES Program slightly problematic. Nine of the twelve trade allies mentioned at least one barrier to program participation. These concepts are captured in the following comments:

- The program could have been more responsive to customers' needs.
- Some contractors seemed to be in the program to make money and not improve the efficiency of customers. (2)
- The payment and application process is burdensome.
- Right now it is very hard to get money from customers. Some customers expect the installations to be free…
- People feel that ComEd should pay for everything, which is perpetuated by some trade allies.
- The reservation process takes too much time.
- Incentive amounts have changed frequently, often in the same program year.
- Sometimes people are not forthright about giving us the information we need for the program.

6.2.3.2 Customer Program Barriers

Half of trade allies were able to identify barriers they believed were experienced by customers in PY7:

- Cost
- Sometimes I have to convince the customers that the program is real.
- Running out of funds. Some of our customers received late installations because the program ran out of money. Some of the install times can also be a tight squeeze if parts need to be ordered.
- The fact that the program ended abruptly. We had no indication that it would end. We had to tell our customers that we wouldn't be able to do the job. Now they are better at communicating about funding levels.
- A misalignment of expectations regarding the permanency of the offer during the program year

- Whether they can participate. Sometimes by the time they want to participate, the funds are not there.

Five of the six comments relate to the same issue: that the program runs out of money mid-year. Trade allies appreciate communications on the remaining program funding levels to better serve their customers. Another issue for trade allies was that equipment for some projects needs ordering – its availability is out of the control of the program partner.

6.3 PJM Data and Findings

Small Business Energy Savings Program (SBES)
Program Year 7 (PY7) – June 1, 2014 – May 31, 2015

Ex-Post Gross Peak Demand (MW) Savings
The PJM summer ex-post gross coincident peak demand savings was 30.91 MW.
The PJM winter ex-post gross coincident peak demand savings was 20.00 MW.

List parameters included in the ex-post gross peak demand calculation.

(a) PY7 program bulbs and hot water measures installed
(b) Non-coincident kW reduction
(c) kW of baseline equipment and replacement equipment
(d) Summer PJM coincidence factor (CF) defined by weekday's 1-5pm Central Time Zone, between June 1 and August 31, and non-holidays
(e) Winter PJM coincidence factor (CF) defined by weekdays between 6am-8am and 5pm-7pm Central Time Zone, between January 1 and February 28, and non-holidays
(f) Demand interactive effect
(g) kW of baseline equipment during Performance Hours
(h) kW of replacement equipment during Performance Hours
(i) Installation Rate

For lighting measures, the algorithms used to calculate demand savings were:

(a) *Non-coincident kW reduction = kW of baseline equipment - kW of replacement equipment*
(b) *PJM Coincident kW reduction = non-coincident kW savings * Coincidence Factor * Demand Interactive Effect * Installation Rate*

For non-lighting measures, the algorithms used to calculate demand savings were:

(c) *PJM Coincident kW reduction = kW of baseline equipment during Performance Hours - kW of replacement equipment during Performance Hours*

ComEd's coincident peak demand savings for both baseline and post retrofit conditions are defined as the average demand kW savings for the 1 PM CPT to 5 PM CPT non-holiday weekday time period for summer, and 6 AM CPT to 8 AM CPT and 5 PM CPT to 7 PM CPT non-holiday weekday time period for winter.[41] If this energy savings measure is determined to have weather dependency then the summer peak kW savings are based on the zonal weighted temperature humidity index (WTHI) standard, and the winter peak kW savings are based on the zonal wind speed-adjusted temperature (WWP) standards posted by PJM (there is also PJM Zonal Winter Weather Standards similar to summer WTHI).[42] The zonal WTHI and WWP are the mean of the zonal WTHI values or WWP values on the days in which PJM peak load occurred in the past sixteen years (1998-2014). This mean ComEd WTHI value is 81.6 demand savings for summer is the difference in kW between the baseline and post retrofit conditions. Similarly,

[41] The Winter Weather Standard is the dry bulb temperature adjusted (by 0.5 °F) for wind speed above 10 mph. The measurements were for Hour Ending 19:00 on RTO peak days."

[42] This is in accordance with the PJM manual 18, PJM Capacity Market, effective October 16, 2015.

the ComEd WWP value is 14.5 demand savings for winter is the difference in kW between the baseline and post retrofit conditions.

The IL TRM does not list winter peak coincidence factors and winter peak savings. ComEd did not track winter peak savings in PY7. Based on the IL TRM summer coincidence factors, Navigant estimated 30.91 MW summer peak coincidence demand savings for PY7. Navigant used secondary research winter coincidence factors to estimate 20.00 MW winter peak coincidence demand savings for the PY7 Small Business Program.[43]

[43] Winter peak coincidence factor for commercial lighting were taken from Navigant/Itron study (ComEd Commercial Lighting Winter Peak CF Recommendations_2015_02_19.pdf). Winter peak coincidence factors for non-lighting commercial measures were sourced from the Connecticut TRM (Connecticut Program Savings Document, 8th ed. for 2013 Program Year).

6.4 *Survey Instruments*

6.4.1 Process Survey Instrument

NICOR/COMED or INTEGRYS/COMED SMALL BUSINESS ENERGY SAVINGS PROGRAM

PARTICIPANT SURVEY

PY7 Final (8/14/2015)

Table 1: Small Business Energy Efficiency Program Survey Topics

Topics	Research Questions
Process Module	• Satisfaction • Marketing and Outreach • Benefits and Barriers • Feedback and Recommendations
Firmographics Model	• Ownership • Type • Age • Number of employees

Participation Type = *DirectInstall1, DirectInstall2, DirectInstall3, CI=Contractor Installed DI=Direct Install*
Lighting or non = *1=yes 2=no*
Measure List *List of measures installed during the assessment*

INTRODUCTION
[READ IF CONTACT=1]
Hello, this is _____ from Blackstone calling on behalf of ComEd. ***This is not a sales call.*** May I please speak with **<CONTACTNAME>**?
Our records show that **< COMPANY >** installed energy efficient **<MEASURE1, MEASURE2, MEASURE3>** through the Small Business Energy Savings Program sponsored by ComEd. We are calling to do a follow-up study about **< COMPANY >**'s participation in this incentive program. I was told you're the person most knowledgeable about this project. Is this correct? **[IF NOT, ASK TO BE TRANSFERRED TO MOST KNOWLEDGEABLE PERSON OR RECORD NAME & NUMBER.]**
This survey will take about 15 minutes. Is now a good time? **[If no, schedule call-back]**
[READ IF CONTACT=0]
Hello, this is _____ from Blackstone calling on behalf of ComEd. I would like to speak with the person most knowledgeable about the recent assessment and changes in lighting, cooling or other energy - related equipment for your firm at this location.
[IF NEEDED] Our records show that **< COMPANY >** installed energy efficient **< MEASURE1, MEASURE2, MEASURE3 >** and your contractor received an incentive from ComEd. We are calling to do a follow-up study about your firm's participation in this incentive program, which is called the Small Business Energy Savings Program. I was told you're the person most knowledgeable about this project. Is that correct? **[IF NOT, ASK TO BE TRANSFERRED TO MOST KNOWLEDGEABLE PERSON OR RECORD NAME & NUMBER.]**
This survey will take about 15 minutes. Is now a good time? **[If no, schedule call-back]**

SCREENING QUESTIONS

A1. Just to confirm, did **< COMPANY >** recently participate in the Small Business Energy Savings Program offered by ComEd at **<ADDRESS>**?

IF MORE EXPLANATION IS NEEDED: This is a program where your business may have received a free energy assessment, an offer of free energy savings products, and a report.

IF <DIRECTINSTALL1, DIRECTINSTALL2, DIRECTINSTALL3>=[CI (CONTRACTOR INSTALLED) OR DI (DIRECT INSTALL)]: Program incentives were paid directly to your contractor who implemented one or more energy saving capital improvement projects or equipment improvements.

1 Yes, participated as described
2 Yes, participated but at another location
3 NO, did NOT participate in program **[if this is answered, go to A2]**
97 OTHER, SPECIFY **[if this is answered, go to A2]**
98 DON'T KNOW **[if this is answered, go to A2]**
99 REFUSED **[if this is answered, go to A2]**

[SKIP A2 IF A1=1, 2]

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

1 YES, SOMEONE ELSE DEALT WITH IT
2 NO
97 OTHER, SPECIFY
98 DON'T KNOW
99 REFUSED

[IF A2=1, ask to be transferred to that person. If not available, thank and terminate. If available, go back to A1]

[IF A1=2,3, 97,98,99: Thank and terminate. Record disposition as "Could not confirm participation".]

Before we begin, I want to emphasize that this survey will only be about the energy saving products and services received through the Small Business Energy Savings Program at **<ADDRESS>**.

[IF <DIRECTINSTALL1, DIRECTINSTALL2, DIRECTINSTALL3>=[DI (DIRECT INSTALL)< ASK QA0-QA1]

Direct Install Measures

QA0. Were you present when **< COMPANY >** was visited by a trade ally from the Small Business Energy Savings Program who conducted an assessment of your facility's energy saving opportunities?

1. YES

2. NO
98. DON'T KNOW
99. REFUSED

QA1. I am going to read a list of energy saving products that our records indicate were installed in your facility or building. Please confirm which of the following were installed during the energy assessment. Also, let me know how many were installed? ASK ABOUT MEASURE1 IF DIRECTINSTALL1 = DI, MEASURE2 IF DIRECTINSTALL2=DI, MEASURE3 IF DIRECTINSTALL3=DI.

	Direct_install	QA1			QA1_Num
No Cost Products	**Yes, data from database**	**Yes, confirmed**	**No, not installed**	**DK/NA**	**If Yes, How many were installed? [Range 1-300]**
13 W CFLs					
20 W CFLs					
23 W CFLs					
Bathroom Faucet Aerators (elec)					
Kitchen Faucet Aerators (elec)					
Showerheads (elec)					
Pre-Rinse Sprayer					
Hot Water Temperature Reset					
Vending Miser					
Cooling Miser					

PROCESS MODULE

I'd now like to ask you a few general questions about your participation in the Small Business Energy Efficiency program.

Program Application Process

S0 How did you first hear about the Small Business Energy Efficiency Program? **(SELECT ALL THAT APPLY. DO NOT READ. PROMPT IF NECESSARY)**

1. ComEd Account Manager
2. ComEd Website
3. Program Energy Advisor
4. Contractor/Trade Ally
5. Email
6. Friend/colleague/word of mouth

97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

S1b Who explained the program requirements to you? **(SELECT ALL THAT APPLY. DO NOT READ. PROMPT IF NECESSARY)**

1. ComEd Account Manager
2. ComEd/ Website
3. Program Energy Advisor
4. Contractor/Trade Ally
5. Email
6. Friend/colleague/word of mouth
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

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

[ASK S1d IF S1c<4]

S1d Why did you rate it that way? [RECORD ALL THAT APPLY]

1. Difficult to understand
2. Long process
3. I did not complete the application process
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

[SKIP TO S11 IF DIRECTINSTALL1=DI AND IF DIRECTINSTALL2=DI AND DIRECTINSTALL3 = DI]

Contractor Relationship

ASK IF [DIRECTINSTALL1 = CI (CONTRACTOR INSTALLED) OR DIRECTINSTALL2=CI OR DIRECTINSTALL3 = CI]

S1 Was more than one contractor involved in installing your energy efficient equipment?

1. Yes
2. No

98. DON'T KNOW
99. REFUSED

S2 Would you describe the contractor who did most of the work as a lighting contractor?

1. Lighting contractor
2. Not a lighting contractor
98. DON'T KNOW
99. REFUSED

[ASK IF S2 = 2]

S2A What type of contractor was he?

1. HVAC
2. Plumber
97. Other (Describe_____

[skip S3 if S1=2,98 or 99]

S3 Would you describe the second contractor as a lighting contractor?

1. Lighting contractor
2. Not a lighting contractor
98. DON'T KNOW
99. REFUSED

[ASK IF S3 = 2]

S3A What type of contractor was he?

1. **HVAC**
2. **Plumber**
3. **Sheet metal contractor**
4. **Engineer**
97. **Other (Describe_____**

[ASK IF S2=2 OR S3 = 2. ELSE SKIP TO S5]

S4 How would you rate the non-lighting contractor's ability to meet your needs in terms of implementing your project? Please use a scale from 0 to 10, where 0 is "not at all able to meet needs" and 10 is "completely able to meet needs"? [SCALE 0-10; 98=Don't know, 99=Refused]

S4a On a scale of 0 to 10, where 0 is very dissatisfied and 10 is very satisfied, how would you rate your overall satisfaction with your non-lighting contractor? [SCALE 0-10; 96=not applicable, 98=Don't know, 99=Refused]

S5a Would you recommend this contractor to other people or companies?

1. Yes [GO TO S5 IF S1 =1]
2. No
98. DON'T KNOW [GO TO S5 IF S1 =1]
99. REFUSED [GO TO S5 IF S1 =1]

[Ask S5b if S5a=2]

S5b Why not? [RECORD ALL THAT APPLY]

1. Too small
2. Did not complete the work
3. Did not clean-up work area
4. Poor quality work
5. Did not complete in a timely manner
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

ASK S5 IF S2 OR S3 = 1, OTHERWISE SKIP TO S8.

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

S5aa On a scale of 0 to 10, where 0 is very dissatisfied and 10 is very satisfied, how would you rate your overall satisfaction with your lighting contractor? [SCALE 0-10; 96=not applicable, 98=Don't know, 99=Refused]

S6a Would you recommend this contractor to other people or companies?

1. YES
2. NO
98. DON'T KNOW
99. REFUSED

[Ask S6b if S6a=2]

S6b Why not? [RECORD ALL THAT APPLY]

1. Too small
2. Did not complete the work
3. Did not clean-up work area
4. Poor quality work
5. Did not complete in a timely manner
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

Calls to the Smart Ideas For Business Call Center

S8 During the course of your participation in the program, did you place any calls to the Smart Ideas for Business Call Center?

1. YES
2. NO
98. DON'T KNOW
99. REFUSED

[ASK S9 IF S8=1]

S9 On a scale of 0 to 10, where 0 is "very dissatisfied" and 10 is "very satisfied;" how would you rate your satisfaction with the Call Center's ability to answer your questions? [SCALE 0-10; 98=Don't know, 99=Refused]

[ASK S10 IF S9<4]

S10 Why did you rate it that way? [RECORD ALL THAT APPLY]

1. Provided inconsistent information
2. Didn't understand the question
3. Hard to reach the right person/person with the answer
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

Satisfaction With Program Attributes

[ASK OF ALL RESPONDENTS. RANDOMIZE S11a through S11c]

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

a. The incentive amount
b. The communication you had with the Smart Ideas program staff
c. The equipment offered by the program (If needed: this is the equipment that is eligible for an incentive under the program)
d. The Small Business Energy Efficiency program overall
e. ComEd overall

[ASK S12a IF S11a<4]

S12a You indicated some dissatisfaction with the incentive amount, why did you rate it this way? [RECORD ALL THAT APPLY] (DO NOT READ)

1. Better rebates in other states
2. Too small
3. Equipment didn't qualify
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

[ASK S12b IF S11b<4]

S12b You indicated some dissatisfaction with the communication you had with the Smart Ideas staff, why did you rate it this way? [RECORD ALL THAT APPLY] (DO NOT READ)

1. Provided inconsistent information
2. Didn't understand the question
3. Hard to reach the right person/person with the answer
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

[ASK S12b IF S11c<4]

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

[ASK S12d IF S11d<4]

S12d You indicated some dissatisfaction with the Program overall, why did you rate it this way? [RECORD ALL THAT APPLY] (DO NOT READ)

1. Not as easy as other states
2. No clear guidance
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

[ASK S12e IF S11e<4]

S12e You indicated some dissatisfaction with ComEd overall, why did you rate it this way? [RECORD ALL THAT APPLY] (DO NOT READ)

1. Rates are too high
2. It took too long to get rebate
3. Poor customer service
4. Poor power supply/service
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

Marketing and Outreach

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

	Yes	No	DK/Refused
a. Received information about the program in your monthly utility bill?			
b. Attended a ComEd customer event where the program was discussed?			
c. Discussed the program with a ComEd Account Manager?			
d. Discussed the program with a Contactor or Trade Ally?			
e. Seen information about the program on the ComEd Website?			
f. Received information about the program in an Email?			
g. Heard about the program from a colleague, friend or family member?			
h. Attended a meeting, seminar or workshop where the program was presented?			
i. Attended a webinar where the program was discussed?			
j. Read about the program in a ComEd Newsletter?			
k. Been directly contacted by a program implementer energy advisor?			

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

1. Very useful
2. Somewhat useful
3. Not very useful
4. Not at all useful
5. DID NOT SEE MARKETING MATERIALS
98. DON'T KNOW
99. REFUSED

[ASK MK1c IF MK1b=3, 4]

MK1c What would have made the materials more useful to you? [*Record/answer* UP TO 3]

1. More detailed information
2. Where to get additional information
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

[ASK ALL PARTICPANTS]

MK2 In general, what is the best way of reaching companies like yours to provide information about energy efficiency opportunities like the Small Business Energy Efficiency program? [*Record/answer* UP TO 3]

1. Bill inserts
2. Flyers/ads/mailings
3. E-mail
4. Telephone
5. ComEd Account Manager
6. Nexant/Franklin Energy advisor
8. Trade allies/contractors
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

Benefits and Barriers

B1a What do you see as the main benefits to participating in the Small Business Energy Efficiency program? [*Record/answer* UP TO 3] (DO NOT READ)

1. Energy Savings/saving money
2. Good for the Environment
3. Lower Maintenance Costs
4. Better Quality/New Equipment
5. Rebate/Incentive
9. Able to make improvements sooner
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

B1b What do you see as the drawbacks to participating in the program? [*Record/answer* UP TO 3] (DO NOT READ)

1. Paperwork too burdensome
2. Incentives not high enough/not worth the effort
3. Program is too complicated
4. Cost of equipment
5. No drawbacks
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

Feedback and Recommendations

R2 How would you improve the Small Business Energy Efficiency Program? [*Record/answer* UP TO 4] (DO NOT READ)

1. Higher incentives

2. More measures
3. Greater publicity
4. Better Communication/Improve Program Information
8. Simplify application process
11. Quicker processing times
97. OTHER, SPECIFY
96. NO RECOMMENDATIONS
98. DON'T KNOW
99. REFUSED

Firmographics

I only have a few general questions left.

F1 BLANK

F2 Which of the following best describes the ownership of this location?
1. **<COMPANY>** owns and occupies this location
2. **<COMPANY>** owns this facility but it is rented to someone else
3. **<COMPANY>** rents this facility
98. DON'T KNOW
99. REFUSED

F6 And which of the following best describes thelocation? This location is…
1. **<COMPANY>**'s only location
2. One of several locations owned by **<COMPANY>**
3. The headquarters location of **<COMPANY>** with several locations
98. DON'T KNOW
99. REFUSED

F7a And which of the following best describes the ownership of the lighting system in this building?
1. My company owns the lighting system
2. The owner of the building owns the lighting system
97. OTHER _SPECIFY
98. DON'T KNOW
99. REFUSED

F7b And which of the following best describes the ownership of the HVAC system in this building?
1. My company owns the HVAC system
2. The owner of the building owns the HVAC system
97. OTHER _SPECIFY
98. DON'T KNOW
99. REFUSED

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

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

That brings us to the end of my questions for you. 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 Require only one field (either phone or email)]

6.4.2 Customer Net to Gross Survey Instrument

COMED SMALL BUSINESS ENERGY EFFICIENCY PROGRAM

PARTICIPANT SURVEY

PY6 FINAL (12/19/2014)

Table 1: Small Business Energy Savings Program Survey Topics

Topics	Research Questions
Net-to-Gross	• Would the customer have installed the energy efficient equipment without the program?
Spillover Module	• Did the SBES Program encourage the customer to install energy efficient equipment without an incentive? Why?
Process Module	• Satisfaction
Firmographics Model	• Ownership • Type • Age • Number of employees

Participation Type = *Direct Install*
Direct Install + Contractor Installed
Contractor Installed Only
Assessment Only

Enduse = *Lighting*
Electric Non-lighting:
Refrigeration
HVAC
Water Heating

Direct Install *List of measures installed during the assessment*

INTRODUCTION

[READ IF CONTACT=1]

Hello, this is _____ from Blackstone Group calling on behalf of ComEd. ***This is not a sales call.*** May I please speak with <PROGRAM_CONTACT>?

Our records show that <COMPANY> installed energy efficient <ENDUSE> through the Small Business Energy Savings Program sponsored by ComEd. We are calling to do a follow-up study about <COMPANY>'s participation in this incentive program. I was told you're the person most knowledgeable about this project. Is this correct? [IF NOT, ASK TO BE TRANSFERRED TO MOST KNOWLEDGABLE PERSON OR RECORD NAME & NUMBER.]

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

[READ IF CONTACT=0]

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

[IF NEEDED] Our records show that <COMPANY> installed energy efficient <ENDUSE> and your contractor received an incentive of <INCENTIVE AMOUNT> from ComEd. We are calling to do a follow-up study about your firm's participation in this incentive program, which is called the Small Business Energy Savings Program. I was told you're the person most knowledgeable about this project. Is that correct? [IF NOT, ASK TO BE TRANSFERRED TO MOST KNOWLEDGABLE PERSON OR RECORD NAME & NUMBER.]

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

SCREENING QUESTIONS

A1. Just to confirm, between June 1, 2013 and May 31, 2014 did <COMPANY> participate in the Small Business Energy Savings Program offered by ComEd at <ADDRESS>?

IF MORE EXPLANATION IS NEEDED: This is a program where your business may have received a free energy assessment, an offer of free energy savings products, and a report.

Program incentives were paid directly to your contractor who implemented one or more energy saving capital improvement projects or equipment improvements and tune-ups.

1 Yes, participated as described
2 Yes, participated but at another location
3 NO, did NOT participate in program [if this is answered, go to A2]
00 Other, specify [if this is answered, go to A2]
98 Don't know [if this is answered, go to A2]
99 Refused [if this is answered, go to A2]

[SKIP A2 IF A1=1, 2]

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

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

99 Refused

[IF A2=1, ask to be transferred to that person. If not available, thank and terminate. If available, go back to A1]

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

Before we begin, I want to emphasize that this survey will only be about the energy saving products and services received through the Small Business Energy Savings Program at <ADDRESS>.

Program Application Process

S0 How did you hear about the Small Business Energy Savings Program? **(SELECT ALL THAT APPLY. DO NOT READ. PROMPT IF NECESSARY)**

4. ComEd Account Manager
5. ComEd Website
3. Contractor/Trade Ally
4. Email
5. Friend/colleague/word of mouth
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

ASK S1 IF S0 = 3; ELSE GO TO N1

S1 Did your organization have a previous business relationship with the trade ally that told you about the Small Business Energy Savings Program?

PY7 NET-TO-GROSS MODULE VARIABLES

Variables for the net-to-gross module:
<NTG> (B=Basic rigor level, S= Standard rigor level. All questions here are asked if the standard rigor level is designated. Basic rigor level is designated through skip patterns)
<UTILITY> (ComEd/)
<ENDUSE> (Type of measure installed; from program tracking dataset)
<OTHERPTS> (Variable to be calculated based on responses. Equals 1- minus response to N3p.)
<FINCRIT1> (Variable to be calculated based on responses. Equals 1 if payback period WITHOUT incentive is shorter than company requirement. See instructions below.)
<FINCRIT2> (Variable to be calculated based on responses. Equals 1 if payback period WITH incentive is shorter than company requirement. See instructions below.)
<MSAME> (Equals 1 if same customer had more than one project (multiple facilities) of the same end-use type; from program tracking database)
<NSAME> (Number of additional projects (at other facilities) of the same end-use type implemented by the same customer; from program tracking database)
<FSAME> (Equals 1 if same customer also had a measure of a different end-use type at the same facility; from program tracking database)

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

NET-TO-GROSS BATTERY

I'd now like to ask a few questions about the <ENDUSE> you installed through the program.

N1 When did you first learn about ComEd's Small Business Energy Savings Program? Was it BEFORE or AFTER you first began to THINK about installing this equipment? (NOTE TO INTERVIEWER: "this equipment" refers to the specific energy efficient equipment installed through the program.) **[Identical to Standard.]**

1 Before
2 After
8 Don't know
9 Refused

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

N2 Did you learn about ComEd's Program BEFORE or AFTER you DECIDED to implement the equipment that was installed? (NOTE TO INTERVIEWER: "the equipment" refers to the specific energy efficient equipment installed through the program.) **[Identical to Standard.]**

1 Before
2 After
8 Don't know
9 Refused

N3 Now I'm going to ask you to rate the importance of the program factors that might have influenced your decision to install this equipment. Think of the degree of importance as being shown on a scale with equally spaced units from 0 to 10, where 0 means not at all important and 10 means extremely important. Now, using this scale please rate the importance of each of the following in your decision to implement the equipment at this time. [FOR N3a-f, RECORD 0 to 10; 96=Not Applicable; 98=Don't Know; 99=Refused]

(If needed: How important in your DECISION to implement the project was…)

N3a Availability of the Small Business Program incentive
N3b Information provided through the technical assistance you received from the trade ally during the energy assessment
N3c Recommendation from an equipment vendor or contractor that helped you with the choice of the equipment
N3d Recommendation from a ComEd program staff person
N3e Information from the Small Business Energy Savings Program's or ComEd's marketing materials
N3f Information in your assessment report

N4 Next, I'm going to ask you to rate the importance of any factors OUTSIDE THE PROGRAM that might have influenced your decision to install this equipment. Using the same zero to 10 scale, where 0 means not at all important and 10 means extremely important, please rate the

importance of each of the following in your decision to implement the equipment at this time. [FOR N4a-d, RECORD 0 to 10; 96=Not Applicable; 98=Don't Know; 99=Refused]

(If needed: How important in your DECISION to implement the project was…)

N4a Concern about environmental issues
N4b Recommendation from a friend
N4c Recommendation from a vendor or contractor not affiliated with the Small Business Energy Savings program or ComEd
N4d Age or condition of the old equipment
N4e Previous experience with this type of equipment

N5 Were there any other factors we haven't discussed that were important in your decision to install this energy efficient equipment?

00 [Record verbatim] [Analyst scores after the fact to determine whether this is a program or non-program influence.]
96 Nothing else was important
98 Don't Know
99 Refused

[ASK N5a IF N5=00]

N5a Using the same zero to ten scale, how would you rate the influence of this factor? [RECORD 0 to 10; 98=Don't Know; 99=Refused]

N6 Thinking about this differently, I would like you to compare the importance of the ComEd Small Business Energy Savings Program with the importance of other factors in your decision to install the <ENDUSE>. If you were given a TOTAL of 100 points that reflect the importance in your decision to implement the <ENDUSE>, and you had to divide those 100 points between the program on one hand, and other factors on the other, how many points would you give to the importance of the PROGRAM?
Points given to program: [RECORD 0 to 100; 998=Don't Know; 999=Refused]

[CALCULATE VARIABLE "OTHERPTS" AS: 100 MINUS N6 RESPONSE; IF N6=998, 999, SET OTHERPTS=BLANK]

N6a And how many points would you give to other factors? [RECORD 0 to 100; 998=Don't Know; 999=Refused] [The response should be equal to <OTHERPTS> because the number should sum with <N6 RESPONSE> to equal 100. If response is not <OTHERPTS> ask INC1]

INC1 The last question asked you to divide a TOTAL of 100 points between the program and other factors. You just noted that you would give <N6 RESPONSE> points to the program. Does that mean you would give the other <OTHERPTS> points to other factors?

1 Yes
2 No
98 Don't know
99 Refused

[IF INC1=2, go back to N6]

CONSISTENCY CHECK ON PROGRAM IMPORTANCE SCORE

[ASK IF (N6>69 AND ALL OF (N3a, N3b, N3c, N3d, N3e, N3f)=0,1,2,3), ELSE SKIP TO N7aa]
You just gave <N6 RESPONSE> points to the importance of the program. I would interpret that to mean that the program was quite important to your decision to install this equipment. Earlier, when I asked about the importance of individual elements of the program, such as the incentive, information provided in the technical assessment report, and recommendations from ComEd program staff, I recorded some answers that would imply that they were not that important to you. Just to make sure I have recorded this properly, I have a couple of questions to ask you.

N7a When asked about THE AVAILABILITY OF THE PROGRAM INCENTIVE, you gave a rating of ...<N3a RESPONSE> ... out of ten, indicating that the program incentive was not that important to you. Can you tell me why the incentive was not that important?
00 [Record VERBATIM]
98 Don't know
99 Refused

N7b When I asked you about THE INFORMATION IN THE TECHNICAL ASSESSMENT REPORT, for instance, you gave a rating of ...<N3f RESPONSE> ... out of ten, indicating that the information provided was not that important to you. Can you tell me why the information provided was not that important?
00 [Record VERBATIM]
98 Don't know
99 Refused

N7c When I asked you about THE RECOMMENDATION FROM A TRADE ALLY, you gave a rating of ...<N3c RESPONSE> ... out of ten, indicating that the information provided was not that important to you. Can you tell me why the information provided was not that important?
00 [Record VERBATIM]
98 Don't know
99 Refused

N7d When asked about THE INFORMATION from the <PROGRAM> or <UTILITY> MARKETING MATERIALS, you gave a rating of ...<N3e RESPONSE> ... out of ten, indicating that this information from the program or utility marketing materials was not that important to you. Can you tell me why this information was not that important?
00 [Record VERBATIM]
98 Don't know
99 Refused

[ASK IF N6<31 AND ANY ONE OF (N3a, N3b, N3c, N3d, N3e OR N3f=8, 9, 10) ELSE SKIP TO N5]

N7aa You just gave <N6 RESPONSE> points to the importance of the program. I would interpret that to mean that the program was not very important to your decision to install this equipment. Earlier, when I asked about the importance of individual elements of the program I recorded some answers that would imply that they were very important to you. Just to make sure I understand, would you explain why the program was not very important in your decision to install this equipment?

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

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

N8 Using a likelihood scale from 0 to 10, where 0 is "Not at all likely" and 10 is "Extremely likely", if the ComEd Small Business Energy Savings program had not been available, what is the likelihood that you would have installed exactly the same equipment? [RECORD 0 to 10; 98= Don't know; 99=Refused]

CONSISTENCY CHECKS

[ASK N8a-d IF N3a=8,9,10 AND N8=7, 8, 9, 10]

N8a When you answered ...<N3A RESPONSE> ... for the question about the influence of the incentive, I would interpret that to mean that the incentive was quite important to your decision to install. Then, when you answered <N8 RESPONSE> for how likely you would be to install the same equipment without the incentive, it sounds like the incentive was not very important in your installation decision.

I want to check to see if I am misunderstanding your answers or if the questions may have been unclear. Will you explain the role the incentive played in your decision to install this efficient equipment?

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

N8b Would you like for me to change your score on the importance of the incentive that you gave a rating of <N3B RESPONSE>, or would you like to change your rating on the likelihood you would install the same equipment without the incentive, which you gave a rating of <N8 RESPONSE>? We can change both if you wish.

1 Change importance of incentive rating
2 Change likelihood to install the same equipment rating
3 Change both
4 No, don't change
8 Don't know
9 Refused

[ASK IF N8b=1 OR 3]

N8c How important was availability of the Small Business Energy Savings Program incentive? (IF NEEDED: in your DECISION to implement the project) [Scale of 0 to 10, where 0 means not at all important and 10 means extremely important];
98=Don't know
99=Refused]

[ASK IF N8b=2 OR 3]

N8d If the ComEd Small Business Energy Savings program had not been available, what is the likelihood that you would have installed exactly the same equipment? [Scale of 0 to 10, where 0 means "Not at all likely" and 10 means "Extremely likely"?

98=Don't know
99=Refused]

[ASK IF N8>0, ELSE SKIP TO N9]

N8e You indicated earlier that there was a <N8 RESPONSE> in 10 likelihood that you would have installed the same equipment if the program had not been available. Without the program, when do you think you would have installed this equipment? Would you say…

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

[ASK N8f IF N8e=3]

N8f How much later would you have installed this equipment? Would you say…

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

[ASK N8g IF N8f=6]

N8g Why do you think it would have been 4 or more years later?

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

N8h Could you please tell me in your own words what influence the ComEd Small Business Energy Savings Program had in your DECISION to install the energy efficient equipment?

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

PY4 SPILLOVER MODULE

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

SP1 Since your participation in the ComEd program, did you implement any ADDITIONAL energy efficiency measures at this facility or at your other facilities within ComEd's service territory that did NOT receive incentives through any utility or government program?

1 Yes
2 No
8 Don't know
9 Refused

[ASK SP2-SP7i IF SP1=1, ELSE SKIP TO S0]

SP2 What was the first measure that you implemented? (IF RESPONSE IS GENERAL, E.G., "LIGHTING EQUIPMENT", PROBE FOR SPECIFIC MEASURE. PROBE FROM LIST, IF NECESSARY.)

1 Lighting: T8 lamps
2 Lighting: T5 lamps
3 Lighting: High Bay Fixture Replacement
4 Lighting: CFLs
5 Lighting: Controls / Occupancy sensors
6 Lighting: LED lamps
7 Cooling: Unitary/Split Air Conditioning System
8 HVAC: Packaged Terminal air conditioners or heat pumps
9 Cooling: Room air conditioners
10 Heating: Furnace
11 Heating: Boiler
12 Variable Frequency Drives (VFD/VSD) on HVAC Motors
13 Programmable Thermostat
14 Refrigeration LED Case Lighting
15 Refrigeration EC motor for cooler/freezer
16 Wall or roof insulation
17 New windows
18 Water heater
00 Other, specify
96 Didn't implement any measures

98 Don't know
99 Refused

[SKIP TO S0 (PROCESS MODULE) IF SP2=96, 98, 99]

SP3 What was the second measure? (IF RESPONSE IS GENERAL, E.G., "LIGHTING EQUIPMENT", PROBE FOR SPECIFIC MEASURE. PROBE FROM LIST, IF NECESSARY.)

1 Lighting: T8 lamps
2 Lighting: T5 lamps
3 Lighting: High Bay Fixture Replacement
4 Lighting: CFLs
5 Lighting: Controls / Occupancy sensors
6 Lighting: LED lamps
7 Cooling: Unitary/Split Air Conditioning System
8 HVAC: Packaged Terminal air conditioners or heat pumps
9 Cooling: Room air conditioners
10 Heating: Furnace
11 Heating: Boiler
12 Variable Frequency Drives (VFD/VSD) on HVAC Motors
13 Programmable Thermostat
14 Refrigeration LED Case Lighting
15 Refrigeration EC motor for cooler/freezer
16 Wall or roof insulation
17 New windows
18 Water heater
00 Other, specify
96 Didn't implement any measures
98 Don't know
99 Refused

SP4 BLANK

SP5 I have a few questions about the FIRST type of equipment that you installed. (If needed, read back measure: <SP2 RESPONSE>) [OPEN END]

a. Why did you not receive an incentive for this equipment?
b. Why did you not install this equipment through the Small Business Program?
c. Please describe the SIZE, TYPE, and OTHER ATTRIBUTES of this equipment.
d. Please describe the EFFICIENCY of this equipment.
e. How many of these did you install?

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

[SKIP SP5h IF SP5g = 98, 99]

SP5h. Why do you give it this rating? [OPEN END]

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

[SKIP SP6-SP7i IF SP3=96, 98, 99]

SP6 I have a few questions about the SECOND type of equipment that you installed. (If needed, read back equipment type: <SP3 RESPONSE>) [OPEN END]

a. Why did you not receive an incentive for this equipment?
b. Why did you not install this equipment through the <UTILITY> Program?
c. Please describe the SIZE, TYPE, and OTHER ATTRIBUTES of this equipment.
d. Please describe the EFFICIENCY of this equipment.
e. How many of these did you install?

SP6g. How significant was your experience in the ComEd Program in your decision to install this equipment, using a scale of 0 to 10, where 0 is not at all significant and 10 is extremely significant? [SCALE 0-10; 98=Don't Know; 99=Refused]

[SKIP SP6h IF SP6g = 98, 99]

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

SP6i. If you had not participated in the ComEd Small Business Energy Savings program, how likely is it that your organization would still have installed this equipment, using a 0 to 10, scale where 0 means you definitely WOULD NOT have installed this equipment and 10 means you definitely WOULD have installed this equipment? [SCALE 0-10; 98=Don't Know; 99=Refused]

[ASK OF ALL RESPONDENTS]

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

a. The incentive amount
b. The communication you had with the Smart Ideas program staff
c. The measures offered by the program (If needed: this is the equipment that is eligible for an incentive under the program)
d. The Small Business Energy Savings program overall
e. ComEd overall

S12 Has your organization participated in other ComEd programs in the past?

1 Yes
2 No
8 Don't know
9 Refused

ASK IF S12=1.

S13 Did you participate in the
1. Small Business Program
2. Standard Program
3. Custom Program
4. Other (Specify_____
8 Don't know
9 Refused

Feedback and Recommendations

R2 How would you improve the Small Business Energy Savings Program? [*Record/answer* UP TO 4]
1. Higher incentives
2. More measures
3. Greater publicity
4. Better Communication/Improve Program Information
8. Simplify application process
11. Quicker processing times
00. Other, specify
96. No recommendations
98. Don't know
99. Refused

Firmographics

I only have a few general questions left.

F1 BLANK

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

F6 And which of the following best describes the facility? This facility is…
1. <COMPANY>'s only location
2. One of several locations owned by <COMPANY>
3. The headquarters location of <COMPANY> with several locations
8. Don't know
9. Refused

F7a And which of the following best describes the ownership of the lighting system in this building?
1. My company owns the lighting system

2. The owner of the building owns the lighting system
3. Other _Specify
8. Don't know
9. Refused

F7b And which of the following best describes the ownership of the HVAC system in this building?
1. My company owns the HVAC system
2. The owner of the building owns the HVAC system
3. Other _Specify
8. Don't know
9. Refused

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

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

That brings us to the end of my questions for you. 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]

6.4.3 Contractor In-Depth Interview Guide

ComEd Evaluation for the Small Business Program
Contractor In-Depth Interview Guide September 17, 2015

Section	Topics	Questions
Background	What type of business does the trade ally conduct and what types of experience does this trade representative have?	Q1-Q4
Free Ridership and Spillover	Would small business customers have installed the equipment without the program (free ridership)? About what percentage of customers have installed additional energy efficient equipment without an incentive (spillover)? Have they encouraged customers to implement measures or behavior changes for which there is no incentive? If so, do they know if the customers have done so?	FR1-S5
Marketing and Participation	How did trade ally become aware of this program? Do you refer customers to other utility programs? Is the level of utility marketing sufficient? How can the Implementer support your program marketing? Has word of mouth marketing had an impact?	Q5-Q14
Program Barriers	What are the barriers to participation encountered by customers and trade allies? How could the program be changed to overcome these?	Q15-Q19
Delivery and Administration (Contractor Perspective)	How do you market the program? Does program delivery occur in a timely manner? Are you able to provide qualified customers with a loan arrangement?	Q20-Q26
Program Satisfaction	How satisfied are trade allies with the program? What do you like best about the program? Least? IF you could change one thing, what would it be? How satisfied are customers with the program?	Q27-Q32
Economic Indicators	Have your business revenues grown? Have you hired more employees?	Q33-Q36

[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 with other responses.

We are evaluating last year's program that began June 1, 2014 and ended May 31, 2015.

Background

1. Can you briefly describe the company you work for and the type of business it conducts?

2. How many full-time employees are employed at your company?

3. Do you mainly serve small businesses, large businesses or a mix of the two?

4. Can you briefly summarize your roles and responsibilities at your company?

FREE RIDERSHIP

We are trying to understand the impact of the program separate from other factors that are at work in your market. We have a number of questions that ask you to think about the Small Business program's effect on your ability to sell in this market.

Program Components Score

FR1. On a scale where 0 is not at all influential, 10 is very influential, how would you rate the program rebates in helping you convince your customers to buy energy efficient measures??

_____

FR2a. On a scale where 0 is not at all influential, 10 is very influential, how would you rate the Energy Advisor in helping you convince your customers to buy energy efficient measures?

_____

FR2b. On a scale where 0 is not at all influential, 10 is very influential, how would you rate the potential energy bill savings in helping you convince your customers to buy energy efficient measures?

_____

FR3. ? On a scale where 0 is not at all influential, 10 is very influential, how would you rate all the program features combined in helping you convince your customers to buy energy efficient measures?

_____

Program Components Score = Maximum of (FR1, FR2a, FR3).

Program Influence Score

According to our data, your company was associated with <x> customers [or <x> projects] that went through the program from June 2014 through May of 2015. Your data also indicate that these customers achieved <x> kWh of savings from their projects.

FR4. What percent of these kWh savings do you think those customers would have achieved if the program had not been there?

[Program Influence Score = 100% - FR4%]

FREE RIDERSHIP ALGORITHM

Free Ridership = 1 - Average (Program Components Score/10, Program Influence Score)

[Consistency Check. Interviewer uses to resolve inconsistencies. Analyst uses to adjust scores if inconsistencies remain.]

FR5. In your own words, please tell me what role the program played in getting these projects installed. [Open ended]

[For open-ended interviews, circle back to resolve discrepancies.]

[Informational question, not in the algorithm]

Sometimes utility energy efficiency programs help markets for energy efficiency services grow. They may help some service providers more than others.

FR6. What percent of your customers would have gone to one of your competitors to do the same project if the program had not been there?

SPILLOVER

S1. Approximately what percent of your small business customers purchased equipment that would have qualified for an incentive but did not apply for the incentive offered by the utility last program year? [PROVIDE EXAMPLE IF NEEDED]

1) [RECORD VERBATIM RESPONSE]
88) Don't know
99) Refused

[ONLY ASK IF S1 > 0]

a. On a scale of 0 to 10 where 0 means NOT AT ALL INFLUENTIAL and 10 means EXTREMELY INFLUENTIAL, how would you rate the influence of the Small Business Energy Efficiency Program on the customer decision to install this equipment without an incentive?

1) [RECORD NUMERIC RESPONSE]
88) Don't know
99) Refused

SPILLOVER ALGORITHM

(1) Spillover TA_x = [If Program Influence Score for TAx>7] Eligible Non-Incented $kWhs_{TAx}$

(2) Eligible Non-Incented kWhTAx = Total Eligible kWhTAx * (S1TAx)

(3) Total Eligible kWhTAx = Program Incented kWhTAx / (1-S1Tax)

(4) Eligible Non-Incented kWhTAx = [Program Incented kWhTAx / (1-S1Tax)] * S1TAx

b. What types of equipment did the customer(s) install without incentives? (SUGGESTION: PROBE FOR THIS IF YOU CAN, FOCUS IS ON GAS EQUIPMENT)

1) [RECORD VERBATIM RESPONSE]
88) Don't know
99) Refused

c. [ADDED Q] How did the program influence sales of equipment installed without incentives?

1) [RECORD VERBATIM RESPONSE]
88) Don't know
99) Refused

d. What were the reasons that they did not apply for the incentive? (e.g., too time-consuming, too much paperwork, incentive too small to bother)

1) [RECORD VERBATIM RESPONSE]
88) Don't know
99) Refused

[ASK S2 IF S1=88] [That is, if the participant cannot quantify Spillover in percentage terms, ask about number of projects]

S2. In the last year, did <u>any</u> of your small business customers install equipment that was eligible for a Small Business Energy Efficiency Program rebate but did not receive a that rebate?
1) Yes
2) No
88) Don't know

99) Refused

[ASK S3 IF S2=1]

S3. Approximately, how many of your projects last year were eligible for a Small Business Energy Efficiency Program rebate but did not receive a rebate? [NUMERIC OPEN END; 88=DON'T KNOW]

[ONLY ASK IF S3 > 0]

a. On a scale of 0 to 10 where 0 means NOT AT ALL INFLUENTIAL and 10 means VERY INFLUENTIAL, how would you rate the influence of the Small Business Energy Efficiency Program on the customer decision to install this equipment without an incentive?

1) [RECORD NUMERIC RESPONSE]
88) Don't know
99) Refused

S4. [ADDED Q] Have you encouraged small businesses to install other energy efficiency equipment without an incentive from the program as a result of your participation in the program?

S5 [ADDED Q] Have you encouraged small business customers to implement energy saving behavior changes for which there is no incentive? [Example: changing furnace filters, water heater temperature setback] [If yes]: How many [or what percent] of your small business customers follow your recommendation?

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

Marketing

5. How did you (the contractor) become aware of the program?
6. How many years has your company participated in this program?
7. What ways can the utilities and program implementers boost program awareness with contractors?
8. Do you participate in any other ComEd rebate programs such as Standard or Custom Programs?
9. Have you referred any Small Business customers to other ComEd business programs?
10. What kind of support, if any, does Nexant, the implementer, provide for marketing the Small Business Program to your customers?
11. How can the implementer more effectively support your program marketing?
12. Do you think promotional efforts are successful? Do you think the level of marketing and promotion of the Small Business Program has been appropriate so far?
13. How do your customers hear about the program?

14. Did notice any spontaneous word- of- mouth marketing among ComEd customers? For example, do customers know of other participating businesses?

Program Characteristics and Barriers

15. What areas could be improved to create a more effective program for customers and program partners such as yourself?
16. What would you like to see added to the program's contractor approved equipment list?
17. What barriers have you encountered with the program?
18. What barriers have customers encountered?
19. What program changes could be made to reduce trade ally or customer barriers?

Delivery and Administration (Contractor Perspective)

20. Do you actively market the program to your customers?
21. How did you decide which ComEd customers to contact about the program?
22. Are these businesses existing customers of yours?

23. After the customer agrees to install the recommended equipment, how long does it usually take to schedule the installation?

24. How long did it take the implementer to process your payment after the paperwork was submitted and accepted?

25. Were you able to provide qualified customers with a loan arrangement? Who financed these loans?

26. About what percent of your Small Business program sales are financed? What percent of customers requested financing?

Satisfaction with the Small Business Program

27. Are you satisfied with the program? Why or why not?

28. What do you like best about the Program?

29. What do you least like about the Program?

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

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

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

Economic Indicators

33. Do you think the Small Business Energy Efficiency Program is a competitive advantage for your firm?
34. Have your business revenues grown in the past year because of the Small Business Program? About what percent?
35. Have you hired more employees in the past year because of work generated by the Small Business Program? How many?
36. In this year will you hire more employees to handle increased work generated by the program? About how many?

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]