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Small Business Energy Savings Program Evaluation Report – ComEd, Peoples Gas and North Shore Gas

Final

Energy Efficiency / Demand Response Plan:
Electric Plan Year 5
Gas Plan Year 2
(6/1/2012-5/31/2013)

Presented to
Commonwealth Edison Company
Peoples Gas and North Shore Gas

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E. Executive Summary

This report presents a summary of the findings and results of the impact and process evaluation of the Small Business Energy Savings (SBES) Program in its second year of operation, which is electric program year 5 (EPY5) and gas program year 2 (GPY2).[1] The SBES Program is jointly implemented with Commonwealth Edison (ComEd), Nicor Gas, and Peoples Gas and North Shore Gas. The implementation contractors were Nexant Inc. (Nexant), which delivered the Program to customers of both ComEd and Nicor Gas in Nicor Gas's service territory, and Franklin Energy Services (Franklin), which delivered the Program to customers served by ComEd and Peoples Gas or North Shore Gas. The Program is designed to assist ComEd, Nicor Gas, Peoples Gas and North Shore Gas non-residential customers[2] in lowering their energy usage and energy bills by educating them about electric and natural gas savings opportunities through on-site assessments. Participating customers can achieve immediate savings through the direct installation of specific products during the assessment at no cost to them. Further savings opportunities are offered to customers with incentives of 30 to 70 percent[3] for select, low-cost electric and natural gas energy efficiency measures that are installed by a local contractor at a second on-site visit.

E.1. Program Savings

Table E-1 summarizes electric savings from the ComEd EPY5 SBES Program. Navigant verified net savings of 33,573 MWh, as well as 5.7 MW of net coincident peak demand savings.

[1] The EPY5/GPY2 program year began June 1, 2012 and ended May 31, 2013.

[2] To qualify for the SBES program, customers must be active Commercial and Industrial (C&I) customers of ComEd with peak demand of less than 100 kW, and Nicor or Peoples Gas and North Shore Gas customers who use less than 60,000 therms per year.

[3] Incentives of up to 100 percent are offered for certain measures (e.g., single-stage thermostats) in some cases.

Table E-1. ComEd EPY5 SBES Program Electric Savings

Savings Category †	Energy Savings (MWh)	Coincident Peak Demand Savings (MW)	Non-Coincident Peak Demand Savings (MW)
Ex-Ante Gross Savings	37,329	6.34	6.58
Ex-Ante NTG	0.85	0.85	0.85
Ex-Ante Net Savings[4]	31,730	5.39	5.59
Verified Gross Realization Rate	1.00	1.00	1.00
Verified Gross Savings	37,303	6.33	6.57
NTG	0.90	0.90	0.90
Verified Net Savings[5]	33,573	5.71	5.92

Source: Frontier EPY5 tracking system data, Navigant analysis.
† See the Glossary in the Appendix for definitions

In EPY5, the SBES Program achieved 377 percent of its targeted electric savings of 8,900 MWh.

Year-over-year comparison of the Program's electric energy savings (Table E-2) indicates that in EPY5 the Program achieved 373 percent of the net electric savings it attained in EPY4.

Table E-2. ComEd SBES Program Year-over-Year Electric Results

Program Result	EPY4	EPY5	Year-to-Year Volumetric Difference (EPY5/EPY4)
Ex-Ante Gross, MWh	9,207	37,329	405%
Verified Gross, MWh	9,483	37,303	393%
Verified Gross Realization Rate	1.03	1.00	
Verified Net, MWh	9,009	33,573	373%

Source: EPY4 evaluation report; Frontier EPY5 tracking system data, Navigant analysis.

Table E-3 summarizes the natural gas savings from the Peoples Gas and North Shore Gas GPY2 SBES Programs. Navigant verified net savings of 566,727 therms from Peoples Gas and 259,115 therms from North Shore Gas.

[4] ComEd's ex-ante net savings is based on a net-to-gross ratio of 0.85 (source: ComEd PY5-PY6 Proposal Comparisons with SAG.xls, received from ComEd Oct. 10, 2013).
[5] SAG-approved NTGR for ComEd for EPY5 was negotiated in March-August 20132013 and documented in http://ilsagfiles.org/SAG_files/Meeting_Materials/2013/August 5-6, 2013 Meeting/ComEd PY5-PY6 Proposal Comparisons with SAG.xls.

Table E-3. Peoples Gas and North Shore Gas GPY2 SBES Program Natural Gas Savings

Savings Category †	Peoples Gas Energy Savings (Therms)	North Shore Gas Energy Savings (Therms)
Ex Ante Gross Savings	562,348	257,020
Ex-Ante NTG[6]	0.99	0.99
Ex Ante Net Savings	556,724	254,450
Verified Gross Realization Rate	1.02	1.02
Verified Gross Savings	572,451	261,732
NTG	0.99	0.99
Verified Net Savings	566,727	259,115

Source: Bensight GPY2 tracking data, Navigant analysis.
† See the Glossary in the Appendix for definitions

In GPY2, the Peoples Gas SBES Program achieved 236 percent of its targeted net savings of 240,000 therms; the North Shore Gas SBES Program achieved 682 percent of its targeted net savings of 38,000 therms.

Year-over-year comparison of the SBES Program's gas savings (Table E-4) indicates that in GPY2 the Peoples Gas Program achieved 639 percent of its GPY1 verified net gas savings and the North Shore Gas Program achieved 595 percent of its GPY1 verified net gas savings.

[6] Peoples Gas and North Shore Gas's ex-ante net savings is based on a net-to-gross ratio of 0.99 (source: http://ilsagfiles.org/SAG_files/Meeting_Materials/2013/August 5-6, 2013 Meeting/Nicor_Gas_NTG_Results_and_Application_GPY1-3.pdf.

Table E-4. Peoples Gas and North Shore Gas SBES Program Year-to-Year Results

Program Result	GPY1	GPY2	Year to Year Difference (GPY2/GPY1)
Peoples Gas			
Ex-Ante Gross Therms	90,515	562,348	621%
Verified Gross Therms	89,610	572,451	639%
Realization Rate	0.99	1.02	
Verified Net Therms	88,714	566,727	639%
North Shore Gas			
Ex-Ante Gross Therms	44,399	257,020	579%
Verified Gross Therms	43,955	261,732	595%
Realization Rate	0.99	1.02	
Verified Net Therms	43,515	259,115	595%

Source: GPY1 evaluation report, Bensight GPY2 tracking system data, Navigant analysis.

E.2. Impact Estimate Parameters

Navigant used several parameters in its calculations of verified gross and net savings. Some of these parameters were deemed for this Program year and others we adjusted based on evaluation research. The key parameters used in the analysis are shown in Table E-5.

Table E-5. Impact Estimate Parameters

Parameter	Data Source	Deemed or Evaluated?
Net-to-gross Ratio (NTGR)	SAG Spreadsheet †	Deemed
Deemed per unit savings	IL-TRM‡	Deemed
Non-deemed per unit savings	Evaluation Research	Evaluated
Gross Realization Rate	Program tracking data	Evaluated

† SAG is the Illinois Energy Efficiency Stakeholder Advisory Group (www.ilsag.org). ComEd savings: http://ilsagfiles.org/SAG_files/Meeting_Materials/2013/August 5-6, 2013 Meeting/ComEd PY5-PY6 Proposal Comparisons with SAG.xls. Peoples Gas and North Shore Gas savings: NTG_PGL-NSG_GPY1-GPY3_and_Phase_II_Plan_07_15_13.xls
‡ Illinois_Statewide_TRM_Effective_060112_Final_091412_Clean, which is available on the IL SAG web site here: http://ilsag.info/net-to-gross-framework.html.

E.3. Impact Estimate Parameters for Future Use

As we discussed in the EPY4/GPY1 SBES evaluation report[7], the approved Illinois Technical Reference Manual (TRM)[8] unit savings for C&I aerators and showerheads were reviewed by the TRM

[7] ComEd-PG-NSG EPY4-GPY1 SBES EMV Report 2013-06-16 Final_clean

Technical Advisory Committee and found to have been derived using algorithms containing an error. The errata are corrected by removing the redundant GPM factor from the algorithms for aerators and showerheads.[9] Pursuant to the IL-TRM Policy Document[10] adopted by the Commission in ICC Docket No. 13-0077, the evaluation verified unit savings in this report are shown using both the uncorrected algorithms ("ICC Approved TRM Unit Savings") and the corrected algorithms ("Evaluation Corrected TRM Algorithm Unit Savings") in Table E-6 and Table E-7. The evaluation verified savings presented elsewhere in this report are based on the TRM v1.0 unit savings values for these measures.

Table E-6. Impact Estimate Electric Measure Parameters for Future Use

Measure Description	Ex-Ante Default Unit Savings (kWh/unit)*	ICC Approved TRM (v1.0) Unit Savings	Evaluation Corrected TRM Algorithm Unit Savings
Kitchen Aerator	298.0	85.1	298.0
Bathroom Aerator	143.0	102.1	357.5
Showerhead	273.0	273.0	436.1

** Ex-ante default values are averages from Frontier tracking system.*

Table E-7. Impact Estimate Gas Measure Parameters for Future Use

Measure Description	Ex Ante Default Unit Savings (Therms/unit)*	ICC Approved TRM (v1.0) Unit Savings	Evaluation Corrected TRM Algorithm Unit Savings
Bathroom Aerator	7.05	5.10	15.00
Showerhead	13.3	13.51	21.64

** This value is calculated for miscellaneous business category. It may vary per business category.*

E.4. Participation Information

The SBES Program had 1,881 unique electric projects in EPY5, of which 302 were implemented through the geo-marketing pilot program (Table E-8).[11] The Program distributed 1,245 direct-install electric measures, and 189,563 contractor-installed electric measures (including 13,195 measures

[8] State of Illinois Energy Efficiency Technical Reference Manual. Final as of September 14th, 2012. Effective June 1st, 2012.

[9] The errata correction (CI-HW_-LFFA-V02-120601) was identified on page 9 in Table 1.4 of the IL-TRM Version 2.0 dated June 7th, 2013 (see http://www.icc.illinois.gov/downloads/public/edocket/353099.pdf) that was approved in the Commission's Final Order in ICC Docket No. 13-0437 on November 6, 2013. (The Order is available for download at http://www.icc.illinois.gov/downloads/public/edocket/361899.pdf.)

[10] http://www.icc.illinois.gov/downloads/public/edocket/339744.pdf

[11] Note that the counts of projects and measures, as well as the savings totals, omit projects in the communities targeted by the geo-marketing pilot that were marketed in EPY5 but not completed until EPY6.

through the geo-marketing pilot program), for a total 190,808 Program electric measures. Savings per contractor-installed project were similar in the core Program and the geo-marketing pilot.

Table E-8. ComEd EPY5 SBES Primary Participation Detail

Participation	Core Program Projects		Geo-Marketing Pilot Projects	Overall Program
	Direct Install	Contractor Installed	Contractor Installed	
Ex-Ante Gross Savings (MWh)	513	31,343	5,473	37,329
Total Installed Measures	1,245	176,368	13,195	190,808
Unique Projects	487	1,352	302	1,881*
Savings (MWh) per Project	1	23	18	20
Measures per Project	3	130	44	101

Source: Frontier tracking data and Navigant analysis.
** Unique projects excludes 260 duplicate projects with both CI and DI measures.*

The SBES Program had 387 unique gas projects in GPY2 through Peoples Gas and 121 through North Shore Gas (Table E-9). The average savings per project was 1,453 therms for Peoples Gas and 2,124 for North Shore Gas.

Table E-9. Peoples Gas and North Shore Gas GPY2 Primary Participation Detail

Savings Category	Peoples Gas			North Shore Gas		
	Direct Install	Contractor Installed	Peoples Gas Program Overall	Direct Install	Contractor Installed	North Shore Gas Program Overall
Ex Ante Gross Savings (Therms)	9,229	553,119	562,348	4,006	253,014	257,020
Total Installed Measures	444	2,547	2,991	241	641	882
Projects	128	325	387‡	42	104	121‡
Participants	123	312	385‡	39	98	119‡
Savings (Therms) per Project	72	1,702	1,453	95	2,433	2,124
Projects/ Participant	1.04	1.04	1.01	1.08	1.06	1.02

Source: Bensight tracking data and Navigant analysis.
‡ Overall unique projects and participants for Peoples Gas were 387 and 385 respectively. Overall unique projects and participants for North Shore Gas were 121 and 119 respectively. Counts exclude duplicates that installed both DI and CI measures.

E.5. Conclusions and Recommendations

This section provides key EPY5/GPY2 SBES Program findings and recommendations.

Program Savings Goals Attainment

Finding 1a. The SBES Program achieved 377 percent of its EPY5 net electric energy savings goal. The Program raised its net energy savings by 273 percent and its coincident peak demand savings by 240 percent in EPY5 relative to EPY4. This impressive achievement was driven partly by the success of the geo-marketing pilot program, which comprised 15 percent of total Program net energy savings, although the core Program also performed well.

Recommendation 1a. The Program should expand the geo-marketing pilot program to other communities in its service territory.

Finding 1b. The Peoples Gas SBES Program achieved 236 percent of its GPY2 net therms savings goal and the North Shore Gas Program achieved 682 percent of its net therms goal. In the Nicor Gas service territory the Program raised its net therms savings by 1,950 percent, largely as a result of intensively targeting steam trap replacements in dry cleaners.

Recommendation 1b. The Peoples Gas and North Shore Gas Programs should consider more intensively targeting replacement of leaking and worn steam traps in dry cleaners and other venues with boilers (e.g., apartment buildings).

Gross Realization Rates

Finding 2. The Program achieved 100 percent realization on ex-ante kWh savings in EPY5, which is comparable to EPY4. The Program achieved 102 percent realization on ex-ante therms savings in GPY2, which is comparable to GPY1. Aside from adjustments made to unit savings for showerheads and aerators to conform with TRM (v1.0), the main exceptions were for electronically commutated (EC) motor measures, where unit savings were adjusted downward to be consistent with ex-ante savings from the ComEd Standard Program.

Recommendation 2. The Program should revise the tracking system unit savings values for EC motors to conform with ex-ante savings from the ComEd C&I Standard Program.

Pilot Program Findings.

Finding 3. The geo-marketing pilot program succeeded in raising uptake rates in the six small communities it targeted in EPY5. The geo-marketing model could be adapted to other settings besides small rural communities.

Recommendation 3. The Program should extend the pilot to other small and mid-sized communities in ComEd's service territory, and think creatively about adapting the geo-marketing delivery model to other settings where feasible.

Trade Ally and Other Participation.

Finding 4. Trade allies participating in the geo-marketing pilot indicated that they had been given too little time to prepare to enter and market the pilot in each test community.

Recommendation 4. The Program should give pilot program trade allies more notice before starting a pilot program.

The SBES Program succeeded not only in meeting, but soundly exceeding, both its electric and gas savings goals in EPY5/GPY2, and significantly increased its energy savings relative to the previous program year. This resulted in part from overall effective execution on the part of the utilities, Program implementers, and trade allies. But in a broader sense, this success resulted from bold thinking on the part of Program managers, and a willingness to adopt nontraditional approaches where appropriate to overcome existing market barriers to the adoption of energy efficiency measures. Both the geo-marketing pilot and the dry cleaner steam trap special offer achieved success by identifying an underserved market segment with significant upside potential and following a similar strategy: recruiting trade allies with the necessary knowledge and skills who were willing to commit to focusing intensively on the effort; making creative use of available local resources; being flexible in the face of barriers as they arose; and supporting the effort with aggressive incentives and marketing. Such creativity and willingness to take on additional risk to improve Program performance is commendable, and the Navigant team urges all involved to continue thinking "outside the box."

1 Introduction

1.1 Program Description

The Small Business Energy Savings (SBES) Program is designed to achieve energy savings goals by educating ComEd, Nicor Gas, and Peoples Gas and North Shore Gas small business customers about electric and natural gas savings opportunities through on-site assessments and added incentives. The implementers, Nexant for ComEd/Nicor and Franklin Energy for ComEd/Peoples Gas/North Shore Gas, provide energy advisors who conduct high-level walk-through assessments of customer sites. Customers are able to achieve immediate savings with the direct installation of specific products during the assessment at no cost to them. The no-cost measures promoted by the Program include low-flow faucets and showerheads, pre-rinse spray valves, vending machine controls, and compact fluorescent lights.

Further savings opportunities are offered to customers through incentives of 30 to 70 percent for selected low-cost electric and natural gas energy efficiency measures that may be installed by a local contractor at a second on-site visit. If the premises are rented, the Program implementer coordinates participation with the landlord or property owner. Trade allies are assigned on a rotating schedule based on geography unless the contractor recommended the Program to the customer.

In EPY5/GPY2 ComEd and Nicor Gas introduced innovative Program marketing efforts aimed at promoting uptake of certain electric and gas efficiency measures within certain segments of the target market. ComEd's geo-marketing pilot project intensively targeted six small communities outside of the Greater Chicago area with historically poor uptake rates with energy efficiency programs. Local contractors worked closely with business and community groups to promote installation of energy-efficiency measures over a limited time interval. During the pilot period, ComEd temporarily raised the incentives on most indoor lighting measures to 100 percent. Nicor, working cooperatively with the Chicago-based Korean-American Dry Cleaners Association, promoted steam trap replacement at area dry cleaners, also raising the incentive offered to 100 percent for a limited period. Peoples Gas also had an initiative aimed at dry cleaner steam traps in GPY2, but did not ask that it be separately evaluated.

1.2 Evaluation Objectives

Navigant identified the following key researchable questions for GPY2/EPY5:

1.2.1 Impact Questions

1. What is the level of gross and net annual energy savings induced by the Program?
2. Did the Program meet its energy saving goals?
3. Are the assumptions and calculations in compliance with the TRM? If not, what changes are required?

1.2.2 Process Questions

The process evaluation was limited to the ComEd-led geo-marketing pilot and the Nicor dry cleaner steam trap special offer. No process evaluation was performed for Peoples Gas and North Shore Gas in GPY2.

1. Effectiveness of pilot program implementation
    - Did the pilot/special offer meet savings goals?
    - Did the pilot/special implementation change from the initial design? If so, how, why, and was it advantageous?
    - How successful was the pilot/special compared to the core Program? What factor(s) were responsible?
    - What challenges occurred in implementation and how were they addressed?
    - (For geo-marketing pilot): Was the Program equally successful in all geographic locations? If not, how did they differ and why?
    - What were the characteristics of the participating customers and trade allies, and did they differ from what was expected? Who should have been more involved but were not, and how can the Program increase their involvement?

2. Pilot administration and delivery
    - How were the pilot/special trade allies recruited and trained?
    - Did their roles differ from those of trade allies in the core Program?
    - (For geo-marketed pilot): Did the core Program continue in the pilot areas after the initial "blitz" period?
    - Were the geographic and segment targeting strategies successful? Are any changes warranted? Could they be extended or adapted in new ways?

3. Effectiveness of pilot program design and processes
    - Were the pilot/special participation processes and Program requirements clearly explained to customers and trade allies?
    - Were participating trade allies allowed to perform their own assessments? If so, was this successful, did it cause any problems, and should the practice be extended to the core SBES Program?
    - Did the pilot/special processes create any barriers to trade ally or customer participation? If so, what were they and how could they be avoided in the future?
    - What did participating trade allies like about the pilot/special? Were there aspects that they didn't like?
    - What were the Program's expectations for the trade allies/Program partners, and were they met?
    - How does proportion of customers not installing no- or low-cost measures compare between the core Program and pilot/special?

4. How satisfied were customers and trade allies with the pilot/special?

5. Opportunities for Program improvement
    - What aspects of the pilot/special worked particularly well? What worked less well than anticipated?
    - Which areas could be improved to make the Program more effective?

6. Potential market effects
    2 Did the geo-marketing pilot trade allies market additional (non-interior lighting) measures to customers in the targeted communities? Did they target additional customers outside of the targeted communities?
    3 Did the steam trap special trade allies market additional (non-steam trap) measures to participating dry cleaners? Did they target additional dry cleaners outside of Program boundaries?

2 Evaluation Approach

The SBES Program evaluation involved limited impact work for EPY5/GPY2 since most of the Program's savings are derived from deemed values contained in the Illinois Technical Reference Manual (TRM), and Navigant reviewed the savings calculations for this Program in EPY4/GPY1. Gross savings were evaluated by (1) reviewing the tracking system to ensure that all fields were appropriately populated, (2) reviewing deemed and non-deemed measure algorithms and values in the tracking system to ensure that they were appropriately applied, and (3) cross-checking totals. Net-to-gross research was not conducted in EPY5/GPY2, aside from looking at potential spillover effects in the geo-marketing pilot program. EPY5/GPY2 NTG values were deemed by the SAG through consensus with the other utilities in Illinois.

The process evaluation for EPY5/GPY2 focused mainly on the geo-marketing pilot: how well it worked, how the marketing, administration and delivery could be improved, and possibilities for extending it in new directions. The process evaluation of the core Program was limited to following up on the EPY4/GPY1 recommendations, updating the key performance indicators (KPIs) based on interviews with relevant staff from the utilities and implementers, and updating the conclusions from the Verification, Due Diligence and Program Theory memo.

2.1 Overview of Data Collection Activities

The gross impact verification was based on a review of the Program tracking data. Data collection for the process evaluation included telephone interviews with Program and implementer staff, as well as customers and trade allies who participated in the geo-marketing pilot.

The full set of data collection activities is shown in Table 2-1.

Table 2-1. Core Data Collection Activities

N	What	Who	Target Completes	Completes Achieved	When	Comments
			Impact Assessment			
1	Measure Savings Review	Program Tracking System	all	all	July-August 2013	Source of information for verified gross analysis
			Process Assessment			
2	In-depth Interviews	Utility Program Staff	1[a]	1	May – September 2013	Data collection supporting process analysis
3	In-depth Interviews	Implementer staff	1[b]	1	May – September 2013	Data collection supporting process analysis
4	In-depth Interviews	Participating trade allies (geo-marketing pilot)	4[c]	4	May – September 2013	Data collection supporting process analysis
5	In-depth Interviews	Program participant customers (geo-marketing pilot)	20	17	May – September 2013	Data collection supporting process analysis

Notes: [a] ComEd; [b] Nexant, which implemented the geo-marketing pilot; [c] Nexant indicated that a total of four Trade Allies were selected to participate in the geo-targeted pilot.

2.2 Verified Savings Parameters

Navigant calculated the verified gross and net savings for the EPY5/GPY2 SBES Program measures using algorithms defined by the Illinois TRM version 1.0. Table 2-2 provides the data sources and assumptions used to obtain each parameter or measure.

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

Input Parameters	Data Source	Deemed or Evaluated?
Verified Gross Realization Rates	Evaluation Research	Evaluated
NTG Ratio	SAG Spreadsheet †	Deemed
All Lighting Measures	TRM v1.0 (sections 4.5.1 to 4.5.7) ‡	Deemed
Program Bulbs	*EPY5 Program Tracking System*	*Evaluated*
Delta Watts	*TRM v1.0 ‡*	*Deemed*
Hours of Use (HOU)	*TRM v1.0 ‡*	*Deemed*
Peak Load Coincidence Factor	*TRM v1.0 ‡*	*Deemed*
Energy Interactive Effects	*TRM v1.0 ‡*	*Deemed*
Demand Interactive Effects	*TRM v1.0 ‡*	*Deemed*
Installation Rate	*TRM v1.0 ‡*	*Deemed*
Showerheads and Aerators	TRM v1.0 (section 4.3.2 and 4.3.3) ‡	Deemed
Cooling Miser	TRM v1.0 (section 4.6.2)	Deemed
Pre-Rinse Sprayers	TRM v1.0 (section 4.2.11) ‡	Deemed
EC Motor, Reach-in/Walk-in	TRM v1.0 (section 4.2.11)	Deemed
Vending Miser	TRM v1.0 (section 4.6.2)	Deemed
Showerhead and Aerators	TRM v1.0 (section 4.3.2 and 4.3.3) ‡	Deemed
Hot Water Turn Down	Evaluation research	Evaluated
Pre-Rinse Sprayers	TRM v1.0 (section 4.2.11) ‡	Deemed
Boiler Reset Control	TRM v1.0 (section 4.4.4) ‡	Deemed
Boiler Tune-up	TRM v1.0 (section 4.4.2) ‡	Deemed
Condensing Furnace Upgrade	TRM v1.0 (section 4.4.11) ‡	Deemed
Furnace Tune-up	Evaluation research	Evaluated (previous year value)
Scheduled Programmable Thermostats	Evaluation Research	Evaluated
Installed Programmable Thermostats	Evaluation research	Evaluated (previous year value)
Gas Water Heater +88% TE	TRM v1.0 (section 4.3.1) ‡	Deemed
Steam Traps	TRM v1.0 (section 4.4.15) ‡	Deemed
Infrared Heaters	TRM v1.0 (section 4.4.12) ‡	Deemed
HW Heater Insulation Jacket	Evaluation research	Evaluated

‡Illinois_Statewide_TRM_Effective_060112_Final_091412_Clean. †ComEd: http://ilsagfiles.org/SAG_files/Meeting_Materials/2013/August 5-6, 2013 Meeting/ComEd PY5-PY6 Proposal Comparisons with SAG.xls. Peoples Gas and North Shore Gas: NTG_PGL-NSG_GPY1-GPY3_and_Phase_II_ Plan_07_15_13.xls.

2.3 Verified Gross Program Savings Analysis Approach

Navigant's verified gross savings approach involved reviewing the ex-ante measure types in the tracking system to determine which were deemed, and which were non-deemed and thus subject to evaluation adjustments. For measures with deemed TRM values, verified gross savings were determined by multiplying deemed per unit savings by the verified quantity of eligible measures installed. Deemed measures were required to meet all physical, operational, and baseline characteristics as defined in the TRM. For non-deemed C&I measures (e.g., temperature turn-down, installed and scheduled programmable thermostats), the evaluation team relied on secondary research to verify the claimed savings.

2.4 Verified Net Program Savings Analysis Approach

Navigant calculated verified net energy savings by multiplying the verified gross savings estimates by the Program net-to-gross ratio. In EPY5/GPY2 the NTG ratio estimates used to calculate the Net Verified Savings were deemed, based on the previous year's evaluation research and defined through a consensus process with SAG.[12] For the SBES Program, the NTG ratio estimate was 0.90 for electric measures and 0.99 for gas measures.

Spillover was explored in two ways in the process evaluation. Interviewed customers were asked about their plans to participate in the Program again and about their knowledge of other programs. Interviewed trade allies were asked about spillover behavior they observed in their customers.

2.5 Process Evaluation

The process evaluation of the geo-marketing pilot program relied on interviews with utility and implementer staff, participating customers and trade allies. Navigant conducted in-depth, open-ended interviews with seventeen customers about their experience with the pilot program. Questions covered Program administration, communications, Program satisfaction and improvements, and awareness of other ComEd/Nicor Gas programs, along with customer background information. The sampling frame for the interview sample consisted of the set of 302 unique pilot program participants which we identified from the Frontier tracking system. Participants were selected from this list using a random selection process. Interviews were conducted by telephone.

Four trade allies participated in the geo-marketing pilot, and all were interviewed by telephone. Questions covered trade allies' views on the administration of the pilot, the effectiveness of pilot program implementation, the effectiveness of pilot program design and processes, customer and trade ally satisfaction with the Program, Program barriers, and potential market effects or spillover.

Spillover was explored in two ways in the process evaluation. Interviewed customers were asked about their plans to participate in the Program again and about their knowledge of other programs. Interviewed trade allies were asked about spillover behavior they observed in their customers.

[12] ComEd PY5 NTG Comparisons with SAG

3 Gross Impact Evaluation

Navigant reviewed the tracking system and verified the ex-ante gross savings. Where the tracking ex-ante unit savings did not conform to TRM assumptions, we applied the necessary adjustments to obtain the correct value. Verified gross savings was calculated by multiplying the quantity of measures installed by the TRM verified measure unit savings. The Program verified gross realization rate was determined by calculating the ratio of verified savings to ex-ante savings. The overall verified gross realization rate was 1.00 for electric measures and 1.02 for gas measures.

3.1 Tracking System Review

The evaluation team relied on data extracted from ComEd's Frontier Tracking System (ComEd 8-02-2013 data extract) as the final tracking data system to review the ex-ante electric inputs, and data extracted from Franklin Energy's Bensight Data Management system (September 12, 2013 data extract) for data to review the ex-ante gas inputs. Prior to this, we received and reviewed preliminary data from the Frontier database extracted on July 3, 2013. These data enabled the evaluation team to gather customer contact information to proceed with the process evaluation of the geo-marketing pilot.

Navigant verified that both the Frontier and Bensight tracking databases capture the relevant information about the installed measures and projects, installed quantities, and installation dates required to track the Program's actions for reporting and evaluation activities, and that the Program's implemented quality assurance and quality control procedures, previously implemented and verified from EPY4/GPY1, are still in place and are reasonable to minimize the likelihood of data entry errors.

Listed below are the key findings and recommendations from the tracking system review.

3.1.1 Electric Measure Tracking Findings

1. Navigant found discrepancies in the assumptions built into the Frontier tracking system to calculate unit measure savings, particularly for lighting measures, where it appears that the implementers used different assumptions to calculate savings for some measure. This resulted in different per-unit savings values for the same lighting measures in some instances. For example, we found that for lamp/ballast retrofits, delamping, and several other measures, the delta watts and savings from installations in the Nicor Gas territory differed from those in the Peoples Gas and North Shore Gas territories. For occupancy sensors, it appears that savings were tracked on different bases (per-occupancy and per-sensor). Navigant brought this issue to ComEd's attention and received word that the discrepancies stemmed from assumptions used by Franklin for some measures that were inconsistent with the TRM v1.0 approved for EPY5/GPY2 evaluation, and that Franklin would be adjusting their data tracking system to correct the problem. To our knowledge this was not done in time to be reflected in the impact results presented in this report.
    - **Recommendation:** Program staff should verify that lighting and occupancy sensor measures in the EPY6 Frontier and Bensight tracking systems are correctly tracking TRM values.

2. The claimed electric savings for bathroom and kitchen aerators are inconsistent with the TRM v1.0. As was true with the EPY4/GPY1 SBES Program evaluation, the errata correction ("GPM Factor" redundancy) for showerhead and faucet aerators which had been brought to the attention of the TRM Technical Advisory Committee had not been approved by the ICC at the time of writing. Hence, Navigant used the uncorrected TRM inputs and adjusted the ex-ante savings for bathroom aerators from 143 kWh to 102 kWh, and for kitchen aerators from 298 kWh to 85 kWh.
    - **Recommendation:** Program staff should verify that bathroom and kitchen aerator measures in the EPY6 Frontier and Bensight tracking systems are correctly tracking TRM values.

3. The ex-ante unit savings claimed in Frontier for pre-rinse spray valves is either 3,709 kWh or 4,154 kWh depending on the Program implementer. The evaluation team adjusted the savings to the default TRM value of 4,145 kWh for direct-install.[13]
    - **Recommendation:** Program staff should ensure that the EPY6 tracking system uses the default TRM value for pre-rinse spray valves.

4. Claimed ex-ante savings for EC Motor Walk-in and Reach-in measures in coolers and freezers are not consistent with research findings, nor with ComEd's EPY5 Workpaper on such measures or ComEd's claimed savings for similar measures in the C&I Standard Program. Navigant revised the ex-ante values from, respectively, 467 kWh to 401 kWh for Walk-ins, and 370 kWh to 344 kWh for Reach-ins.[14]
    - **Recommendation:** Program staff should verify that EC Motor measures in coolers and freezers in the EPY6 tracking system are consistent with research findings, including the ComEd Refrigeration Workpaper and claimed savings for similar measures in other programs.

5. The SBES Program complied with the EISA regulation and the TRM requirement to retrofit 100W incandescent bulbs to 23W CFLs. The post-EISA (after June 2012) watt base for a 100W incandescent replacement should be 72W, giving a delta watts of 49W. On the other hand, we found the tracking delta watts for 20W CFL was 52W assuming a 72W base. We changed the delta watts to 55W, because 75W bulbs were not affected by the EISA rule during the EPY5 program year.
    - **Recommendation:** Program staff should verify that the baseline wattages used to calculate delta watts for lighting measures in the EPY6 tracking system are consistent with current EISA rules and TRM requirements.

6. The Program claimed 63 kWh savings for scheduled programmable thermostats. This is a custom value, since this measure is not covered in the TRM. We did not adjust this value, but note that the basis for this calculation is not clear.
    - **Recommendation:** ComEd should conduct research to establish the inputs assumptions for the claimed savings from this measure. The same should be done for the installed thermostats measure.

[13] Illinois TRM §4.2.11, pp. 101-105.
[14] *Ibid.*, §4.6.4, pp. 279-282.

7. The Frontier tracking system distinguishes electric measures installed through the geo-marketing pilot from electric measures installed through the core SBES Program via the addition of a "Pilot" suffix to the measure description where appropriate.
    - **Recommendation:** The evaluation team commends the implementer for providing this information, which allowed the evaluation team to identify pilot program participants. However, participants should be identified via a separate participation field rather than by adding a suffix to the measure description field.

8. In the communities targeted by the geo-marketing pilot program the Frontier tracking system understated to varying extents the numbers of projects and installed measures, and thus also energy savings, that were achieved. This occurred because the participating trade allies initially focused primarily on marketing the pilot, which resulted in a backlog of orders that took time to work through. In the first wave of the pilot, which began in February and targeted Dixon, Oregon and Sterling, roughly half of the savings attributable to the EPY5 pilot was not realized until EPY6. In the second wave, which began in April and targeted Harvard, Marengo and Woodstock, nearly 70 percent of the savings from the EPY5 effort was not realized until EPY6.[15]
    - **Recommendation:** We recognize that impacts of measures installed during EPY6 are properly credited to that program year. However, we caution that some of the wide variation observed in pilot program impacts (e.g., measures, projects, savings) across communities was an artifact of this timing issue rather than reflecting substantive differences in how the pilot was delivered, and should not be taken as an indication of poor performance on the part of Program staff, the implementer, or participating trade allies. To fully evaluate the success of the pilot program, impacts should be based on tracking data that reflect all of the projects implemented during the period the pilot was active in each community.

3.1.2 Gas Measure Tracking Findings

1. In addition to giving Navigant access to the Bensight tracking database, Franklin provided the evaluation team with a spreadsheet of measure savings (*Integrys_Master_Measure_Document 010213)* derived from either the TRM, in the case of deemed measures, or other engineering estimations.
    - **Recommendation:** None. The evaluation team commends the implementer for providing this document, which was very useful to the evaluation team for cross-checking the assumptions and engineering calculations used to produce the claimed savings in the Bensight tracking system against the TRM algorithms.

2. The Bensight tracking system does not automatically update when the *"Master Measure Document"* is revised with new measure assumptions or savings calculations. Navigant adjusted the claimed savings from the tracking system for some measures (including steam traps, bathroom aerators, and pre-rinse sprayers) to reflect the TRM or verified engineering calculations.

[15] Personal communication with Nexant program manager.

- **Recommendation:** The tracking system should be regularly updated so as to reflect new measure assumptions or savings calculations in a timely way.

3. As we mentioned in the EPY4/GPY1 evaluation report, Peoples Gas and North Shore Gas based claimed boiler measure savings on fixed assumed equipment sizes, whereas the Illinois TRM[16] savings estimates use heating equipment gas input size as a measure-level custom input to the algorithms. We did not observe project-specific heating equipment sizes in the tracking system.
   - **Recommendation:** Program staff should ensure that heating measure gas input sizes are being tracked and recorded.

4. The Bensight building type lookup has not been updated to match the TRM's method of calculating per-unit savings in some cases. For instance, for space heating measures, including boilers, furnaces, and tune-ups, the TRM has separate equivalent full-load hours assumptions for low-, mid-, and high-rise offices, instead of the single default value found in the tracking system. Similarly, the TRM separates strip mall and department store retail building types, which is not reflected in the tracking file.
   - **Recommendation:** Program staff should update the building-type lookup in the tracking system to match the TRM.

5. The Bensight tracking system does not indicate which steam trap installations were inspected for leaks prior to replacement or whether there were instances of mass replacement without inspection. In discussions with Navigant regarding their approach, Franklin confirmed that they applied the TRM-recommended adjustment where there were mass replacements.
   - **Recommendation:** Program staff should ensure that the tracking system follows the recommended TRM algorithms for calculating steam traps savings to the extent possible. Leakage audits should be verified and tracked; when only a proportion of traps are checked, the percentage audited should be noted in the tracking system.

3.2 Program Volumetric Findings

The EPY5/GPY2 SBES Program had 1,881 unique electric projects (including 302 projects in the geo-marketing pilot) and 508 gas projects. The Program distributed 1,245 direct-install electric measures and 189,563 contractor-installed electric measures (including 13,195 measures from the geo-marketing pilot), giving a total 190,808 Program electric measures. It also distributed 685 direct-install gas measures and 3,188 contractor-installed measures for a total of 3,873 Program gas measures. Details of the volumetric Program findings are presented in the Appendix (section 7).

3.2.1 Electric Volumetric Findings

1. The bulk of EPY5 electric savings came from lighting measures, which accounted for 99 percent of the total verified gross savings and installed measures, up from 96 percent in EPY4.

[16] State of Illinois Energy Efficiency Technical Reference Manual, Final version, September 14, 2012, effective June 1, 2012.

2. The core Program contributed about 85 percent of SBES projects in EPY5, compared to 15 percent for the geo-marketing pilot project.

3. The SBES Program in EPY5 had 1,881 unique projects (302 projects in the pilot program), up from 690 in EPY4. The Program distributed 1,245 direct-install electric measures, and 189,563 low-cost capital investment and contractor-installed measures (including 13,195 measures through the geo-marketing pilot), giving a total 190,808 Program measures.

4. The total quantity of contractor-installed projects rose from 401 in EPY4 to 1,653 in EPY5 (an increase of 173 percent). Verified net energy savings in EPY5 increased by 273 percent.

5. LED lamps and fixtures accounted for about 22 percent of the measure count and total verified savings. High Performance or Reduced Wattage (1,2,3, or 4 lamps HP/RW T8 retrofit and ballast) accounted for 15 percent of verified savings, while delamping 4-foot or 8-foot lamps (1,2,3,or 4 delamping with or without reflectors) accounted for about 38 percent of the total verified savings. HID and High Bay lighting retrofits to HPT8 accounted for about 15 percent of the verified savings.

6. Participants who installed measures spanned various business categories, with the retail sector accounting for the largest of the installed measures, followed by office space.

7. A total of 23 unique electric projects were identified with installed measures from both the core Program and the geo-marketing pilot.

Table 3-1. EPY5 Electric Volumetric Findings Overview

Participation	Core Program Projects		Geo Pilot Projects	Overall Program
	Direct Install	Contractor Installed	Contractor Installed	
Ex-Ante Gross Savings (MWh)	513	31,343	5,473	37,329
Total Installed Measures	1,245	176,368	13,195	190,808
Unique Projects	487	1,352	302	1,881*
Savings (MWh) per Project	1	23	18	20
Measures per Project	3	130	44	101

Source: Frontier EPY5 tracking system data and Navigant analysis.

** Unique projects exclude duplicate projects with both CI and DI measures. There were 260 of such projects.*

Table 3-2. SBES Program Electric Volumetric Findings from EPY5 and EPY4

Program Result	EPY4	EPY5	Year-to-Year Volumetric Difference (EPY5/EPY4)
Ex-Ante Gross Savings (MWh)	9,207	37,329	405%
Verified Gross Savings (MWh)	9,483	37,303	393%
Verified Gross Realization Rate	1.03	1.00	
Direct-installed Measures	1,474	1,245	84%
Contractor-installed Measures	26,368	189,563	719%
Total Measures	27,842	190,808	685%
Direct-installed Projects	478	487	102%
Contractor-installed Projects	401	1,652	412%
Overall Unique Projects	690	1,881	273%

Source: Frontier EPY4 and EPY5 tracking data and Navigant analysis.

3.2.2 Gas Volumetric Findings

1. The bulk of the therms savings in GPY2 came from steam trap replacements, with dry cleaner steam trap replacements accounting for about 68 percent of total Program savings for Peoples Gas, and about 82 percent of total Program savings for North Shore Gas. Details are provided in Section 7.2.

2. In GPY2 (Table 3-3), the Peoples Gas SBES Program distributed 2,991 measures (including 444 direct-install gas measures, and 2,547 contractor-installed measures) resulting from 387 implemented unique projects and 385 unique business participants[17]. The North Shore Gas SBES Program distributed 882 measures (including 241 direct install gas measures, and 641 contractor installed measures) resulting from 121 implemented unique projects and 119 unique business participants.

3. Compared to the previous program year (Table 3-4 and Table 3-5), the SBES Program performed well in terms of participation, installed projects and measures sold.

4. Participants who installed measures spanned various business categories. The bulk of the savings and measures installed came from retail sector, followed by the multifamily sector.

[17] People Gas had 66 projects from 50 participants who installed both direct install and contractor installed measures. North Shore had 25 projects from 18 participants who installed both direct install and contractor installed measures.

Table 3-3. GPY2 Volumetric Findings Detail

Savings Category	Peoples Gas			North Shore Gas		
	Direct Install	Contractor Installed	Peoples Gas Program Overall	Direct Install	Direct Install	North Shore Gas Program Overall
Ex Ante Gross Savings (Therms)	9,229	553,119	562,348	4,006	253,014	257,020
Total Installed Measures	444	2,547	2,991	241	641	882
Projects	128	325	387	42	104	121
Participants	123	312	385	39	98	119
Therms/Project	72	1,702	1,453	95	2,433	2,124
Projects/ Participant	1.04	1.04	1.01	1.08	1.06	1.02

Source: Bensight tracking data and Navigant analysis.

Table 3-4. Peoples Gas SBES Program Volumetric Findings from GPY2 and GPY1

Program Result	GPY1	GPY2	Year-to-Year Volumetric Difference (GPY2/GPY1)
Ex Ante Gross Savings (Therms)	90,515	562,348	621%
Verified Gross Savings (Therms)	89,610	572,451	639%
Verified Gross Realization Rate	0.99	1.02	
Direct Installed Measures	845	444	53%
Contractor Installed Measures	450	2,547	566%
Total Measures	1,295	2,991	231%
Direct Installed Projects	162	128	79%
Contractor Installed Projects	147	325	221%
Overall Unique Projects	309	387	125%
Overall Business Participants	283	385	136%

Source: Utility GPY1 and GPY2 tracking data and Navigant analysis.

Table 3-5. North Shore Gas SBES Program Volumetric Findings from GPY2 and GPY1

Program Result	GPY1	GPY2	Year-to-Year Volumetric Difference (GPY2/GPY1)
Ex Ante Gross Savings (Therms)	44,399	257,020	579%
Verified Gross Savings (Therms)	43,955	261,732	595%
Verified Gross Realization Rate	0.99	1.02	
Direct Installed Measures	419	241	58%
Contractor Installed Measures	212	641	302%
Total Measures	631	882	140%
Direct Installed Projects	32	42	131%
Contractor Installed Projects	55	104	189%
Overall Unique Projects	87	121	139%
Overall Business Participants	79	119	151%

Source: Utility GPY1 and GPY2 tracking data and Navigant analysis.

3.3 Verified Gross Program Impact Results

3.3.1 Electric Results

Verified gross electric impact results are shown in Table 3-6, disaggregated by Program channel and installation type. Total Program verified gross savings is 37,303 MWh and a peak demand savings of 6.34 MW. Statistical estimates of confidence and precision are not reported because no sampling was performed in EPY5 for gross and net impact verifications.

The geo-marketing pilot had a verified gross realization rate of 1.00 and contributed about 15 percent of the Program overall verified gross savings in EPY5. The core Program contributed 85 percent of the verified savings with a 1.00 realization rate. The overall Program verified gross realization rate was 1.00. Detailed breakdowns of the electric gross savings results by Program delivery channel, installation type, and measure are presented in the Appendix (Section 7).

Table 3-6. EPY5 Verified Electric Gross Impact Savings Estimates by Program Delivery Channel

Program Delivery	Gross Energy Savings (MWh)		Gross Peak Demand Savings (MW)	
	Direct Install	Contractor Installed	Direct Install	Contractor Installed
Core Projects				
Ex-Ante Gross Savings	513	31,343	0.09	5.32
Verified Gross Realization Rate	0.99	1.00	0.99	1.00
Verified Gross Savings	509	31,321	0.09	5.32
% of Program Verified Savings	1%	84%	1%	84%
Geo-Marketing Pilot Projects				
Ex-Ante Gross Savings	-	5,473	-	0.93
Verified Gross Realization Rate	-	1.00	-	1.00
Verified Gross Savings	-	5,473	-	0.93
% of Program Verified Savings		15%		15%
EPY5 Program Total				
Ex-Ante Gross Savings		37,329		6.34
Verified Gross Realization Rate		1.00		1.00
Verified Gross Savings (MWh)		37,303		6.34

Source: Evaluation Team analysis.
Note: Verified gross realization rates are round to 2 digits, so direct application to the ex-ante does not produce the actual verified gross savings shown.

3.3.2 Gas Results

Verified gross gas impact results are shown in Table 3-7 disaggregated by Program delivery channel. Total Program verified gross savings is 572,451 therms for Peoples Gas and 261,732 therms for North Shore Gas. As with the corresponding electric results, the estimates are not based on sampling and thus no statistical confidence or precision estimates are reported.

Table 3-7. GPY2 Verified Gas Gross Impact Savings Estimates by Program Delivery Channel

Program Delivery	Direct Install	Contractor Installed
Peoples Gas		
Ex-Ante GPY2 Gross Savings	9,229	553,119
Verified Gross Realization Rate	0.93	1.02
Verified Gross Savings	8,625	563,826
North Shore Gas		
Ex-Ante GPY2 Gross Savings	4,006	253,014
Verified Gross Realization Rate	0.92	1.02
Verified Gross Savings	3,683	258,050

Source: Evaluation Team analysis.
Note: Verified gross realization rates are round to 2 digits, so direct application to the ex-ante does not produce the actual verified gross savings shown.

4 Net Impact Evaluation

4.1 Electric Net Impacts

Using the SAG-approved[18] net-to-gross ratio of 0.90 based on EPY4 NTG research, Navigant calculated verified net savings of 33,573 MWh and a peak demand net savings of 5.7 MW as shown in Table 4-1.

Table 4-1. EPY5 Verified Net Electric Savings Estimates by Measure Type

Program Delivery	Net Energy Savings (MWh)		Net Peak Demand Savings (MW)	
	Direct Install	Contractor Installed	Direct Install	Contractor Installed
Core Program Projects				
Ex-Ante Gross Savings	513	31,343	0.09	5.32
Verified Gross Realization Rate	0.99	1.00	0.99	1.00
Verified Gross Savings	509	31,321	0.09	5.32
Net-to-Gross Ratio	0.90	0.90	0.90	0.90
Verified Net Savings	458	28,189	0.08	4.79
Geo Pilot Projects				
Ex-Ante Gross Savings	-	5,473	-	0.93
Verified Gross Realization Rate	-	1.00	-	1.00
Verified Gross Savings	-	5,473	-	0.93
Net-to-Gross Ratio	0.90	0.90	0.90	0.90
Verified Net Savings	-	4,925	-	0.84
EPY5 Program Total				
Ex-Ante Gross Savings		37,329		6.34
Verified Gross Realization Rate		1.00		1.00
Verified Gross Savings		37,303		6.34
Net-to-Gross Ratio		0.90		0.90
Verified Net Savings		33,573		5.71

Source: Evaluation Team analysis. Note: Verified gross realization rates are rounded to 2 digits, so direct application to the ex-ante may not produce the actual verified gross savings shown.

Table 4-2 compares the SBES Program's EPY5 targeted net electric savings to what was actually realized. The Program achieved 377 percent of its targeted EPY5 electric savings.

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

Table 4-2. EPY5 Targeted Net Savings Achieved

Installed Type	Ex-Ante Net Savings (MWh)	Verified Net Savings (MWh)	Targeted EPY5 Savings (MWh)	% Target Savings Achieved
ComEd SBES Program (EPY5)	31,730	33,573	8,900	377%

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

Year-over-year comparison of the SBES Program's electric energy savings, shown in Table 4-3, confirms that the Program performed extremely well in EPY5, with a nearly four-fold increase in verified net electric MWh savings from EPY4 to EPY5.

Table 4-3. SBES Program Year-over-Year Electric Results

Program Result	EPY4	EPY5	Year-to-Year Volumetric Difference (EPY5/EPY4)
Ex-Ante Gross, MWh	9,207	37,329	405%
Verified Gross, MWh	9,483	37,303	393%
Verified Gross Realization Rate	1.03	1.00	
Verified Net, MWh	9,009	33,573	373%
Net-to-Gross Ratio	0.95	0.90	
Number of Unique Projects	690	1,892	274%
Percent of Ex-Ante Gross MWh Savings from Lighting	96%	99%	

Source: EPY4 evaluation report, Frontier EPY5 tracking data, Navigant analysis. Values shown have been rounded.

4.2 Gas Net Impacts

Using the SAG-approved[19] net-to-gross ratio of 0.99 based on GPY1 NTG research, Navigant calculated verified net savings of 566,727 therms for Peoples Gas and 259,115 therms for North Shore Gas, as shown in Table 4-4.

[19] *Nicor_Gas_NTG_Results_and_Application_GPY1-3*

Table 4-4. GPY2 Verified Net Impact Savings Estimates by Install Type

Program Delivery	Direct Install	Contractor Installed	Program Total
Peoples Gas			
Ex-Ante GPY2 Gross Savings	9,229	553,119	562,348
Realization Rate	0.93	1.02	1.02
Verified Gross Savings	8,625	563,826	572,451
Net-to-Gross Ratio (NTGR)	0.99	0.99	0.99
Verified Net Savings	8,539	558,188	566,727
North Shore Gas			
Ex-Ante GPY2 Gross Savings	4,006	253,014	257,020
Realization Rate	0.92	1.02	1.02
Verified Gross Savings	3,683	258,050	261,732
Net-to-Gross Ratio (NTGR)	0.99	0.99	0.99
Verified Net Savings	3,646	255,469	259,115

Source: Evaluation Team analysis.
Note: Verified gross realization rates are rounded to 2 digits, so direct application to the ex-ante may not produce the actual verified gross savings shown.

Table 4-5 compares Program GPY2 targeted net savings to what was actually realized. The SBES Program achieved 236 percent of its targeted GPY2 therms savings for Peoples Gas and 682 percent of its targeted GPY2 therms savings for North Shore Gas.

Table 4-5. GPY2 Targeted Net Savings Achieved

Utility	Ex Ante Net Savings (Therms)	Verified Net Savings (Therms)	Target Net Savings (Therms)	Percent Net Therms Target Achieved
Peoples Gas	556,724	566,727	240,000	236%
North Shore Gas	254,450	259,115	38,000	682%

Source: PG_NSG GPY2 Preliminary ICC report 2013-07-11

Year-over-year comparisons of the SBES Program's gas savings are shown in Table 4-6. This is largely attributable to the introduction of the steam trap replacement measures for HVAC and dry cleaning customers.

Table 4-6. Peoples Gas SBES Program Year-to-Year Results

Program Result	GPY1	GPY2	Year to Year Difference (GPY2/GPY1)
Ex Ante Gross Therms	90,515	562,348	621%
Verified Gross Therms	89,610	572,451	639%
Realization Rate	0.99	1.02	
Verified Net Therms	88,714	566,727	639%
Net-to-Gross Ratio	0.99	0.99	
Unique Projects	309	387	125%

Source: EPY4/GPY1 Evaluation Report; Bensight GPY2 Tracking Database

Table 4-7. North Shore Gas SBES Program Year-to-Year Results

Program Result	GPY1	GPY2	Year to Year Difference (GPY2/GPY1)
Ex Ante Gross Therms	44,399	257,020	579%
Verified Gross Therms	43,955	261,732	595%
Realization Rate	0.99	1.02	
Verified Net Therms	43,515	259,115	595%
Net-to-Gross Ratio	0.99	0.99	
Unique Projects	87	121	139%

Source: EPY4/GPY1 Evaluation Report; Bensight GPY2 Tracking Database. .

5 Process Evaluation

The SBES EPY5/GPY2 process evaluation focused on two innovative marketing initiatives that were introduced during this program year: the ComEd-led geographically-focused marketing pilot program ("geo-marketing pilot") and the Nicor-led steam trap special offer ("steam trap special"). No process evaluation of core Program elements was pursued in this program year, since the core Program was substantially the same as the previous year.

Each process evaluation sought to address the following research questions through in-depth, open-ended interviews with the utility and implementer Program managers, and participating trade allies and customers:

- Effectiveness of Program implementation
- Program administration and delivery
- Effectiveness of Program design and processes
- Customer and trade ally experience and satisfaction with the Program
- Opportunities for improvement
- Potential market effects

5.1 ComEd Geo-Marketing Pilot Program

ComEd's geo-marketing pilot targeted six small communities north and west of the Greater Chicago area that had experienced poor uptake rates with the core SBES Program in EPY4. The initial roll-out of the pilot took place in the adjacent towns of Dixon in Lee County, Sterling in Whiteside County, and Oregon in Ogle County. Subsequently three more communities were added: Harvard, Marengo, and Woodstock, all in McHenry County. Four trade allies were recruited to deliver the pilot program to the six communities. Two of them served two communities each, and remaining two each served one community. After receiving additional training, the participating trade allies were allowed to perform their own assessments rather than having to rely on the implementer for this step, as is the practice in the core Program.

The overarching marketing strategy was common across all six target communities: "blitzing" the town to promote intensive installation of energy-efficient measures over a limited time interval.[20] During these periods Program incentives were boosted to 100 percent of material and labor costs (excluding only sales taxes and recycling fees for removed lamps). Once the promotional period ended, incentives reverted to 75% of material and labor costs, up from 50% before the pilot program. All measures offered through the core SBES Program were available through the pilot, although the enhanced incentive applied only to interior lighting measures.[21] However, while the overall approach was the same, each trade ally pursued a somewhat different combination of marketing strategies, which we explore below.

[20] These lasted twelve weeks in Dixon, Oregon and Sterling, eight weeks in Harvard, Marengo and Woodstock.
[21] Interview with ComEd program manager.

The first goal of the process evaluation was to assess the geo-marketing pilot's success in meeting savings goals. ComEd did not establish explicit savings targets for the pilot program. However, the Frontier tracking system identifies Program measures delivered through the pilot.[22] By this measure, the pilot accounted for 15 percent of total SBES net energy (MWh) savings and net peak demand (MW) savings, and 7 percent of contractor-installed measures, in EPY5.[23]

A second research goal of the process evaluation was assessing whether the pilot program was equally successful in all of the target communities, and if not, how the performance differed and why. The tracking data reveal large variations among the target communities with respect to both savings and installed measures (Table 5-1), disparities that remain even after standardizing on the number of business firms in each community to remove the effect of population differences.

Table 5-1. EPY5 Energy Savings and Participation Detail by Town, Geo-Marketing Pilot

Attribute	Target Community					
	Dixon	Harvard	Marengo	Oregon	Sterling	Woodstock
Ex Ante Gross Savings (MWh)	1,803	821	56	148	724	1,921
Total Installed Measures	5,381	1,609	114	307	1,687	4,097
Unique Projects	96	38	1	4	38	125
Number of Businesses	515	270	298	192	511	851
Projects/Business	0.19	0.14	0.00	0.02	0.07	0.15
Measures/Project	56.05	42.34	114.00	76.75	44.39	32.78
Measures/Business	10.45	5.96	0.38	1.60	3.30	4.81

Source: Frontier EPY5 tracking data, City-Data.com (http://www.city-data.com), Navigant analysis.
Note: Values comprise only measures attributed to the geo-marketing pilot in the Frontier tracking system (interior lighting measures installed during the pilot period in each community).

However, it would be a mistake to give too much weight to these disparities, since, as pointed out in Section 3.1.1 (Finding 8), the tracking system overstated the differences among the outcomes in the target communities. In the towns where the first wave of the pilot was carried out (Dixon, Oregon, Sterling), the pilot finished early enough that roughly 50 percent of the savings was realized in EPY5, with the remainder occurring in EPY6. But because the second wave (in Harvard, Marengo and Woodstock) did not start until the first week of April 2013 and did not end until one week before the end of EPY5, approximately 70 percent of the savings was realized in EPY6.[24]

To address research questions related to the pilot program's administration and delivery, as well as customer and trade ally satisfaction and suggestions for improvement, Navigant relied on in-depth interviews with the participating trade allies and customers in each of the targeted communities.

[22] In the Frontier tracking system the word "PILOT" was appended to the measure descriptions of measures that had been delivered through the geo-marketing pilot.
[23] See Tables 3-1 and 4-1.
[24] Navigant confirmed these savings proportions with the Nexant Program Manager.

Interviews were conducted from August 19 to September 19, 2013. In all cases, Navigant interviewed the president or owner of the company.

5.1.1 Pilot Program Trade Allies

The trade allies selected for the pilot program all had extensive experience working with the core SBES Program, and received additional training from the implementer on grassroots marketing and conducting customer assessments. Trade allies were asked to use local media and contact the local Chambers of Commerce for support. They were provided with specially-developed marketing materials that they could print off and use as they saw fit. Trade allies were asked to "be the ambassadors of the Program", according to the ComEd Program Manager.

A critical factor in the success of the geo-marketing pilot, according to both the ComEd and Nexant Program managers was the ability of the individual trade allies to respond flexibly to local conditions in the target communities. The trade allies were able to "turn the Program on a dime," tweaking their marketing strategies on the fly if necessary to adapt to unforeseen circumstances, according to ComEd's Program manager. This resulted in a largely positive response to the Program. ComEd's external affairs department reported that the pilot received almost entirely positive feedback from business owners in the targeted towns. On the strength of such strong customer satisfaction, ComEd is currently preparing a marketing document featuring testimonials from four customers who participated in the pilot who will share their positive experiences with the Program, according to the ComEd Program manager.

5.1.1.1 Program Barriers

Trade allies reported that they faced a number of challenges to their ability to successfully deliver the pilot:

- Establishing legitimacy: Trade allies were perceived as coming from outside and were selling a product that struck some as being "too good to be true." One trade ally commented that "Getting people to believe it was legitimate [was the biggest challenge]."

- Program limitations: Not all of the equipment offered through the SBES Program was rebated at 100%, which some customers found confusing.

- Short timeframe: Several trade allies indicated that the length of time that the pilot program was available in each community prevented them from completing some projects during the period the pilot was scheduled to be active in the community.

- Electricity market deregulation: Some customers in the targeted communities initially confused outreach on the part of the trade allies for sales pitches by agents of independent merchant power vendors. "I think one of the biggest obstacles [was] that everybody and their uncle are calling on these customers," one trade ally said, referring to this source of confusion.

- Unrealistic expectations: All four trade allies involved in the pilot reported that selling the Program took effort and persistence, and all acknowledged that they had initially approached the target communities with unrealistically high expectations.

- Lack of customer resources to invest: Some of the communities selected for the pilot had experienced significant economic dislocations recently, which made some potential customers reluctant to participate even with the generous subsidies.

5.1.1.2 Sales Strategies

Trade allies adopted a variety of strategies for overcoming these barriers, ranging from the traditional to the high-tech. All four trade allies focused initially on outreach and providing information, using a variety of strategies to publicize the pilot and generate word-of-mouth referrals. One proponent of the traditional approach argued, "It's always [important to put] feet on the street and creating a good feeling with the customer, because the only way the geo pilot works is with a lot of word of mouth. And it [worked] because customers had good experiences." Other strategies employed by the trade allies included enlisting the assistance of the local Chamber of Commerce and hiring local electrical subcontractors to generate publicity and goodwill, posting a self-produced video on YouTube.com to promote the pilot, and creating a conspicuous presence in the community by renting work space or even temporarily living there. One trade ally reported strategically targeting a prominent local business leader – the Chrysler dealership – in one of his target communities early on in the process. This helped him market the pilot in several respects: providing a prominent venue where local people could see the noticeable improvements in lighting; demonstrating the pilot's legitimacy by winning over a local notable; and by generating positive word-of-mouth publicity.

Another successful strategy adopted by one trade ally was temporarily relocating to the area for the duration of the pilot, which allowed him to meet people in the community at local restaurants and shops. He said, "You had to reach the people that knew the people. We made connections with the bankers, the attorneys, the accountants, the property owners… It was being in the community and I truly believe it was one of the key factors for us."

5.1.1.3 Marketing and Promotion

All of the participating trade allies reported that they spent much of the first month in each target community doing market research, trying to hit on the right combination of techniques that would sell the Program in each location. Several told Navigant that they would have appreciated more help from ComEd on this. When pressed to provide specific details, however, none were able to clearly articulate specific ways in which ComEd could have helped them, except for providing a process for confirming that the Program was "real" to local skeptics.

One trade ally said they became well known and accepted in their targeted area despite using a marketing tool (cold-calling) that was outside his comfort zone. "We did everything face-to-face, door-to-door.... In general, that is not how we work. We typically mail out information and immediately follow up with a phone call. Then we come in and introduce ourselves…. [With the pilot] we visited literally every business down there as a prospect…. Everyone there knows who we are…. We really made some friendships and built some relationships there."

Trade allies indicated that the marketing flyer that the Program distributed in the targeted communities was not very useful because customers were initially unaware or mistrustful of the pilot program and, therefore, tended to throw it away unread. The worksheets and marketing materials were not available when the pilot was launched – one trade ally complained that it was two months before they were available to him, and that the worksheets lacked critical features usually contained in the materials provided to the trade allies involved in the core Program.

5.1.1.4 Effectiveness of Pilot Program Implementation

Overall, the trade allies felt that the pilot was well executed, aside from occasional delays in paying their invoices. The pilot was especially successful in promoting HP T8 retrofits. One trade ally said: "From a perspective of generating business, it was an outrageously successful program. I don't know if ComEd … feels it was successful."

5.1.1.5 Effectiveness of Pilot Program Design and Processes

Trade allies complained that they'd received short notice that they had been selected to participate in the pilot, which left them little time to get prepared to deliver the Program. They also felt they'd received little training from the Program. Since this market research and preparation time turned out to be critically important, they all said that they would have preferred to have had more.

Several trade allies brought up the problem of customer confusion over the terms of the Program. One said that some of his customers had been confused by this and assumed they would have no out-of-pocket costs whatsoever. He specifically mentioned a customer who needed to rent a lift to reach their lights and assumed the trade ally would pay for it since he'd heard the Program was free. Another related that he had not properly trained his sales staff about this, and they'd described the Program to potential customers as "free." As a result, he said, he ended up paying the taxes and recycling fees, which reduced his profit margin. A third said that one customer had asked him to "sweeten the deal" by giving him a free carton of bulbs since "ComEd was paying for it." (The trade ally declined.)

Even so, the pilot program met or exceeded the expectations of all of the trade allies. All expressed confidence that some of their customers from the pilot would provide them with follow-on business. As one trade ally said: "We have a lot of satisfied customers … It was a win-win for everybody."

5.1.1.6 Customer and Contractor Satisfaction

Trade allies reported that their customers from the pilot were very satisfied with the Program. They reported receiving positive feedback from participating customers. Among their comments:

- "I just think it was a smashing success for the community and the customers who took advantage of it. We really improved the lighting quality from an esthetic point of view."
- "That is the joy of lighting: that you can impact people in a positive way. That is what I strive to do."
- "We had a lot of fun. Very interesting. We learned a lot and met new people. It all worked out. I had a good time doing it and am looking forward to doing it again."

- "We often have people say 'I had no idea [the lighting] would be this nice.' There are no words in the language to describe it. You have to see it. And that is what happened: The mouth drops open. [And they say,] 'Holy smokes – I cannot believe how nice it is.'"

One trade ally complained that the pilot program constrained him from properly costing out a project in cases where he encountered dirty or cluttered premises. When cases like this arise in the core SBES Program, he said, he is able to build the added cost into his price. He was unable do this in the pilot program, which he claimed hurt him financially.[25]

5.1.1.7 Program Improvements

The pilot program trade allies seemed to have contradictory views about how the Program could be improved. Several expressed ambiguous feelings about the generosity of the subsidy. On one hand, all of them agreed that the pilot's enhanced incentives served to increase customer interest and participation in the Program. But some expressed philosophical doubts about setting the incentive as high as 100 percent of equipment and labor costs, suggesting that people are less likely to value something when it is free. As one put it, "Generally when you are giving something away, some people disregard it. They don't associate a value or an investment to it. If I had my druthers I wouldn't make it free, I would definitely associate a value to it." While acknowledging that the enhanced incentives helped improve customer uptake, and thus produced more business for him, it nonetheless seemed to offend him.

One trade ally suggested that an on-bill financing Program could serve the same purpose as the enhanced incentives, namely removing the cash-flow constraint faced by financially straitened business owners.[26]

Another trade ally suggested that the incentive should be limited to the amount that would bring the payback period down to less than one calendar year. He felt that this would "save [the Program] a lot of money" while still motivating small business owners to invest in energy-efficient measures.

Finally, trade allies said that they would have preferred it if all of the pilot program rules and promotional materials had been defined before the program was fielded. One said: "That would have been ideal. [It seemed like] there were changes that were constantly happening, and a lot of lack of communication. It's hard to put a lot of work into something and then it changes, and then you have to put work into something else. I would say hav[ing] a ready-to-go product to roll out would be best."

5.1.1.8 Potential Market Effects/Spillover

According to the trade allies, some customers in the targeted communities told them that they planned to participate in the SBES core Program after the pilot ended. Reasons for this included

[25] Trade allies participating in the geo-marketed pilot program were permitted to charge customers extra for work outside the scope of the measures in the pilot, as with the core SBES Program.
[26] The ComEd SBES Program Manager has indicated that on-bill financing is being considered for the SBES Program.

having responded too late to the pilot to be able to take full advantage of what was offered in the time allowed; identifying savings opportunities in another facility outside of the targeted community; and identifying savings opportunities that were not eligible under the Program. Some customers in the last category were referred to the Standard or DCEO programs, as appropriate. However, one trade ally was skeptical, saying that since his firm had contacted most of the businesses in the area, he doubted there were many opportunities left.

Trade allies participating in the geo-marketing pilot installed several programmable thermostats, and one reported referring those customers to local HVAC contractors about possible furnace and boiler jobs. One reported trying to interest customers in gas measures more generally, but indicated that he faced significant barriers preventing him from doing so, most directly the lack of qualified participating trade allies to serve as partners. One trade ally reported there were no local trade allies participating on the Nicor side of the SBES Program, and expressed doubt that one who was affiliated would be willing to travel to the town. One trade ally mentioned that he had "been talking about getting on board with somebody locally here so we can become a full service provider" through the joint SBES Program.

Trade allies reported that a few local small businesses had installed energy efficient lighting before the pilot arrived in the town. They reported that very few customers they spoke with were aware of the regulatory restrictions that would cause T12 lamps to become unavailable. In this respect, the pilot served as a primary conduit for this information.

5.1.2 Changes in Operations

Pilot trade allies told Navigant that they did not change their product and services offerings, but that they had had to "scale things up on the operations side, and do a lot more coordinating and planning" to be able to deliver the pilot program. Their biggest challenges, once the initial barriers of mistrust and lack of information were overcome, were lack of skilled local subcontractors and staff, and lack of time: the short time frame of the pilot program meant they had to work as quickly as they could without compromising safety and quality so they could move on to the next project. Several mentioned that their participation had required that they work harder than they had ever worked. Several mentioned that they had been hard-pressed to find the skilled electricians and sales staff they needed to implement the Program. Two mentioned that they intended to retain the incremental staff permanently. All indicated that they planned to continue participating with the SBES Program in 2013-2014.

5.1.3 Pilot Program Customer Interviews

Navigant interviewed 17 geo-marketing pilot program customer participants. Details on the interviewed customers are provided in Appendix 7.2.

5.1.3.1 Pilot Administration

- Eleven of the interviewed participants recalled receiving a visit or phone call from a contractor or sub-contractor about the pilot program. Two mentioned receiving post cards or a flyer in the mail.

- About half of the survey respondents indicated that they had been motivated to learn more about the pilot program to save money on their energy bills. Four of the seventeen said they

were interested when they understood that the equipment and installation would be "free." Only three of the seventeen were aware of the regulatory restrictions that would mean they would soon have to replace their T12 lighting equipment.

5.1.3.2 Participation Process

All seventeen of the survey respondents found the process easy to understand. One respondent said: "Yes, [it was] very easy. For a while there we thought it was too good to be true."

Eight of the seventeen surveyed participants reported that they had not consulted anyone in their family or community before making the decision to participate in the Program. These respondents indicated that they viewed the Program as low-risk, either because ComEd was the sponsor or because the Program required that they put up little of their own resources. The other survey respondents indicated that they had contacted other local businesses who were already participating in the Program, local electricians, or family members to verify that the SBES pilot program was "for real" and not a "scam."

None of the survey respondents reported experiencing difficulties getting involved with the pilot. Common comments included that the process was "seamless," "straightforward," and "a very simple deal."

All but one of the surveyed pilot program participants did not think ComEd could simplify the process. One survey participant observed: "I don't know how [they could simplify it. The trade ally] came in, asked me to participate, told me the time frame, and did it."

5.1.3.3 Communications

Eleven of the seventeen surveyed pilot participants reported receiving some form of written communication about it. Marketing materials recalled by customers ranged from a flyer or post card from ComEd to a packet of materials from the trade ally. Survey respondents reported no difficulties with communications between the contractor and themselves, describing it variously as "good," "very good," "excellent" or "fine."

5.1.3.4 Program Satisfaction and Improvements

All but one of the surveyed pilot participants described themselves as being "very" satisfied, "100 percent satisfied," or "extremely satisfied" with it. The one customer who indicated less than 100 percent satisfaction with the Program said that he had been unaware that he had been paying for energy efficiency programs all along, and did not like the idea of having a surcharge for this purpose on his bill.

5.1.3.5 Suggestions for Improving the Program

About half of the surveyed pilot program participants could not suggest any ways in which the Program could be improved. Three of them said that they would like higher incentives on equipment outside of the Program, specifically mentioning furnaces, LED lighting, and recessed lighting. Two others said that they would like the Program to be totally free (referring to the sales taxes and

recycling fees), while two more suggested that ComEd find a more effective method for marketing the SBES Program.

5.1.3.6 Current Economic Conditions

Eleven of the seventeen surveyed pilot program respondents said that current economic conditions were an important influence on their decision to participate in the Program. Many described their businesses as teetering on the brink of disaster. While none suggested that the new lighting measures would save their businesses, all of these participants indicated that they would not have been able to participate without the subsidies the Program provided.

5.1.3.7 Awareness of Other ComEd/Nicor Gas Programs

Most of the survey respondents were not aware of any other energy efficiency programs. Of those who responded, one reported he had received tax credits for using biofuel in his truck, for installing a geothermal heat pump, and for installing a solar water heater for his home swimming pool. Another said she was aware of tax subsidies for residential customers, but not for business owners.

6 Conclusions and Recommendations

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

The SBES Program succeeded not only in meeting its savings goals for electric and gas savings in EPY5/GPY2, but strongly exceeded them, which dramatically increased the Program's energy savings compared to the previous program year. This resulted from overall good execution on the part of the utilities and the Program implementers, as well as increased familiarity with the Program goals and processes on the part of participating trade allies. However, two other important factors should not be overlooked, namely the creative thinking and risk-taking on the part of Program managers. Their willingness to experiment with non-traditional approaches and take on the risks inherent in such efforts to overcome existing barriers to adoption of energy efficiency measures were key elements in the Program's success this year.

Program Savings Goals Attainment

Finding 1a. The SBES Program exceeded its EPY5 net electric energy savings goal by 277 percent. Compared to EPY4, the Program achieved a nearly four-fold increase in verified net energy savings and a greater than 3-fold increase in peak demand savings. This impressive achievement was driven partly by the success of the geo-marketing pilot program, which comprised 15 percent of total Program net savings, although the core Program also performed well.

Recommendation 1a. The Program should expand the geo-marketing pilot program to other communities in its service territory.

Finding 1b. Virtually all (99 percent) of the Program's electric savings came from lighting measures in EPY5, up from 96 percent in EPY4. This reflects the impacts of EISA and other federal rules that are tightening lighting efficiency standards, as well as the relatively low cost and modularity of lighting measures, which make them popular with customers. However, it also suggests that the lighting pathway to electric energy savings may be less productive for utilities in the future, as inefficient lamps and fixtures are progressively phased out and replaced, and today's efficient solutions are incorporated into tomorrow's baselines.

Recommendation 1b. The Program should aggressively seek out innovative lighting and non-lighting measures to help balance its electric energy savings portfolio and reduce its risk exposure.

Finding 1c. The SBES Program exceeded its GPY2 net therms savings goal by136 percent for Peoples Gas and 582 percent for North Shore Gas. This notable success is largely attributable to the introduction of the steam trap replacement measures for HVAC and dry cleaning customers, which accounted for 68 percent of total Program savings for Peoples Gas and 82 percent of total Program savings for North Shore Gas.

Recommendation 1c. The Program should continue to focus on steam trap replacements.

Program Tracking System Review

Finding 3. Navigant found several examples where the tracking system needed updating or correction, including building-type lookups, unit savings values for some measure types, notably lighting, and inconsistencies between the data provided by the implementation contractors and what was reported in the Frontier tracking system. We detailed these findings in Section 3.1.

Recommendation 3. Update and correct the tracking systems, and improve coordination of data transfer from the implementers' data systems to Frontier.

Pilot Program Findings.

Finding 4a. The geo-marketing pilot program succeeded in raising uptake rates in the six small communities it targeted in EPY5. ComEd's decision to commit extra resources to these communities, allow cooperating trade allies flexibility in tailoring their marketing approaches to local conditions, work closely with local businesses and community organizations, and set an aggressive, time-limited incentive, were all key factors driving the pilot's success. The main features of this marketing model could be extended to other venues besides small communities.

Recommendation 4a. The Program should extend the pilot program to other small and mid-sized communities in ComEd's service territory, and think creatively about adapting the geo-marketing delivery model to other settings where feasible (e.g., to "vertical communities" in apartment buildings and high-rise office buildings, as well as to urban neighborhoods that have had below-average Program participation).

Finding 4b. The experiences of the individual trade allies who delivered the geo-marketing pilot program in EPY5 suggest that there is no single marketing strategy that guarantees success in all circumstances. Approaches that worked in some communities failed to pay off in others, and not all trade allies were equally adept at making mid-course corrections to improve performance.

Recommendation 4b. The Program should allow maximum flexibility to the trade allies participating in future geo-marketing pilots, to allow them to experiment with alternative approaches and make adjustments as they gain experience working in each location. The Program should bring participating trade allies together (e.g., sponsor a conference or awards dinner) to share their experiences of what worked and generate ideas for overcoming barriers in the future.

Finding 4c. The Program's success in increasing therms savings in GPY2 rests mainly on the success in promoting steam trap replacement, particularly to dry cleaners

Recommendation 4c. The Program should to promote steam trap replacements, including in non-dry cleaning venues such as high-rise buildings, apartments and condo complexes.

Trade Ally and Other Participation.

Finding 5. Some trade allies participating in the EPY5 geo-marketing pilot indicated that the time they had been given to prepare to enter and market the pilot in each test community had been too short.

Recommendation 5. The Program should give pilot program trade allies more notice before starting the pilot program in each targeted community, to allow them sufficient to develop marketing strategies, and contact local subcontractors and community leaders.

7 Appendix

7.1 Glossary

High Level Concepts

Program Year

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

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

Verified Savings composed of

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

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

Impact Evaluation Research Findings composed of

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

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

the body of the report and more detailed findings put in an appendix to make the body of the report more concise.)

Program-Level Savings Estimates Terms

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

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

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

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

Individual Values and Subscript Nomenclature

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

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

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

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

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

Glossary Incorporated From the TRM

Below is the full Glossary section from the TRM Policy Document as of October 31, 2012[27].

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

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

> **Measure Level Research**: An evaluation process that takes a deeper look into measure level savings achieved through program activities driven by the goal of providing Illinois-specific

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

research to facilitate updating measure specific TRM input values or algorithms. The focus of this process will primarily be driven by measures with high savings within Program Administrator portfolios, measures with high uncertainty in TRM input values or algorithms (typically informed by previous savings verification activities or program level research), or measures where the TRM is lacking Illinois-specific, current or relevant data.

Program Level Research: An evaluation process that takes an alternate look into achieved program level savings across multiple measures. This type of research may or may not be specific enough to inform future TRM updates because it is done at the program level rather than measure level. An example of such research would be a program billing analysis.

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

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

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

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

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

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

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

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

7.2 Detailed Impact Research Findings and Approaches

7.2.1 Electric Impact Results

All electric impacts presented in this report reflect SBES program measures installed in the premises of participating ComEd customers in the combined service territories of the three gas utilities, Nicor Gas, Peoples Gas and North Shore Gas. Table 7-1 disaggregates key electric impact findings by service territory.

Table 7-1. EPY5 Program Participation by Program Partner

Program Partner	Number of Measures	Number of Projects	Ex-ante Gross Savings, MWh	Verified Gross Savings, MWh	kWh percent
Direct-Installed (Nicor Gas)	868	331	341	340	1%
Contractor-Installed (Nicor Gas)	64,487	1,030	22,279	22,268	60%
Direct-Installed (Peoples Gas and North Shore Gas)	377	156	172	169	0%
Contractor-Installed (Peoples Gas and North Shore Gas)	125,076	622	14,537	14,526	39%
All Projects*	190,808	1,881	37,329	37,303	100%

Source: Utility tracking data and Navigant analysis.

Table 7-2 provides the measure quantities used to calculate the EPY5 ex-ante and verified gross electric savings. Navigant used the quantities from the August 2, 2013 Frontier Tracking System data extract provided by the implementation contractor. The Program distributed 177,613 electric measures through the core Program (1,245 direct-install measures and 176,368 contractor-installed measures), and 13,195 measures through the geo-marketing pilot program), for a total of 190,808 Program measures.

Table 7-2. Ex-Ante and Verified Electric Measure Quantities

Electric Measure	Ex-Ante Core Program Measures	Ex-Ante Geo Pilot Measures	Verified Program Overall Quantity
Bathroom Aerator (DI)	153	-	153
Kitchen Aerator (CI&DI)	12	-	12
Cooling Miser (DI)	81	-	81
Incandescent to CFLs (CI&DI)	1,580	38	1,618
Pre-Rinse Sprayers (DI)	7	-	7
Schedule Programmable Thermostats (DI)	10	-	10
Vending Miser (DI)	125	-	125
Showerhead (DI)	4	-	4
1,2,3,4-Lamp HP/LW T8 Retrofit (CI)	16,797	5,772	22,569
U-Tube Lamp Retrofit (CI)	169	66	235
HID/HBay to HPT8 (CI)	3,386	859	4,245
Cold Cathode (CI)	893	16	909
LED Exit Sign/Channel Sign (CI)	5,191	134	5,325
Delamping: 1,2,3,4-Lamp w/wo Reflector (CI)	23,462	4,493	27,955
Outdoor HID/T12 to LEDs (CI)	703	38	741
Metal Halides (CI)	157	-	157
EC Motor, Reach-in/Walk-in (CI)	417	-	417
Occupancy Sensor (CI)	84,763	13	84,776
LED Lamps/Fixtures (CI)	39,703	1,766	41,469
Program Total	**177,613**	**13,195**	**190,808**

Source: Navigant analysis of tracking data.

Table 7-3 provides the EPY5 electric measure ex-ante unit savings estimates. Navigant used the quantities of measures from Table 7-2 and the TRM deemed savings approach to verify gross savings. For non-deemed C&I measures (e.g., temperature turndown, installed and scheduled programmable thermostats), the evaluation relied on secondary research to verify the claimed savings.

Table 7-3. EPY5 Ex-Ante and Verified Gross Electric Unit Savings Estimates

Measure Name	Ex-Ante Unit kWh Savings	Verified Unit kWh Savings
Schedule Programmable Thermostats	63	63
Bathroom Aerator	143	102
Showerhead	273	273
Kitchen Aerator	298	85
EC Motor Reach-in	370	344
EC Motor Walk-in	467	401
Cooling Miser	1,210	1,210
Vending Miser	1,613	1,613
Pre-Rinse Sprayers	3,709 or 4,154	4,154
1,2,3,4-Lamp HP/LW T8 Retrofit	varies	varies
Cold Cathode	varies	varies
Delamping: 1,2,3,4-Lamp w/wo Reflector	varies	varies
HID/Hbay to HPT8	varies	varies
Incandescent to CFLs	varies	varies
LED Exit Sign/Channel Sign	varies	varies
LED Lamps/Fixtures	varies	varies
Metal Halides	varies	varies
Occupancy Sensor	varies	varies
Outdoor HID/T12 to LEDs	varies	varies
U-Tube Lamp Retrofit	varies	varies

Source: Navigant analysis of tracking data and deemed savings review.

7.2.2 Gas Impact Results

Table 7-4 and Table 7-5 provide the measure quantities and unit savings values used to calculate the GPY2 ex-ante and verified gross gas savings for Peoples Gas and North Shore Gas, respectively. Navigant obtained these quantities from the September, 12, 2013 Bensight Tracking System data extract provided by the implementation contractor.[28].

[28] People Gas had 66 projects from 50 participants who installed both direct install and contractor installed measures. North Shore Gas had 25 projects from 18 participants who installed both direct install and contractor installed measures.

Table 7-4. Peoples Gas GPY2 Measure Quantity and Unit Savings

Measure Name	Ex Ante Measure Quantity	Verified Measure Quantity	Ex Ante Unit Savings	Verified Unit Savings
Bathroom Aerator	377	377	7.05	5.12
Boiler Cutout/Reset Control	4	4	varies	varies
Boiler Tune-Up	13	13	34.2	34.2
Commercial Dry Cleaner Steam Trap	760	760	504	513.93
Furnace Tune-Up (110-250 MBH)	47	47	61.5	62.7
HVAC Steam Trap	215	215	324	330.47
Pre-Rinse Sprayer	34	34	180	183.3
Programmable Thermostats	427	427	174	178
Showerhead	35	35	13.3	13.51
Single-Pipe Steam Boiler Averaging Controls	805	805	24	24
Single-Pipe Steam System Balancing and Improved Venting	274	274	10	10
PG Program Total	**2,991**	**2,991**		

Source: Navigant Evaluation Team Analysis of Tracking Data
Integrys_Master_Measure_Document 010213

Table 7-5. North Shore Gas GPY2 Measure Quantity and Unit Savings

Measure Name	Ex Ante Measure Quantity	Verified Measure Quantity	Ex Ante Unit Savings	Verified Unit Savings
Bathroom Aerator	192	192	7.05	5.12
Commercial Dry Cleaner Steam Trap	416	416	504	513.93
Furnace Tune-Up (110-250 MBH)	8	8	61.5	62.7
HVAC Steam Trap	71	71	324	330.47
Pre-Rinse Sprayer	12	12	180	183.3
Programmable Thermostats	109	109	174	178
Showerhead	37	37	13.3	13.51
Single-Pipe Steam Boiler Averaging Controls	37	37	24	24
NSG Program Total	**882**	**882**		

Source: Navigant Evaluation Team Analysis of Tracking Data
Integrys_Master_Measure_Document 010213

Table 7-6 summarizes the program savings by utility and program delivery channel.

Table 7-6. GPY2 SBES Program Results by Program Delivery

Savings Category	Peoples Gas			North Shore Gas		
	Direct Install	Contractor Installed	Peoples Gas Program Total	Direct Install	Contractor Installed	North Shore Gas Program Total
Ex Ante Gross Savings (Therms) [29]	9,229	553,119	562,348	4,006	253,014	257,020
Verified Gross Realization Rate‡	0.93	1.02	1.02	0.92	1.02	1.02
Verified Gross Therms Savings (ICC-Approved TRM Algorithm)	8,625	563,826	572,451	3,682	258,050	261,732
Verified Gross Therms Savings (corrected TRM algorithm)[30]	13,740	563,852	577,591	6,456	258,050	264,506
Net to Gross Ratio (NTG) †	0.99	0.99	0.99	0.99	0.99	0.99
Verified Net Savings (Therms)	8,539	558,188	566,727	3,646	255,469	259,115

Source: Utility tracking data and Navigant analysis.
‡ *Derived from verification of savings (ratio of verified savings and tracking ex ante savings)*
† *A deemed value*

Table 7-7 and Table 7-8 summarize the GPY2 SBES program savings by measure end-use type for Peoples Gas and North Shore Gas respectively.

Table 7-7. Peoples Gas SBES Program Results by Measure End-use Type

End-use Measure	Peoples Gas				
	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate‡	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
HVAC Application	170,065	1.02	173,229	0.99	171,497
Hot Water End-use	9,243	0.93	8,635	0.99	8,549
Commercial Steam Trap (Dry Cleaners)	383,040	1.02	390,587	0.99	386,681
Totals	562,348	1.02	572,451	0.99	566,727

Source: Utility tracking data and Navigant analysis.
‡ *Derived from verification of savings (ratio of verified savings and tracking ex ante savings)*
† *A deemed value.*

[29] From Tracking System
[30] Assumed a correction is applied to the algorithm errata (GPM factor redundancy) for showerheads and aerators. The correction has not been approved by the ICC at the time of this report; hence, the Verified Gross Therms Savings (ICC-Approved TRM Algorithm) was used as the program GPY2 verified savings.

Table 7-8. North Shore Gas SBES Program Results by Measure End-use Type

Research Category	North Shore Gas				
	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate‡	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
HVAC Application	43,350	1.02	44,255	0.99	43,812
Hot Water End-use	4,006	0.92	3,683	0.99	3,646
Commercial Steam Trap (Dry Cleaners)	209,664	1.02	213,795	0.99	211,657
Totals	257,020	1.02	261,732	0.99	259,115

Source: Utility tracking data and Navigant analysis.

7.2.3 Gross Program Impact Parameter Estimates

As described in Section 2, energy saving were estimated or verified using the assumptions and algorithm as specified in the TRM. Table 7-9 indicates the input parameters to estimating verified savings. Each unit savings per measure was verified, and where there were inconsistencies in the ex-ante unit savings, the Navigant team applied the corrected TRM assumptions. We adjusted the claimed savings for kitchen and bath aerators, EC Motor Reach-in and Walk-in measures, and pre-rinse spray valves. We also corrected the delta watts and the savings claim for 20W CFLs. Details of the adjustment and the gross realization rates are shown in Table 7-10.

Table 7-9. Verified Gross Electric Savings Parameters

Input Parameters	Value	Deemed or Evaluated?
Verified Gross Realization Rate	1.00	Evaluated
NTG Ratio	0.90	Deemed
Savings from Lighting Measures	*varies*	Deemed
Program Bulbs	*Varies*	*Evaluated*
Delta Watts	*Varies*	*Deemed TRM v1.0*
Hours of Use (HOU)	*Varies*	*Deemed TRM v1.0*
Peak Load Coincidence Factor	*Varies*	*Deemed TRM v1.0*
Energy Interactive Effects	*Varies*	*Deemed TRM v1.0*
Demand Interactive Effects	*Varies*	*Deemed TRM v1.0*
Installation Rate	*100%*	*Deemed TRM v1.0*
Showerhead and Aerators (kWh)	273	Deemed TRM v1.0
Cooling Miser	1,210	Evaluated
Pre-Rinse Sprayers	4,145	Deemed TRM v1.0
Schedule Programmable Thermostats	63	Evaluated
EC Motor, Reach-in/Walk-in	401 (Walk-in), 344 (Reach-in)	Evaluated
Vending Miser	1,613	Evaluated

Source: Utility tracking data and Navigant analysis.
Illinois_Statewide_TRM_Effective_060112_Final_091412_Clean

Table 7-10. Evaluation Adjusted Electric Unit Savings

Program Delivery	Ex-Ante Unit kWh Savings	Verified Unit kWh Savings	Verified Gross Realization Rate	Evaluator Comments
Pre-Rinse Sprayers	3,709 or 4,154	4,154	1.07	Different ex-ante claimed savings by ICs. TRM verified savings is 4,154 KWh
EC Motor, Reach-in	370	344	0.93	Verified unit savings is consistent with ex-ante savings from ComEd Standard Program
EC Motor, Walk-in	467	401	0.86	Verified unit savings is consistent with ex-ante savings from ComEd Standard Program
Bathroom Aerator	143	102	0.71	Verified savings is consistent with example calculation in TRM (v1.0) for EPY5 evaluation
Kitchen Aerator	298	85	0.29	Verified savings is consistent with example calculation in TRM (v1.0) for EPY5 evaluation
CFL 20W	varies	adjusted	Upward adjustment	Ex-ante delta watts is 53W, and the verified delta watts is 55W.

Source: Utility tracking data and Navigant analysis.
Illinois_Statewide_TRM_Effective_060112_Final_091412_Clean

Table 7-11 shows the input parameters used to estimate verified gas savings. Each unit savings value was verified, and where there were inconsistencies in the ex-ante unit savings we applied the correct TRM assumptions. We adjusted the claimed savings for showerheads, kitchen and bath aerators. Savings from dry cleaner steam trap replacements were also adjusted to comply with the TRM requirements. Details of the adjustment and the gross realization rates are shown in Table 7-11 below.

Table 7-11. Verified Gross Gas Savings Parameters

Input Parameters	Value	Deemed or Evaluated?
Quantity	Varies	Evaluated
Verified Gross Realization Rate on Ex-Ante Gross Savings (Pilot Program)	1.56	Evaluated
Verified Gross Realization Rate on Ex-Ante Gross Savings (Overall Program)	1.25	Evaluated
Bathroom Aerator (CI+DI)	5.1	Deemed TRM v1.0 (section 4.3.2)
Kitchen Aerator (CI+DI)	4.3	Deemed TRM v1.0 (section 4.3.2)
Hot Water Turn Down (DI)	11.0	Evaluated
Pre-Rinse Sprayers (DI)	164.0	Deemed TRM v1.0 (section 4.2.11)
Scheduled Programmable Thermostats (DI)	83.0	Evaluated
Showerhead (DI)	13.5	Deemed TRM v1.0 (section 4.3.3)
Boiler Reset Control (CI)	varies	Deemed TRM v1.0 (section 4.4.4)
Boiler Tune-up (CI)	varies	Deemed TRM v1.0 (section 4.4.2)
Condensing Furnace Upgrade (CI)	varies	Deemed TRM v1.0 (section 4.4.11)
Furnace Tune-up (CI)	62.7	Evaluated (previous year value)
Installed Programmable Thermostats (CI)	178.0	Evaluated (previous year value)
Gas Water Heater +88% TE (CI)	251.0	Deemed TRM v1.0 (section 4.3.1)
Steam Trap Repair/Replacement (heating or dry cleaner with mass replacement), (CI)	330.5	Deemed TRM v1.0 (section 4.4.15)
Commercial Steam Trap Repair/Replace (Dry cleaner with full audit), (CI)	513.9	Deemed TRM v1.0 (section 4.4.15)
Infrared Heaters (CI)	451.0	Deemed TRM v1.0 (section 4.4.12)
HW Heater Insulation Jacket (CI)	16.0	Evaluated

Source: Utility tracking data and Navigant analysis
Illinois_Statewide_TRM_Effective_060112_Final_091412_Clean

Savings from steam traps, bathroom aerators, showerheads, thermostats and pre-rinse sprayers were adjusted to comply with the TRM requirements. Details of the adjustments and the gross realization rates are shown in Table 7-12 below

Table 7-12. Evaluation Adjusted Unit Savings

Measure Type	Ex Ante Unit Therms Savings	Verified Unit Therms Savings	Gross Realization Rate	Evaluator Comments
Bath Aerator	7.05	5.12	0.73	Corrected ex ante to reflect TRM savings example
Commercial Steam Trap (Dry Cleaners)	504	513.93	1.02	Corrected ex ante to reflect TRM savings assumptions
Pre-Rinse Sprayer	180	183.30	1.02	Corrected ex ante to reflect TRM savings example
Programmable Thermostats	174	178.00	1.02	Corrected ex ante to reflect evaluation research findings
Showerheads	13.3	13.51	1.02	Corrected ex ante to reflect TRM savings example
Commercial HVAC Steam Trap	324	330.47	1.02	Corrected ex ante to reflect TRM savings example

Source: Utility tracking data and Navigant analysis

7.2.4 Development of Verified Electric Gross Realization Rate

Navigant calculated the program verified gross realization rates as the ratio of verified gross savings to tracking system ex-ante gross savings. Verified electric gross realization rates by program delivery channel are shown in Table 7-13, and by installation type in Table 7-14. Measure-level electric gross realization rates are shown in are shown in Table 7-15.

Table 7-13. EPY5 Electric Gross Realization Rate by Program Delivery Channel

Program Delivery	Number of Measures	Number of Projects	Ex-ante Gross Savings, MWh	Verified Gross Realization Rate	Verified Gross Savings, MWh	Percent of Verified Savings
Core Program Projects	177,613	1,855	31,857	1.00	31,831	85%
Geo-Marketing Pilot Projects	13,195	301	5,473	1.00	5,473	15%
Program Total	**190,808**	**1,892**	**37,329**	**1.00**	**37,303**	**100%**

Source: Utility tracking data and Navigant analysis
Note: Verified gross realization rates are round to 2 digits, so direct application to the ex-ante does not produce the actual verified gross savings shown.

Table 7-14. EPY5 Electric Gross Realization Rate by Install Type

Installed Type	Number of Measures	Number of Projects	Ex-ante Gross Savings, kWh	Realization Rate	Verified Gross Savings, kWh	Percent of Verified Savings
Direct-install (DI)	1,245	495	513	0.99	509	1%
Capital Investment (CI)	189,563	1,662	36,816	1.00	36,794	99%
Program Total	**190,808**	**1,892**	**37,329**	**1.00**	**37,303**	**100%**

Source: Utility tracking data and Navigant analysis

Table 7-15. EPY5 Electric Gross Realization Rate by Measure Type

Program Delivery	Ex-Ante Gross Savings, kWh	Verified Gross Realization Rate	Verified Gross Savings, kWh	Percent of Verified Savings
Bathroom Aerator	21,879	0.71	15,621	0.0%
Kitchen Aerator	3,278	0.31	1,021	0.0%
Cooling Miser	97,988	1.00	97,988	0.3%
Incandescent to CFLs	329,399	1.00	330,488	0.9%
Pre-Rinse Sprayers	27,298	1.07	29,081	0.1%
Schedule Programmable Thermostats	723	1.00	723	0.0%
Vending Miser	201,625	1.00	201,625	0.5%
Showerhead	1,092	1.00	1,092	0.0%
1,2,3,4-Lamp HP/LW T8 Retrofit	5,734,969	1.00	5,734,969	15.4%
U-Tube Lamp Retrofit	27,790	1.00	27,790	0.1%
HID/HBay to HPT8	5,670,203	1.00	5,670,203	15.2%
Cold Cathode	132,526	1.00	132,526	0.4%
LED Exit Sign/Channel Sign	1,533,974	1.00	1,533,974	4.1%
Delamping: 1,2,3,4-Lamp w/wo Reflector	14,261,691	1.00	14,261,691	38.2%
Outdoor HID/T12 to LEDs	581,299	1.00	578,901	1.6%
Metal Halides	61,124	1.00	61,124	0.2%
EC Motor, Reach-in/Walk-in	172,260	0.90	154,178	0.4%
Occupancy Sensor	473,751	1.00	473,751	1.3%
LED Lamps/Fixtures	7,996,580	1.00	7,996,580	21.4%
Program Total	**37,329,449**	**1.00**	**37,303,326**	**100.0%**

Source: Utility tracking data and Navigant analysis

7.2.5 Development of Gas Verified Gross Realization Rate

The program verified gross realization rate was determined by calculating the ratio of the verified gross savings to the ex-ante gross savings found in the tracking system. Verified gross realization rates by measure type were developed for Peoples Gas and North Shore Gas. Realization rates by install type are shown in Table 7-16 and Table 7-17for Peoples Gas and North Shore Gas, respectively.

Table 7-16. Peoples Gas GPY2 Gross Realization Rate by Install Type

Program Delivery	Peoples Gas			
	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate‡	Verified Gross Savings (Therms)	Percent Verified Gross Savings
Contractor-Installed (CI)	553,119	1.02	563,826	98%
Direct-Installed (DI)	9,229	0.93	8,625	2%
Total	**562,348**	**1.02**	**572,451**	**100%**

Source: Utility tracking data and Navigant analysis

† A deemed value; ‡ Based on evaluation research findings.

Table 7-17. North Shore Gas GPY2 Gross Realization Rate by Install Type

Program Delivery	North Shore Gas			
	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate‡	Verified Gross Savings (Therms)	Percent Verified Gross Savings
Contractor-Installed (CI)	253,014	1.02	258,050	99%
Direct-Installed (DI)	4,006	0.92	3,683	1%
Total	**257,020**	**1.02**	**261,732**	**100%**

Source: Utility tracking data and Navigant analysis.

† A deemed value; ‡ Based on evaluation research findings

Realization rates by measure type for Peoples Gas and North Shore Gas are shown in Table 7-18 and Table 7-19, respectively.

Table 7-18. Peoples Gas GPY2 Gross Realization Rate by Measure Type

End-use Category	Peoples Gas			
	Ex Ante Gross Energy Savings (Therms)	Realization Rate	Verified Gross Energy Savings (Therms)	Percent Verified Gross Savings
Boiler Cutout/Reset Control	684	1.01	693	0.1%
Boiler Tune-Up	445	1.00	445	0.1%
Bathroom Aerator	2,658	0.73	1,930	0.3%
Pre-Rinse Sprayer	6,120	1.02	6,232	1.1%
Showerhead	466	1.02	473	0.1%
Furnace Tune-Up (110-250 MBH)	2,891	1.02	2,947	0.5%
Single-Pipe Steam Boiler Averaging Controls	19,320	1.00	19,320	3.4%
Single-Pipe Steam System Balancing and Improved Venting	2,767	1.00	2,767	0.5%
Programmable Thermostats	74,298	1.02	76,006	13.3%
Commercial HVAC Steam Trap	69,660	1.02	71,051	12.4%
Commercial Steam Trap (Dry Cleaners)	383,040	1.02	390,587	68.2%
Totals	**562,348**	**1.02**	**572,451**	**100%**

Source: Utility tracking data and Navigant analysis
Note: Verified gross realization rates are rounded to 2 digits, so direct application to the ex-ante does not produce the actual verified gross savings shown.

Table 7-19. North Shore Gas GPY2 Gross Realization Rate by Measure Type

End-use Category	North Shore Gas			
	Ex Ante Gross Energy Savings (Therms)	Realization Rate	Verified Gross Energy Savings (Therms)	Percent Verified Gross Savings
Bathroom Aerator	1,354	0.73	983	0.4%
Pre-Rinse Sprayer	2,160	1.02	2,200	0.8%
Showerhead	492	1.02	500	0.2%
Furnace Tune-Up (110-250 MBH)	492	1.02	502	0.2%
Single-Pipe Steam Boiler Averaging Controls	888	1.00	888	0.2%
Programmable Thermostats	18,966	1.02	19,402	7.4%
Commercial HVAC Steam Trap	23,004	1.02	23,463	9.0%
Commercial Steam Trap (Dry Cleaners)	209,664	1.02	213,795	81.7%
Totals	**257,020**	**1.02**	**261,732**	**100%**

Source: Utility tracking data and Navigant analysis
Note: Verified gross realization rates are rounded to 2 digits, so direct application to the ex-ante does not produce the actual verified gross savings shown.

7.3 EPY5 Geo-Marketing Pilot Program Process Evaluation Details

7.3.1 Customer Background Data

- Nine of the 17 participant customers interviewed for EPY5 geo-marketing pilot program owned the company. All but one was in a in a management position. The maintenance man involved in the program was part of a two-man team who worked in a church.

Table 7-20. Title of Customer Interviewed

Title	Frequency
Owner	9
Manager including Office and General	4
President/Director/CFO	3
Maintenance	1
Total	17

Small businesses were sampled to represent a broad spectrum of business types.

Business Activity

Single Mentions:

Auto Accessory Store
Bank
Body Shop
Farm and Lawn Shop
Hotel
Jewelry store
Radiator Shop
Restaurant
Thrift store
Video store

Multiple Mentions:

Two truck and auto repair
Two not-for-profits (church and office)
Three light manufacturing

Number of Employees

The average number of employees for these 17 survey participants was 9.2. The businesses employed from one to 35 employees. Both the restaurant and the bank reported about 35 employees. Thirteen of the sample had ten employees or less.

- Nine of the customers owed the facility and seven leased it. The restaurant manager did not know if the facility was owned or leased. All of the respondents who leased paid their own electric bills.

7.3.2 Pilot Program Trade Ally Interviews

In all cases, Navigant interviewed the president or owner of the trade ally company working with the EPY5 geo-marketing pilot. Trade allies reported that their firms had between two and eight permanent employees. All sub-contracted with local electricians to complete the work. One also reported sub-contracting the sales and marketing aspects of the work.

7.4 Geo-Marketing Pilot Trade Ally Interview Guide

ComEd Evaluation for the Small Business Energy Savings Program Geo-Based Pilot
Draft Version July 24, 2013
Contractor In-Depth Interview Guide

Respondent name:	
Respondent phone number:	
Respondent title:	
Email Address:	
Respondent Company	
Date:	
Status:	
Utilities	ComEd

Discussion Guide Mapping Table

Section	Topics	Questions
Background	What are the characteristics of the customers and program trade allies participating in the pilot programs?	Q1-Q3
Pilot administration	Did you feel adequately trained to implement the program? Do you have any materials that you can leave with customers describing the pilot program? Any describing the full range of ComEd programs? Do you think the level of marketing and promotion of the Small Business Energy Savings Program has been appropriate so far?	Q4-Q6
Effectiveness of pilot program implementation	Did you previously participate in the core program? How successful was the pilot program compared to the core program? To what factor(s) do you attribute the difference? How effective were the marketing materials used in the	Q7-Q8

Section	Topics	Questions
	Geo Pilot? Did you have sufficient materials? Were they effective with your customers? Was there a 'buzz' around the community about the pilot?	
Effectiveness of pilot program design and processes	What about the pilot attracted your organization to the program? Did you find any positive impacts of the pilot on your business? Did you find any negative impacts of the pilot on your business? Were the pilot participation process clearly explained to you? Was it easy to explain the program requirements to customers? Did the program meet your expectations? Why or why not? Were there any features of the community (or communities) you served that made the Geo Pilot less effective that it could have been?	Q9-Q12
Customer and program partner satisfaction with the program	What have been your customers' experiences with the SBES Geo-Pilot Program? Are customers satisfied with the pilot program? Are you satisfied with the pilot program? Were you satisfaction with the support you received from Nexant, the program implementer? How long did it take Nexant to process your payment after installation? Is this an acceptable amount of time? Were you satisfied with the support you received from ComEd?	Q13-q16

Section	Topics	Questions
Program Barriers	What challenges have occurred in implementation of each program pilot and how did you/will you overcome them? (For geo-marketing pilot): Was the program equally successful in all geographic locations? If not, to what do you attribute the difference(s)? Were they foreseeable? Do pilot program processes create any barriers to partner or customer participation? If yes, what barriers?	Q17-Q19
Opportunities for program improvement	What areas of the pilot worked particularly well for you? What worked less well than anticipated? What areas of the pilot program are working well for your customers? Do you have any recommendations for improving the program?	Q20-Q21
Potential market effects	Are you continuing to market the core program after the 12-week blitz? How many geo pilot customers are going on to participate in the core program? Are customers in the geo pilot program installing any additional energy efficient equipment outside the programs?	Q22-Q25
Market Indicators	Do you think that current economic conditions are affecting the program? If so, how? Do you find the SBES Program is a competitive advantage for your firm? Have your business revenues grown in the past year (Y/N)? [IF YES] Would you attribute any of that growth to the Small Business Energy Savings Program Geo Pilot? About what %? Have you hired more employees because of work generated by the Small Business Energy Savings Program Geo Pilot? How many? In the next year do you plan to hire more employees to handle increased work generated by the program? About how many? Do you plan to continue participating in the program through the 2013-2014 Program Year?	Q26-Q32
Closing	Is there anything else that you would like to let us know based on the topics we covered today?	Q33

[Note to Reviewer] The Interview Guide is a tool to guide process evaluation interviews with utility staff and implementation contractors. 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's design and operation, 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 Savings Geo Marketed Pilot Program. At this time we are interested in asking you some questions about your experiences with the Small Business Energy Savings 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.

To help me understand what we are discussing, I will refer to the three-month community based SBES Program as the Geo-Pilot and the ongoing program as the core SBES Program.

Background

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

   How many full-time employees are employed at your company? Who are your primary business customers in the pilot?
2. Can you briefly summarize your roles and responsibilities at your company? For how long have you carried these out?

3. Who [Utility? Nexant? Other?] should be more involved in the pilot but is not, and how can the program increase their involvement?

Pilot Administration

4. How were you recruited for the pilot? Was the training for the program what you anticipated? Do you think the training was adequate?

5. Do you have any materials that you can leave with customers describing the pilot program? Any describing the full range of ComEd programs?

6. Do you think the level of marketing and promotion of the Small Business Energy Savings Program to the participating customers has been appropriate so far?

Effectiveness of pilot program implementation

7. Did you previously participate in the regular Small Business Energy Savings program? How successful was the pilot program compared to the regular program? To what factor(s) do you attribute the difference?

8. How effective were the marketing materials used in the Geo Pilot? Did you have sufficient materials? Were they effective with your customers? Was there a 'buzz' around the community about the pilot?

Effectiveness of pilot program design and processes

9. Were the pilot participation process and program requirements clearly explained to you? Were they easy to explain to customers?

10. What about the pilot program attracted your organization to the program? What were your expectations for the program? Did the program meeting your expectations?

11. Are you marketing the core SBES Program to your customers in [INSERT COMMUNITY]?

12. How does the proportion of customers rejecting the program compare between the regular program and the pilot? Why is that?

Customer and program partner satisfaction with the program

13. What have been your customers' experiences with the SBES Geo-Pilot Program? Are customers satisfied with the pilot program?

14. Are you satisfied with the pilot program?

15. Were you satisfaction with the support you received from Nexant, the program implementer? How long did it take Nexant to process your payment after installation? Is this an acceptable amount of time?

16. Were you satisfied with the support you received from ComEd [such as …]?

Program Barriers

17. What challenges did you face as you implemented the program pilot? How did you overcome them?

18. Was the pilot successful in your geographic location? If marketed in more than one town: Was the program equally successful in all geographic locations? If not, to what do you attribute the difference(s)? Were they foreseeable? Were they due to the economy?

19. Do pilot program processes create any barriers to partner or customer participation? If yes, what barriers? What other barriers exist?

Opportunities for program improvement

20. What areas of the pilot worked particularly well? What worked less well than anticipated, if anything? To what do you attribute these differences?

21. What areas could the pilot program improve to create a more effective program for customers? For trade allies? How could the trade allies help increase the energy and demand impacts?

Potential market effects/Spillover

22. Are customers going on to do other projects after the pilot is completed? Have you referred any customers to other ComEd, Nicor, Peoples Gas and North Shore Gas] business programs? Or to the "core" Small Business Energy Savings program?

23. How often does this occur? Are customers participating in the SBES Program or other ComEd or Nicor Programs? Are they installing energy efficient equipment without participating in a utility program?

24. Were the pilot customers current customers of yours or new customers?

25. During the pilot, did you identify any opportunities to install gas measures? What types of equipment did you install? Did you pass these over to the gas company? What was the referral process?

26. Did you change your business (for example, the line of products and services you offer, how you market yourself) as a result of the pilot? In what ways?

Economic Indicators

27. Do you think the SBES Program is a competitive advantage for your firm?

28. Have your business revenues grown in the past year (Y/N)?

29. [IF YES] Would you attribute any of that growth to the Small Business Energy Savings Program? About what % (+/- 10%)

30. Have you hired more employees because of work generated by the Small Business Energy Savings Program? How many?

31. In the next year will you hire more employees to handle increased work generated by the program? About how many?

32. Do you think the current economic conditions are affecting the program? If so, how?

33. Do you plan to continue participating in the core SBES program through the 2013-2014 program year?

Closing

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

7.5 Geo-Marketing Pilot Participant Interview Guide

ComEd Evaluation for the Small Business Energy Savings Program Geo-Based Pilot

Draft Version July 24, 2013

Customer In-Depth Interview Guide

Respondent name:	
Respondent phone number:	
Respondent title:	
Email Address:	
Respondent Company	
Date:	
Status:	
Utilities	**ComEd**

Discussion Guide Mapping Table

Section	Topics	Questions
Pilot administration	How you learned about the program. Process of participating in the program. Ease of understanding	Q4-Q7
Communications	Marketing materials - How effective were they in explaining the program to you? Communications with contractor; communications with	Q8-Q11

Section	Topics	Questions
	Nexant	
Program Satisfaction and Improvements	Satisfaction with the Small Business Energy Savings Program Satisfaction with the amount of incentives Program could be improvements Satisfaction with contractor Impact of current economic conditions	Q12-Q16
Awareness of Other ComEd/Nicor Programs	Plan to install other energy efficient equipment Knowledge of or participation in other programs Plan to participated in the future Contractor recommendation of other ComEd or Nicor programs	Q17-Q20
Customer Background	Firmographics	Q21-Q26

Identify Appropriate Respondent

1. Hello, this is <INTERVIEWER NAME> calling from Navigant Consulting on behalf of ComEd and Nicor Gas about the Small Business Program you participated in this summer. This is not a sales call. May I please speak with <CONTACT> ?

   1 No, this person no longer works here → Is there someone else that was involved with the Small Business Energy Savings Program? [Repeat introduction with new contact]

   2 No, this person is not available right now [Ask when available or leave message.] CALL BACK LATER

   3 Yes – SKIP to Q2

   97 No, other reason (THANK & TERMINATE)

2. Hello, my name is <INTERVIEWER NAME> calling from Navigant Consulting on behalf of ComEd and Nicor Gas. We're calling to do a follow-up survey about your firm's participation in the Small Business Program this past summer. Do you recall

participating in the Small Business Program on or about <PROGRAM DATE>?

1 Yes → continue to Q3

2 No → [Describe program and ask if they were involved. If still no recall → Can I speak with someone who is more familiar with your organization's participation in the Small Business Energy Savings Program?]

3 There is no one here with information on that address/wrong address – THANK & TERMINATE

[IF NEEDED] Navigant is an independent consulting firm hired by ComEd and Nicor Gas to learn about customer experiences with its Small Business Energy Savings program and to help the utilities improve their programs in the future.

[IF NEEDED] This is a very important fact-finding survey with companies that have recently participated in an energy efficiency program sponsored by ComEd and Nicor Gas. We are NOT interested in selling anything, and we are primarily interested in gaining your feedback on the Small Business Energy Savings program to help ComEd and Nicor improve the services they provide to their customers in the future. Your responses will not be connected with your firm in any way and will be summarized along with responses we get from other businesses that we talk with.

3. Are you the person responsible for your organization's decision to participate in the program or were you the main point of contact for the program?

   1. Person responsible for program participation
   2. Main point of contact for the program

   1 Yes → Great. We would like to ask you some questions about this program, which should only take about 15 to 20 minutes. Is now a good time, or is there a time we can call you back tomorrow?

   2 No → Ask for contact name and repeat introduction in Q2.

   Now I'd like to ask you about your program experiences.

Pilot Administration

4. Do you remember how you first learned about the Small Business Energy Savings Program? [Contractor, chamber, business associate, newspaper, etc.]?

5. Can you spend just a few minutes and describe the process that you went through to

complete your participation in the SBES Geo Marketing Pilot Program? When did you discuss the program with your local contractor?

6. Was the process of participating in the program easy to understand?

   a. Did you consult any other information source in your community before you decided to participate in the program? Did you have any reservations about the offer from the utilities?

   b. Did [you/they] experience any difficulties in preparing/submitting the incentive application? What was the source of difficulty/delay? What level of support was provided by the contractor who implemented the program in your community?

   c. How could ComEd simplify this process?

7. Has a representative from Nexant visited to verify the installation of energy efficient equipment? How did that process work? Were you satisfied with this process? If not, how could it be improved?

Communications

8. Did you receive any marketing materials explaining the SBES Program? Who provided the materials? How effective were they in explaining the program to you? How could they be improved?

9. How would you describe communications between your organization and the contractor representing ComEd and Nicor Gas during your program participation?

10. Did you have any contact with the program implementer, Nexant? [IF NO, SKIP NEXT QUESTION] How would you describe communications between your organization and Nexant during your program participation?

11. Were there any issues with the program implementer, Nexant? If so, please describe. How could these issues be improved?

Program Satisfaction and Improvements

12. Overall, how satisfied were you with the Small Business Energy Savings Program?

13. Are you satisfied with the amount of incentives offered through the Small Business Energy Service program?

14. How do you think the program could be improved?

15. How satisfied are you with the contractor who contacted you about the program? Did you have a relationship with the contractor before you participated in the program?

16. Are current economic conditions affecting the program? If so, how?

Awareness of Other ComEd/Nicor Programs

17. Do you plan to install other energy efficient equipment through the Small Business Program within the next year? What do you plan to install?

18. Aside from the Small Business Program that we have been discussing today, are you aware of other programs that are designed to promote energy efficiency for businesses like yours? What types of programs or resources can you recall?

- PROBES: Do you know what organization/company administers that program? After each response prompt with "Can you recall any others?"

19. Have you participated in any of these programs? Which ones? What did you install? Do you plan to participate in any of these programs in the future?

20. Did the contractor recommend any other ComEd or Nicor programs to you? What were you planning to install?

Customer Background

We are almost finished. I'd just like to get some general background information about <COMPANY> and your responsibilities there.

21. Can you briefly summarize your role at your company? What are your main responsibilities?

22. What is <COMPANY>'s primary business activity at this particular facility (<SERVICE ADDRESS>)? [RECORD ONE]

1 Office
2 Retail (non-food)
3 College/University
4 School
5 Grocery Store
6 Restaurant
7 Health Care
8 Hospital
9 Hotel or Motel
10 Warehouse/Distribution
11 Construction
12 Community Service/Church/Temple/ Municipality
13 Industrial Process/ Manufacturing/ Assembly – type?
14 Condo Assoc./Apartment Mgmt.
15 Other (Please specify) _____
98 Refused
99 Don't Know

23. About how many full-time employees work at this location?

&EMP # of employees
98 Refused
99 Don't Know

24. Does <COMPANY> own or lease this facility?

1 Own
2 Lease
98 Refused
3/4/201199 Don't Know

IF THE COMPANY LEASES THE FACILITY:

25. Do you pay the electric bill?

26. Do you have any other comments or suggestions for us about the Program?

That's all of the questions I have for you today. Thank you so much for your time, your insights are extremely valuable to ComEd and Nicor Gas. Have a great day!
We might follow-up with you by phone later, if additional questions arise.

7.6 ComEd-Nicor Gas SBES PY2 PM Interview Guide

Nicor Gas PY2 Evaluation – Nicor and ComEd
Program Staff and Implementer In-Depth Interview Guide
(Interviews to be Conducted Separately)

May 31, 2013

Name of Interviewee: _____ Date: _____

Title: _____ Company: _____

Role in Program: _____

[Note to Reviewer] The Interview Guide is a tool to guide year 2 process evaluation interviews with utility staff and implementation contractors. 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's design and operation, i.e., where they have significant experiences for meaningful responses. Where possible, interview date/times will be arranged in advance.

The interviews may be audio taped only with the interviewee's knowledge and consent.

If respondents ask, tell them yes, their answers will remain confidential.

Introduction

Hi, may I please speak with [NAME]?

My name is ___ and I'm calling from Navigant Consulting, We're conducting interviews with program managers and key staff in order to improve our understanding of your PY2 savings results and PY2 and planned PY6/PY3 changes to the program. At this time we are interested in asking you some questions about the Nicor Gas/joint utilities' _____ program. The questions will only take about an hour. Is this still a good time to talk? [IF NOT, SCHEDULE A CALL BACK.]

Ok, great. [Optional: If you don't mind, I would like to do a voice recording our conversation to speed up the note taking. Is that OK? I'm going to switch you to speaker phone. I am in an enclosed, private office.]

ComEd/Nicor Overall Goals and Objectives

1. According to our preliminary tracking data extract [which is current through roughly the end of Q3], you achieved [amount] in savings in PY5/PY2 through [month].

    a. How does that compare to your yearend PY5/PY2 kWh/therm goal at that point? How far ahead or behind are you?

b. Do you think you will meet kWh/therm goal at the end of the program year? Why do you think you are ahead or behind in kWhs/therms?

c. ComEd only: Do other goals such as participation level or kW follow this same pattern? If they do not: Why does kW deviate? Why does participation level deviate?

2. How do your PY6/PY3 savings goals compare to your PY5/PY2 goals? kWh, kW/therms, Number of participants. What do you think about your PY6/PY3 goals? Do you think your PY6/PY3 goals are achievable? Why or why not?

3. Outside of the quantitative goals (e.g., $, $/kWh/therm, savings and participation rates), what were the key goals and objectives of this program for PY2? How did you perform against those goals?

4. What percent of the total kWh savings was earned through the (ComEd: Geo based pilot/Nicor: the Korean Cleaners focus)?

ComEd Changes in Program Structure in PY5/

5. How did the Geo Based Pilot program change in PY5?

[Prompt for each of the below, adding anything specific to your program.)

- PM or IC and their roles? Change in David's role?
- Incentive structure? Higher incentives in Pilot Areas?
- Marketing materials or approach? What collateral materials were used in blitzed areas? Please provide copies.
- Participant targets? Define the target business. Does it differ from the target in the base program?
- Key program processes?
  - Data tracking systems – Are pilot participants identified in the database? If not, can you provide pilot program participants so we can identify them in the tracking database?
  - QA/QC – how many pilot participants received post installation visits? Were the same standards applies to the pilot as existed in the base. Who made these visits?
  - Customer participation – Was participation higher or lower than expected in the pilot areas? Did it differ by geography?
  - Trade ally participation – How do you recruit trade allies? How many trade allies do you need in a geographic area?
- Trade ally training and recruiting? What training did the trade allies receive? Was it as rigorous as the training for the trade allies in the base program?
- Trade ally targets and population size? How many of the potential businesses do you target in a community?
- New measures or participant channels? Successful?
- Have you identified new geo-based pilot communities to target in PY6?

Nicor Changes in Program Structure in PY2

6. How did the Korean Cleaners program focus change the Program in PY2?

[Prompt for each of the below, adding anything specific to your program.)

- PM or IC and their roles? Addition of new PM for Nicor.
- Incentive structure? Offer of higher incentives to Pilot participants?
- Marketing materials or approach? Who works with the Korean organizations? Is there only one or more than one? Did you develop specific collateral materials for this technology? .
- Participant targets? Define the target business. Does every cleaner belong to the organization? Do the targeted cleaners differ from other cleaning businesses in the service area?
- Key program processes?
    - Data tracking systems – Are pilot participants identified in the database?
    - QA/QC – how many pilot participants received post installation visits? Were the same standards applies to the pilot as existed in the base. Who made these visits? Kema Staff?
    - Customer participation – Was participation higher or lower than expected in the pilot areas?
    - Trade ally participation – What type of trade ally installs steam traps? How do you recruit this type of trade ally? Are these trade allies likely to expand their marketing of the steam trap to other types of customers?
- Trade ally training and recruiting? Did the trade allies received extra training in steam trap installation? What training did the trade allies receive? Was it as rigorous as the training for the trade allies in the base program?
- Trade ally targets and population size? How much of the potential businesses do you plan to target with the program?
- New measures or participant channels? Successful?

ComEd/Nicor

7. What participant feedback have you gotten this year – complaints, successes, etc. from the base program? From the Pilot or Korean cleaner focus? If complaints, how did the program respond?

8. Did you identify any particular issues or challenges this year that you plan to address in PY3?

ComEd/Nicor Planned Changes in Program Structure in PY3

9. What specific program changes are you planning for PY3? Why?
    a. PM or IC and their roles?
    b. Incentive structure?
    c. Marketing materials or approach?
    d. Participant targets?
    e. Key program processes?
        i. Data tracking systems
        ii. QA/QC
        iii. Customer participation

iv. Trade ally participation

f. Trade ally training and recruiting?
g. Trade ally targets and population size?
h. New measures or participant channels?

ComEd/Nicor PY5/PY1 Follow Up [Please refer to the returned email]

10. Have you encountered any issues to implementing the KPI tracking or VDDTSR recommendations? Please describe.
11. *[For each KPI that will not be tracked or VDDTSR recommendation that won't be implemented, ask:]* Please describe why the KPI/recommendation won't be implemented? Are we likely to see the same result in PY2?
12. Have you encountered any issues in implementing the program changes recommended in the report?
    a. Include a common id to match electric and gas projects at the same site. Was this change made to the database?
    b. Require TAs to use the customer name on the application? Was the requirement communicated to Trade Allies?
    c. Nexant and Franklin could combine their training for TAs. Was this implemented?
    d. Offer an abbreviated training for fully trained Trade Allies? Was this change implemented?
    e. Encourage TAs to use marketing materials.
    f. Financing – Small customers are cut off from the finance market.
    b. Official Id System/Branding to help TA in neighborhoods with less trust.

ComEd/Nicor Data in Addition to Tracking System

13. Is there any useful information such as marketing plans, collateral materials such as fact sheets, brochures, etc.? If so, when can you upload it to our SharePoint?

Other

14. Is there anything else we should know about how the program implementation is progressing?
15. Do you have any other comments or suggestions for us?

Thank you very much for taking the time in assisting us with this evaluation. Your contribution is a very important part of the process.

We might follow-up with you by phone later, if additional questions arise.

7.7 Follow-up Memo For SBES GPY1 Recommendations

To: **Tom Kovolak, Selena Walde-Worster, David Nichols, David Hernandez**
Copy: **Jennifer Hinman, David Brightwell, Randy Gunn, Julianne Meurice, Laura Agapay, Jennifer Barnes, Jeff Erickson, Kevin Grabner, Mary Thony**
From: **Paul Higgins**
Date: **June 25, 2013**
Re: Joint ComEd/Nicor Gas GPY1/EPY4 Follow Up for Small Business Energy Savings GPY1 Recommendations

This document summarizes our review of the GPY2/EPY5 Small Business Energy Savings Program (SBES) status of implementing recommendations made for 1) key performance indicators (KPI) in our program logic model review, and 2) processes in our review of verification, due diligence, and tracking systems (VDDTSR) of the program in GPY1/EPY4.

This memo is based on information disclosed by the implementation contractor to Navigant that is confidential.

Summary

Key Performance Indicators

- **Finding.** The program implementation staff has implemented all of the recommended KPIs excluding one (participation in other programs) that can be addressed by Navigant.
- **Recommendation:** Navigant should compare program participation files to verify SBES customers' participation in other programs.
-

Review of Verification, Due Diligence, and Tracking Systems

- **Finding.** The program has implemented or is in the process of implementing most of the recommendations for VDDTS. Navigant recommends prioritizing the remaining recommendations equally.
- **Recommendation:** The program should prioritize all of the remaining recommendations as they all relate to the ability of Nexant to provide Navigant with the data needed for program evaluation purposes.
-

Status of Implementation of KPIs

Table 7-21 below lists the current implementation status of key performance indicators that Navigant recommended in the GPY1/EPY4 memo reviewing the program's logic model.

Table 7-21. Status of Implementation of KPIs from GPY1/EPY4 Program Logic Model Review

KPIs from LMPT Memo			Status of Implementation July 2013	KPI Value July 2013
Outputs	**Key Performance Indicators**	**Data Sources and Potential Collection Approaches**		
Recommendations report and installation of no-cost measures	*Number of energy assessments conducted by energy advisors*	*Interviews with energy advisors, program tracking data*	Implemented	2,269
Lighting and HVAC contractors screened and recruited	*Number of participating contractors*	*Program tracking data, interviews with program staff*	Implemented	38
Contractors trained, measure costs negotiated, and contracts signed	*Number of participating contractors; number of contracts signed*	*Program tracking data, interviews with program staff*	Implemented	38 – started PY2/5 with 32 TAs
Contractor trainings, yearly kickoff meetings, business group presentations, expos, radio ads, bill inserts, direct mail etc.	*Number of contractors attending trainings; number of group presentations; number of ads, bill inserts, direct mail pieces dropped*	*Marketing/communication records; interviews with program staff and contractors*	Implemented	2 main TA Trainings (Fall/Spring) both were mandatory; 29 Group Presentations; Postcards/direct mail pieces dropped - approx. 5100
Contractors with performance issues identified and monitored	*Number of contractors warned or dropped from program*	*Program tracking data*	Implemented	Performance monitored and TAs that were not performing/meeting program standards were removed

KPIs from LMPT Memo			Status of Implementation July 2013	KPI Value July 2013
Outputs	**Key Performance Indicators**	**Data Sources and Potential Collection Approaches**		
Customers have a better under-standing of what measures are appropriate and cost-effective for their businesses	*Number of small business customers participating in the program*	*Program tracking data*	Implemented	Customer projects increased to 1858 in PY2 from 414 in PY1
Customers are able to locate qualified contractors from website	*Percent of participants obtaining contractors from Nicor's website*	*Participating customer interviews*	Implemented	One out of 77 (1%) of program partic-ipants accessed the Nicor or the ComEd Web site
Increased contractor awareness and knowledge of energy efficiency programs	*Number of small business customers participating in other Nicor programs*	*Program tracking data*	Implementatio n Pending SBES Process Survey	Add question to the next process survey.
Nexant provides outreach to business groups and individually to contractors and customers	*Number of meetings with business groups, contractors and trade allies*	*Program tracking data*	Implemented	Met with TAs individually at the beginning of PY2 and new TA's had an initial recruitm't mtg; approx. 28 presentations were given at chambers, association, industry events

KPIs from LMPT Memo			Status of Implementation July 2013	KPI Value July 2013
Outputs	**Key Performance Indicators**	**Data Sources and Potential Collection Approaches**		
Customers (and Nicor) assured that contractors doing high quality work	*Number of shadowing or post-inspections with quality concerns, number of customer complaints about program; customer satisfaction with contractors*	*Program tracking data; customer survey*	Implemented	Can provide customer complaint log. Customer satisfaction data provided by MindsEye; Process Evaluation Survey

Status of Implementation of VDDTS Recommendations

Table 7-22 below lists the current implementation status of key performance indicators that Navigant recommended in the GPY1/EPY4 memo reviewing the program's logic model.

Table 7-22. Status of Implementation of Recommendations fromGPY1 Review of VDDTS

VDDTSR RECOMMENDATION	STATUS OF IMPLEMENTATION – JULY 2013
QUALITY ASSURANCE AND VERIFICATION RECOMMENDATIONS	KNOWN STATUS/CONFIRMED STRATUS
Consider revision of the program Operations Manual: Implementation Contractor should consider including in the Operations Manual brief guidelines for installing the direct install water devices and CFLs, identify the minimum gallons per minute (GPM) eligibility standard for the water devices, and describe procedures and frequency for conducting water-flow testing during the pre-installation site survey. If these guidelines are available elsewhere (the Implementation Contractor mentioned Energy Advisor Manual), the Operations Manual should provide appropriate references to such documentation. The manual should clarify trade ally's installation inspection targets and how they tie into annual program posts inspection targets.	Implemented – reference Nexant Energy Advisor manual.

VDDTSR RECOMMENDATION	STATUS OF IMPLEMENTATION – JULY 2013
Consider modification of the Site Energy Assessment Report: Site Energy Assessment Report should include information about the condition of the baseline equipment that was replaced since these are key assumptions in the savings estimation. The form should indicate the "rated" GPMs for the efficiency water devices, or some useful specs from HVAC measures. This may be provided as an appendix to avoid customer confusion.	The recommendation will not be Implemented – Customer feedback indicated that current report is already confusing. Concern that adding more info would only increase this confusion.
Ensure handwritten notes are legible: Implementation Contractor should ensure additional handwritten notes on Energy Assessment Reports or Installation Agreement Forms are easy to read, particularly when the scope of work changes and the installation agreement needs to be modified with new measures and quantities. This is important to avoid any possibility of tracking data entry errors (e.g., handwritten notes were difficult to read in the Installation Agreement Form for project SBES-_000044).	Implemented – The installation agreements are reviewed for each project to make sure they are legible
QUALITY ASSURANCE AND VERIFICATION RECOMMENDATIONS (CONTINUED)	**KNOWN STATUS/CONFIRMED STRATUS**
Ensure installation Agreement Form is complete and dated, and establish a process for trade allies to confirm the scope of the revised Installation Agreement when a change is made: Navigant observed some Installation Agreements were not dated or completed to confirm customer approval of the selected installation measures. To the extent possible, customers should be required to provide completed, marked, signed, and dated Installation Agreement Forms to verify which measures they consented to install. In addition, although the Implementation Contractor strives to minimize paperwork and relies on invoices to verify savings and costs, Navigant suggests this process does not provide enough quality control of the work completed by the trade ally when the original Installation Agreement is modified. Customers should be required to sign next to or initial any changes to the original Installation Agreement. Then the Operations Manual should be revised to clarify what the new practice is when a work order changes.	Implemented – TAs are required to submit a revised Installation Agree-ment w/customer initials for revisions. For the pilots we made an exception if the revision was decrease in items installed due to time constraints customers & TAs were under for turnaround between assess-ment and projects and high volume, or if the quantities were verified via inspection.
Ensure only Implementation Contractor technical staff or trade allies perform installations: Energy Advisors should not allow customer installation of the no-cost measures even if the customer drops out of the program. In the case of project "SBES-_000635", after the Energy Advisor allowed the customer to install the measures, he was not allowed to visually inspect and verify the installation. Energy savings claims for this project could be rejected.	Implemented – Customer installation of DIs is not allowed.

VDDTSR RECOMMENDATION	STATUS OF IMPLEMENTATION – JULY 2013
Complete post inspection for both gas and lighting capital investment installation: Implementation Contractor should consider post inspection of both contractor installed gas and lighting installations, but not only lighting measures as we observed with projects "SBES-_000049" and "SBES-_000518". The Operations Manual should clarify if only capital investment measures require post inspection, or including direct install measures, and whether the 10% post inspection requirement is based on trade allies installations only or included any direct install inspections.	Implemented – 10% CI projects inspected, all measures installed; N/A – Direct installs are performed by Nexant – no post installs.
QUALITY ASSURANCE AND VERIFICATION RECOMMENDATIONS (CONTINUED)	**KNOWN STATUS/CONFIRMED STRATUS**
Conduct random sampling of capital investment projects for post installation inspection: Operations Manual indicates post-inspections of 10% of all completed projects could be random or manual selection at the discretion of the Implementation Contractor. At a minimum, Navigant would expect the samples to be selected randomly from those projects requiring inspection, unless the program's Operations Manual clarifies the objective of manual selection.	Implemented – 11% of projects have been inspected
Develop a simplified Access or Spreadsheet database format that serves program evaluation efforts: If the TrakSmart database system contains all the missing fields discussed above and others, then a centralized database in Access or Excel Spreadsheet format that shows all the inputs to the TrakSmart database system could be developed that would provide easy access to the program evaluation team and program staff.	N/A – Data provided to evaluator is from Utility tracking systems.
Develop data dictionary and process guide to the tracking database: Implementation Contractor should provide a data dictionary or process guide for the TrakSmart Data Management system. This guide will enable the evaluation team and program staff to learn the process for creating customer accounts, setting up a project file, and recording project information, and what QC activities are pursued before the completion of every project data entry.	N/A - TrakSmart guide is in existence for program staff

VDDTSR RECOMMENDATION	STATUS OF IMPLEMENTATION – JULY 2013
Consider including additional information in the tracking system: Implementation Contractor can improve on the data input to the spreadsheet tracking reporting, including the information listed below. If these are tracked in the TrakSmart, they should be made available for PY1 evaluation review: • Complete addresses, phone numbers and email addresses for trade allies • Baseline equipment conditions/efficiency (if tracked) • The retrofit equipment brand and model specifications • Post installation inspection findings documented in field inspection checklist • Indication of referrals from the Multi-family program's central plant survey • Invoice numbers from capital investment projects	N/A – TrakSmart & Utility tracking systems track TA info, baseline equipment info as required, installation inspection findings, & TA invoice numbers
Ensure accurate and complete tracking of project information: Implementation Contractor should ensure complete and accurate transfer of customer application information into the tracking system. Navigant noticed project "SBES-_000049" Installation Agreement showed the customer signed a capital investment agreement to implement a boiler reset control measure, but no record of the installation was found. The invoice and the tracking system report showed that a boiler tune-up was performed instead of a boiler reset control measure.	Implemented – this is part of the implementation strategy of ensuring the signed installation agreements match the TA invoices
Clarify special cases of installing water devices as part of capital investment: Navigant identified over 20 projects in the 5/31/2012 tracking spreadsheet report where it appears customers installed kitchen and bathroom aerators as part of capital investment installations, and both customer and trade ally received incentives. It is not clear if the program requirements allow installation of water devices as part of the capital investment measures. Navigant recommends the Implementation Contractor should include additional notes in the Operations Manual or tracking system for clarification of special cases.	N/A – Aerators were added as a CI measure part way through PY1 and for the entire PY2. These therefore can be installed by TAs
DATA TRACKING SYSTEM AND REPORTING RECOMMENDATIONS	**KNOWN STATUS/CONFIRMED STRATUS**
Define and identify key information needed to track and report early in the program development process: The SBES program data requirements are defined early in the program development process and are tracked in the program tracking database. This memo is one step in the process of identifying key information. All the inputs into the TrakSmart tracking system were not available to Navigant to verify if all key program metrics are adequately tracked.	N/A – Data provided to evaluator is from Utility tracking system

VDDTSR RECOMMENDATION	STATUS OF IMPLEMENTATION – JULY 2013
1. *Use automated or otherwise regularly scheduled notification to achieve close monitoring and management of project progress.* • The Implementation Contractor reports weekly to Nicor Gas on all projects. These reports are not automatically generated. The report highlights potential and realized energy savings and summarizes program key performance indicators, application changes and marketing challenges.	Implemented – Weekly Ops reports continued to be generated in PY2,as was the case in PY1. These address savings, marketing, and program challenges in the workbook and email coversheets.
2. *Design program tracking system to support the requirements of evaluators as well as program staff.* • The Implementation Contractor indicates the TrakSmart tracking system is fully electronic and allows real-time reporting of routine functions like monthly portfolio and program reporting and financial tracking. • The spreadsheet report provided by the Implementation Contractor to Navigant contained customer/trade ally and impact data. This data enables the Implementation Contractor and the evaluation team to track the timeline of each project and pinpoint important milestones in the process. The Implementation Contractor could do more. If all the missing data fields in the spreadsheet extract (indicated above in the summary recommendations) exist in the main TrakSmart database system, then a more complete Access or Excel file showing all the inputs to the TrakSmart database system could be extracted. This step would give the evaluation team access to evaluate the entire database.	N/A – Data provided to evaluator is from Utility tracking system
3. *Set reasonable and accurate expectations for energy savings and measure performance* • The Implementation Contractor meets with potential participants before program participation to discuss their expectations for energy and bill savings. The site energy assessment tool provides estimated savings to the customer during the initial site energy assessment.	Implemented
DATA TRACKING SYSTEM AND REPORTING RECOMMENDATIONS	**KNOWN STATUS/CONFIRMED STRATUS**

VDDTSR RECOMMENDATION	STATUS OF IMPLEMENTATION – JULY 2013
4. *Integrate or link with other appropriate systems such as cross-program databases, customer information systems (CIS) and marketing or customer relationship management (CRM) systems* • It appears key program applicant metrics, milestones and therm savings are captured in the TrakSmart tracking database. But the Implementation contractor mentioned to Navigant that the TrakSmart tracking system did not integrate or link with other appropriate databases such as customer and trade ally survey feedback, marketing and outreach information, complaint logging, leads or common area referral database. Navigant suggests linking up these files or submitting all these data for review would streamline the evaluation efforts.	N/A – Utility tracking systems link to other customer systems
Verify accuracy of invoices to ensure the reporting system is recording actual product installations by target market. • Customers or contractors are required, as part of the SBES program terms and conditions, to submit copies of all invoices or other reasonable documentation of the costs associated with purchasing the qualified equipment. As part of the application review process, program staff compares invoices and purchase orders to the application information to verify measure installation. Incentives are paid only after the Implementation Contractor verifies the invoices are genuine and that all equipment meets the program requirements. • The Implementation Contractor strives to minimize paperwork and relies on invoices to verify final project savings and costs. Navigant suggests this process does not provide enough quality control of the work completed by the trade ally. Customers should be required to sign next to or initial any changes to the original installation agreement. Then the Operations Manual should be revised to clarify what the new practice is when a work order changes.	Implemented – TAs are required to submit a revised Installation Agreement w/customer initials for revisions. For the pilots we made an exception if the revision was decrease in items installed due to time constraints customers & TAs were under for turnaround between assessment and projects and high volume, or if the quantities were verified via inspection.