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ComEd Home Energy Jumpstart PY6 Evaluation Report

Final

Energy Efficiency/Demand Response Plan: Plan Year 6 (6/1/2013-5/31/2014)

Presented to Commonwealth Edison Company

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Executive Summary

This report presents a summary of the findings and recommendations from Navigant Consulting, Inc.'s (Navigant's) impact evaluation of the Commonwealth Edison Company (ComEd) Home Energy Jumpstart (HEJ) program. The HEJ program was in its first year in PY6[1]. The HEJ program is a joint program of Peoples Gas/North Shore Gas and ComEd, with Franklin Energy Services implementing the program for ComEd, Peoples Gas, and North Shore Gas. This report includes electric impacts only and does not include natural gas impacts, which are reported separately. The PY6 HEJ program planning target was to achieve net savings of 2,000 megawatt-hours (MWh). The main goal of this residential direct install program is to secure energy savings through direct installation of low-cost efficiency measures, such as water efficient showerheads and faucet aerators, pipe insulation, programmable thermostats, and, beginning in PY6, compact florescent lamps (CFLs) and the other previously installed measures for customers with electric space heat or electric hot water heating at eligible single family residences. Measures with verified electric savings were CFLs, programmable thermostats, and hot water heating savings (when the hot water was electrically heated). In addition, the installation teams performed services with verified electric savings, including programming new thermostats and reprogramming existing thermostats. A second objective of this program is to perform a brief assessment of major retrofit opportunities (e.g., furnace, boiler, air conditioning, insulation, and air sealing) and bring heightened awareness to the homeowners about available additional efficiency programs offered by ComEd, Peoples Gas, and North Shore Gas. The program underwent several notable changes in PY6. In addition to becoming a joint program with the addition of CFL measures and serving electric space heat and hot water heat customers, the program began to provide services such as reprogramming existing programmable thermostats and setting the temperature lower on water heaters.

The evaluation objectives in PY6 were: (1) verifying tracking system data, (2) verifying gross savings impacts based on the Illinois Statewide Technical Reference Manual for Energy Efficiency Version 2.0 (Illinois TRM v2.0), and (3) quantifying net savings impacts. This is the first year of ComEd participation, so PY6 HEJ program electric measures were not included in the SAG NTG consensus process. The evaluation determined that the net-to-gross (NTG) values found in the PY4 evaluation of the ComEd/Nicor Gas Home Energy Savings (HES) program are appropriate values to use for the PY6 HEJ program, including lighting (0.79) and electrically heated water measures (0.75). Navigant used a 0.90 NTGR for programmable thermostats, based on findings from previous ComEd programmable thermostats and thermostat education research.[2] [3]

[1] PY6 began June 1, 2013, and ended May 31, 2014.
[2] "2010 Gas Energy Efficiency Annual Report," Boston Gas Company, Colonial Gas Company, and Essex Gas Company, each doing business as National Grid, August 2011, page 67.
[3] "Year 2010 Savings Claim," Efficiency Vermont, April 1, 2011, page 162.

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E.1 Program Savings

Table E-1 summarizes the electric savings from the ComEd PY6 HEJ program. The HEJ program realized verified net energy savings of 2,921 MWh, verified net peak demand reduction of 0.29 MW, and verified total demand reduction of 3.01 MW.

Table E-1. PY6 Total Program Electric Savings

Savings Category	Energy Savings (MWh)	Peak Demand Reduction (MW)	Total Demand Reduction (MW)
Ex Ante Gross Savings	3,619	Not tracked	Not tracked
Verified Gross Savings	3,681	0.37	3.80
Verified Net Savings	2,921	0.29	3.00

Source: Navigant analysis of program tracking data

E.2 PY6 HEJ Program Savings by Measure

Table E-2 summarizes PY6 gross and net savings by measure category.

Table E-2. PY6 Program Results by Measure

Research Category	CFL	Hot Water	Thermostat	Total
Ex Ante Gross Savings (MWh)	3,488	6	126	3,619
Ex Ante Gross Demand Reduction (MW)	Not tracked	Not tracked	Not tracked	Not tracked
Verified Gross Savings (MWh)	3,553	6	123	3,681
Verified Gross Peak Demand Reduction (MW)	0.37	<0.01	0.0	0.37
Verified Gross Total Demand Reduction (MW)	3.76	0.04	0.0	3.80
Verified Gross Realization Rate	1.02	1	0.97	1.02
NTGR	0.79	0.75	0.9	0.79
Verified Net Savings (MWh)	2,807	4	110	2,921
Verified Net Peak Demand Reduction (MW)	0.29	<0.01	0.0	0.29
Verified Net Total Demand Reduction (MW)	2.94	0.06	0.0	3.00

*Programmable thermostat savings includes fan savings from heat pumps and programming new thermostats and reprogramming existing thermostats.

Source: Navigant analysis of program tracking data

E.3 Impact Estimate Parameters for Future Use

In the course of the PY6 research, the evaluation team did research on parameters used in impact calculations, including those in the Illinois TRM v2.0. Some of those parameters are eligible for deeming for future program years. Table E-3 shows the parameters the evaluation teams recommends for future use. For programmable thermostats savings for ComEd, Navigant researched NTGR values for comparable programs in the Northeast.

Table E-3. Impact Estimate Parameters for Future Use

Parameter	Value	Data Source
Programmable Thermostats NTGR – ComEd	0.90	Research Findings Sources: 2010 Gas Efficiency Annual Report by the Massachusetts Joint Utility[2] and Efficiency Vermont Year 2010 Savings Claim[3]

Source: Evaluation analysis

[2] "2010 Gas Energy Efficiency Annual Report", Boston Gas Company, Colonial Gas Company and Essex Gas Company each d/b/a National Grid, August 2011, page 67.

[3] "Year 2010 Savings Claim," Efficiency Vermont, April 1, 2011, page 162.

E.4 Program Volumetric Detail

The program had 7,035 electric participants in PY6 and installed 83,403 CFLs and 2,627 electric direct install measures (not including CFLs) with attributable savings, as shown in Table E-4. The HEJ program also reprogrammed 131 existing programmable thermostats. Participants include all ComEd customers whose home received a home assessment for this program. Natural gas measures and savings are not included in this report.

Table E-4. PY6 Volumetric Findings Detail

Participation	Total Participants or Measures Installed
Participants	7,035
Direct Install Measures (not including CFLs)	2,627
CFL Installations	83,403
Low-Flow Showerheads	9
Kitchen Faucet Aerators	9
Bathroom Faucet Aerators	18
Programmable Thermostats	2,459*
Existing Programmable Thermostat Reprogramming	132**

*Of the total 2,459 participants who had programmable thermostats directly installed, 67 had more than one installed. However, according to the Illinois TRM v2.0, only the savings from one programmable thermostat can be attributable to the program. ComEd had one programmable thermostat participant with heat pump heating. The remainder of the participants had gas heating, and the thermostat savings are attributable to the furnace fan.

**Of the total 132 participants that had existing programmable thermostats reprogrammed, 5 of them had more than one reprogrammed. However, according to the Illinois TRM v2.0, only the savings from one reprogrammed programmable thermostat can be attributable to the program.

Source: Navigant analysis of program tracking data

E.5 Results Summary

Table E-5 summarizes the key metrics from PY6 that reflect the allowable savings using the Illinois TRM v2.0 methods. These savings and installation values include electric participants and measures installed in households with electric heating and/or electric hot water heaters. Natural gas measures and savings are not included in this report.

Table E-5. PY6 Results Summary

Metrics	Units	PY6
Verified Net Savings	MWh	2,921
Verified Net Peak Demand Reduction	MW	0.29
Verified Net Total Demand Reduction	MW	3.00
Verified Gross Savings	MWh	3,631
Verified Gross Peak Demand Reduction	MW	0.37
Verified Gross Total Demand Reduction	MW	3.80
Verified Program MWh Realization Rate	%	102
Program-Level NTGR*	#	0.79
CFLs Installed	#	83,403
Showerheads Installed	#	9
Kitchen Aerators Installed	#	9
Bathroom Aerators Installed	#	18
Programmable Thermostats Installed (Gas Heating Fan Savings)	#	2,458**
Programmable Thermostats Installed (Heat Pump Heating Participant)	#	1
Programmable Thermostats Reprogrammed	#	132***
Participating Customers	#	7,035

*Navigant evaluation research applying "ComEd EPY5-PY6 Proposal Comparisons with SAG.xls," which is available on the IL SAG website: http://ilsag.info/net-to-gross-framework.html
**Of the 2, 459 total participants that had programmable thermostats directly installed, 67 had more than one installed; however, the savings from only one installation per household can be attributable to the program.
***Of the 132 total participants that had existing thermostats reprogrammed, 5 had more than one reprogrammed, however the savings from only one reprogramming per household can be attributable to the program.
Source: Navigant analysis of program tracking data

E.6 Key Findings and Recommendations

This section provides insight into key program findings and recommendations.[4]

- **Program Savings Achievement**
  - **Finding 1.** Verified gross savings were 3,681 MWh, with a corresponding verified gross realization rate of 102 percent for energy savings. The program exceeded its planning target and achieved 146 percent of its planning target of 2,000 net MWh. Verified net savings were 2,921 MWh. Verified net peak demand reduction was 0.29 MW and verified net total demand reduction was 3.00 MW. With a few minor discrepancies, the program is accurately tracking gross savings.

[4] For ease of reference between each section, the numbered findings and recommendations in this section are the same as those found in the Findings and Recommendations section of the evaluation report.

- **Gross Realization Rates**
  - **Finding 2.** Overall verified gross realization rate was 102 percent for PY6. Several of the measure-specific realization rates were not 100 percent. Some were higher or lower than 100 percent, with an overall realization rate of 102 percent. These measures include 9W candelabra CFLs, 14W flood CFLs, and 9W globe CFLs. Programmable thermostat measures had realization rates below 100 percent.
  - **Recommendation 2.** Navigant recommends updating ex ante calculation assumptions for specialty CFLs, including candelabra, flood, and globe CFLs. Additionally, Navigant recommends only applying programmable thermostat or programmable thermostat reprogramming savings to one unit per household. These changes will increase the accuracy of the verified gross realization rate.

- **Net-to-Gross Ratio**
  - **Finding 3.** This is the first year of ComEd participation and PY6 HEJ program electric measures were not included in the SAG NTG consensus process. For all electric measures except programmable thermostats, the evaluation determined that the NTG values found in the PY4 ComEd/Nicor Gas HES program evaluation are appropriate values to use for the PY6 HEJ program, including lighting (0.79) and electrically heated water measures (0.75). Navigant used 0.90 NTGR for programmable thermostats, based on findings from previous ComEd programmable thermostats and thermostat education research.

- **Program Participation**
  - **Finding 4.** The PY6 ComEd HEJ program had 7,035 electric participants.

- **Program Tracking Database**
  - **Finding 5.** The PY6 ComEd HEJ program tracking database did not track demand reduction estimates.
  - **Recommendation 3:** Navigant recommends tracking demand reduction estimates in future program data extracts.

1 Introduction

1.1 Program Description

The Home Energy Jumpstart (HEJ) program is an assessment and direct install program jointly implemented by the Commonwealth Edison Company (ComEd) and Peoples Gas/North Shore Gas with Franklin Energy Services implementing the program. This report includes electric impacts only—natural gas impacts are reported elsewhere. The PY6 HEJ program savings planning target was to achieve net savings of 2,000 megawatt-hours (MWh). The main goal of this residential direct install program is to secure energy savings through direct installation of low-cost efficiency measures, such as water efficient showerheads and faucet aerators, pipe insulation, programmable thermostats, and, beginning in PY6, compact florescent lamps (CFLs) at eligible single family residences. Measures with verified electric savings were CFLs, programmable thermostats, and hot water heating savings (when the hot water was electrically heated). In addition, the installation teams performed services with verified electric savings, including programming new thermostats and reprogramming existing thermostats. A second objective of this program is to perform a brief assessment of major retrofit opportunities (e.g., furnace, boiler, air conditioning, insulation, and air sealing) and bring heightened awareness to the homeowners about available additional efficiency programs offered by ComEd, Peoples Gas, and North Shore Gas. Changes for PY6 included adding the directly installed CFL measures and reprogramming existing programmable thermostats.

1.2 Evaluation Objectives

In PY6, Navigant Consulting, Inc.'s (Navigant's) evaluation objectives were: (1) verifying program tracking system data, (2) verifying gross savings impacts based on the Illinois Statewide Technical Reference Manual for Energy Efficiency Version 2.0 (Illinois TRM v2.0), and (3) quantifying net savings impacts. The evaluation team identified the following key researchable questions for PY6:

1.2.1 Impact Questions

1. What are the program's verified net and gross savings?
2. Are Illinois TRM v2.0 algorithms and measure savings applied correctly and are they accurately reflected in the program(s) tracking system(s)?

1.2.2 Process Questions

For this impact evaluation, Navigant conducted process research through interviews with program managers at both ComEd and the implementation contractor to understand the program's performance and changes in PY6.

2 Evaluation Approach

This evaluation of the HEJ program reflects the first year of ComEd program operation, although the program had existed as a Peoples Gas/North Shore Gas program prior to this year. Navigant reviewed the program tracking data and performed gross and net impact calculations to determine verified energy and demand savings for PY6.

2.1 *Overview of Data Collection Activities*

The core data collection activities included review of program tracking data and verification of direct install savings against the Illinois TRM v2.0. Table 2-1 and Table 2-2 show the full set of data collection activities.

Table 2-1. Primary Data Collection Activities

Method	Subject	Quantity Goal	Quantity Achieved	Dates	Impact/Process
Review program tracking data	Program tracking database(s)	All	All	June-September 2014	Impact
Review measures in IL TRM	Illinois Statewide Technical Reference Manual for Energy Efficiency Version 2.0	Selected	Selected	June-September 2014	Impact
Interviews with program staff	Program goals, strategy, and implementation	2	2	December 2013-June 2014	Impact/Process

Source: Navigant

Table 2-2. Additional Resources Used in Evaluation

Reference Source	Author	Application	Impact	Process
Illinois Statewide Technical Reference Manual for Energy Efficiency Version 2.0	Illinois Stakeholder Advisory Group	HEJ measure impact analysis	X	

Source: Navigant

2.2 *Verified Savings Parameters*

Navigant calculated verified gross direct install savings for the PY6 HEJ program using algorithms, assumptions, and parameters defined in the Illinois TRM v2.0. A NTGR value is applied to verified gross savings to quantify verified net savings. Table 2-3 shows the key parameters used in the verified gross and net savings analysis.

Table 2-3. Verified Savings Parameter Data Sources

Verified Gross and Net Input Parameter	Value	Data Source	Deemed* or Evaluated
NTGR – CFLs	0.79	PY4 Evaluation Research	Evaluated
NTGR – Hot Water Measures	0.75	PY4 Evaluation Research	Evaluated
NTGR – ComEd Programmable Thermostats	0.90	Research Findings Sources: 2010 Gas Efficiency Annual Report by the Massachusetts Joint Utility[2] and Efficiency Vermont Year 2010 Savings Claim[3]	Research Findings
In-Service Rate - CFL	0.97	Illinois TRM v2.0, Section 5.5.1	Deemed
In-Service Rate - Showerhead	0.98	Illinois TRM v2.0, Section 5.4.5	Deemed
In-Service Rate - Faucet Aerators	0.95	Illinois TRM v2.0, Section 5.4.4	Deemed
In-Service Rate - Programmable Thermostats	100.0	Illinois TRM v2.0 - Section 5.3.11	Deemed
In-Service Rate - Reprogramming Thermostats	100.0	Illinois TRM v2.0 - Section 5.3.11	Deemed

*The evaluation determined that the NTGR found in the PY4 evaluation of the HES program with Nicor is an appropriate value to use for this program. That value was approved for PY6 HES through the SAG consensus process.

Source: ComEd EPY5-PY6 Proposal Comparisons with SAG.xls, available on the IL SAG web site: http://ilsag.info/net-to-gross-framework.html

2.2.1 Verified Gross Program Savings Analysis Approach

Navigant evaluated gross savings by (1) reviewing the tracking system, (2) reviewing measure algorithms, if applicable, and their respective values in the tracking system to ensure that they are appropriately applied, and (3) cross-checking totals. Navigant applied the verified gross realization rate on all claimed savings. Navigant performed an engineering review for all direct install measures in PY6. ComEd provided tracking data for the program.[5]

2.2.2 Verified Net Program Savings Analysis Approach

For all measures except programmable thermostats, the evaluation determined that the net-to-gross (NTG) values found in the PY4 evaluation of the ComEd/Nicor Gas HES program are appropriate values to use for the PY6 HEJ program. The PY4 evaluation values were approved through the IL SAG consensus process. The evaluators assigned the same NTGR for this program's electric measures to corresponding measures in the PY6 HES program, as these programs are similar in program design and implementation. The NTGR approved by the IL SAG from the PY4 ComEd/Nicor Gas HES program included lighting (0.79) and electrically heated water measures (0.75). Navigant used 0.90 NTGR for programmable thermostats, based on findings from previous ComEd programmable thermostats and thermostat education research.

[5] ComEd spreadsheet, "ComEd HEJS Weekly Report 053114_updated," received October 29, 2014.

2.3 *Process Evaluation*

Navigant conducted process research through interviews with program managers at ComEd and the implementation contractor to understand the program's performance and changes in PY6.

3 Gross Impact Evaluation

In this section, Navigant presents verified savings for the PY6 HEJ program. Navigant performed a tracking system review on the program tracking system and calculated verified gross program savings. The program reported ex ante gross savings of 3,619 MWh and did not estimate demand savings. Navigant reports verified gross savings of 3,681 MWh, verified gross peak demand reduction of 0.37 MW, and verified gross total demand reduction of 3.80 MW, with a corresponding verified gross realization rate of 102 percent for energy savings.

3.1 Tracking System Review

For the PY6 evaluation, Navigant reviewed the ComEd program tracking system to verify the completeness and accuracy of the tracking system data and to identify any issues that would affect the impact evaluation of the HEJ program. Navigant found the tracking data documents sufficient to complete the gross impact evaluation of the HEJ program.

The key finding from the tracking system review was the following:

- Navigant identified several projects with ex ante savings claimed for multiple programmable thermostats or programmable thermostat reprogramming measures. Navigant capped ex ante deemed savings at one programmable thermostat per household, per the Illinois TRM v2.0.

3.2 Program Volumetric Findings

In PY6, 7,035 electric customers participated in the HEJ program. These are customers whose homes received a home assessment for this program. The HEJ program achieved 83,403 CFL installations in PY6, and a total of 2,627 direct install measures (not including CFLs) with attributable savings. Table 3-1 shows the full volumetric detail for PY6.

Table 3-1. PY6 Volumetric Findings Detail

Participation	ComEd Total Participants or Measures Installed
Participants	7,035
Direct Install Measures	2,627
CFL Installations	83,403
Low-Flow Showerheads	9
Kitchen Faucet Aerators	9
Bathroom Faucet Aerators	18
Programmable Thermostats	2,458*
Existing Programmable Thermostat Reprogramming	132**

*Of the 2,387 total participants that had programmable thermostats directly installed, 67 had more than one installed: however, the savings from only one installation per household can be attributable to the program. ComEd had one programmable thermostat participant with heat pump heating. The remainder of the participants had gas heating, and the thermostat savings are attributable to the furnace fan.
** Of the 126 total participants that had existing thermostats reprogrammed, 5 had more than one reprogrammed, however the savings from only one reprogramming per household can be attributable to the program.
Source: Navigant analysis of ComEd program tracking data

3.3 Gross Program Impact Parameter Estimates

Navigant calculated verified gross savings and demand reduction from the PY6 HEJ program using algorithms and parameters defined in the Illinois TRM v2.0 (see Table 3-2). Navigant used the Illinois TRM v2.0 for all direct install measures.

Table 3-2. Verified Gross Savings Parameters

Measure	Deemed Input Parameter Source
All CFL Types	Illinois TRM v2.0 - Section 5.5.1 and 5.5.2
Low-Flow Showerheads	Illinois TRM v2.0 - Section 5.4.5
Kitchen Aerator	Illinois TRM v2.0 - Section 5.4.4
Bathroom Aerator	
Programmable Thermostat	Illinois TRM v2.0 - Section 5.3.11
Reprogramming Thermostats	Illinois TRM v2.0 - Section 5.3.11

Source: Illinois Statewide Technical Reference Manual for Energy Efficiency Version 2.0, available here: http://www.ilsag.info/technical-reference-manual.html

3.4 Verified Gross Program Impact Results

This section details the results of Navigant's verified gross impact analysis for the PY6 HEJ program. Navigant calculated verified gross savings and demand reduction with algorithms and assumptions based on the Illinois TRM v2.0.

In addition, Navigant calculated an overall verified gross realization rate of 102 percent for all HEJ measures, except for three CFL types and programmable thermostats and thermostat reprogramming.

Table 3-3 shows the HEJ CFL measures that did not achieve a verified gross realization rate of at least 100 percent. Navigant sourced the savings parameters from the Illinois TRM v2.0. The table also shows the hours of operation used in the analysis, as well as the kilowatt-hour (kWh) savings comparison between ex ante and verified gross savings.

Table 3-3. Savings Parameter Updates for CFL Measures without 100 Percent Realization Rates

Measure	Illinois TRM v2.0 Hours of Operation	kWh per Unit Ex Ante	kWh per Unit Ex Post
9 Watt Candelabra CFL	1,328	30	42
9 Watt Globe CFL	1,240	37	39
14 Watt Flood CFL	938	49	44

Source: Navigant analysis of program tracking data.

In addition, Navigant applied programmable thermostat and thermostat reprograming savings for a maximum of one unit per household. The Illinois TRM v2.0 uses heating assumptions that are on a per-household basis, and not a per-thermostat basis. Therefore, if there are multiple thermostats per household, a maximum of one unit of savings should be applied.

The resulting total program verified gross savings is 3,681 MWh, verified gross peak demand reduction is 0.37 MW, and verified gross total demand reduction is 3.80 MW, as shown in Table 3-4.

Table 3-4. PY6 Verified Gross Impact Savings Estimates by Measure

Measure	Ex Ante Gross Savings (MWh)	Ex Ante Gross Peak Demand Reduction (MW)*	Verified Gross Savings (MWh)	Verified Gross Peak Demand Reduction (MW)	Verified Gross Total Demand Reduction (MW)	Verified Gross MWh RR**
9 Watt CFL	78	n/a	78	<0.01	0.09	100%
14 Watt CFL	2,547	n/a	2,549	0.27	2.85	100%
19 Watt CFL	75	n/a	75	<0.01	0.08	100%
23 Watt CFL	103	n/a	104	0.01	0.12	100%
9 Watt Candelabra CFL	35	n/a	49	<0.01	0.04	142%
14 Watt Flood CFL	22	n/a	20	<0.01	0.02	90%
9 Watt Globe CFL	627	n/a	678	0.07	0.57	108%
Low-Flow Showerheads	4	n/a	4	<0.01	0.01	100%
Kitchen Aerator	1	n/a	1	<0.01	0.01	100%
Bathroom Aerator	<1	n/a	<1	<0.01	0.02	100%
Prog. Thermostat (Gas Furnace)***	119	n/a	116	0.0	0.0	97%
Prog. Thermostat (Heat Pump)	<1	n/a	<1	0.0	0.0	100%
Reprogramming Thermostat†	6	n/a	6	0.0	0.0	96%
Total	**3,619**	n/a	**3,681**	**0.37**	**3.80**	**102%**

*The PY6 HEJ program did not track ex ante demand reduction.
**RR stands for realization rate. This is the ratio of verified gross to ex ante gross savings.
***Of the 2,458 total participants that had programmable thermostats directly installed, 67 had more than one installed; however, the savings from only one installation per household can be attributable to the program.
†Of the 127 households with reprogrammed thermostats, 5 had more than one thermostat reprogrammed; however, only one thermostat per household is allowed for attributable program savings. Due to rounding, this adjustment minimally affects the savings number.
Source: Navigant analysis of program tracking data.

CFL measures accounted for the majority of the direct install MWh savings as a percentage of total direct install energy savings, followed by programmable thermostats and low-flow showerheads. The 14 W and 9 W globe CFLs accounted for the majority of CFL savings.

4 Net Impact Evaluation

In PY6, the HEJ program verified net impact savings was 2,921 MWh, the verified net peak demand reduction was 0.29 MW, and the verified net total demand reduction was 3.00 MW. This is the first year of ComEd implementation, so PY6 HEJ program electric measures were not included in the SAG NTG consensus process. The evaluation determined that the NTG values found in the PY4 ComEd/Nicor Gas HES program evaluation are appropriate values to use for the PY6 HEJ program, including lighting (0.79) and electrically heated water measures (0.75). Navigant used 0.90 NTGR for programmable thermostats, based on findings from previous ComEd programmable thermostats and thermostat education research. Table 4-1 shows the NTGR values and PY6 verified net savings.

Table 4-1. PY6 Verified Savings Estimates by Measure Type

Measure	Verified Gross Savings (MWh)	Verified Gross Peak Demand Reduction (MW)	Verified Gross Total Demand Reduction (MW)	NTGR	Verified Net Savings (MWh)	Verified Net Peak Demand Reduction (MW)	Verified Net Total Demand Reduction (MW)
9 Watt CFL	78	0.01	0.09	0.79*	62	0.01	0.07
14 Watt CFL	2,549	0.27	2.85	0.79*	2,014	0.2	2.25
19 Watt CFL	75	0.01	0.08	0.79*	59	0.01	0.07
23 Watt CFL	104	0.01	0.12	0.79*	82	0.01	0.09
9 Watt Candelabra CFL	49	<0.01	0.04	0.79*	39	<0.01	0.03
14 Watt Flood CFL	20	<0.01	0.02	0.79*	16	<0.01	0.02
9 Watt Globe CFL	678	0.07	0.57	0.79*	535	0.05	0.45
Low-Flow Showerheads	4	<0.01	0.01	0.75*	3	<0.01	0.01
Kitchen Aerator	1	<0.01	0.01	0.75*	1	<0.01	0.01
Bathroom Aerator	<1	<0.01	0.02	0.75*	<1	<0.01	0.01
Prog. Thermostat (Gas Furnace)	116	n/a	n/a	0.90**	104	n/a	n/a
Prog. Thermostat (Heat Pump)	<1	n/a	n/a	0.90**	<1	n/a	n/a
Reprogramming Thermostat	6	n/a	n/a	0.90**	6	n/a	n/a
Total	**3,681**	**0.37**	**3.8**	**0.79**	**2,921**	**0.29**	**3.00**

*The evaluation determined that the NTGR found in the PY4 evaluation of the HES program is an appropriate value to use for this program. That value was approved for PY6 HES through the SAG consensus process. See: ComEd EPY5-PY6 Proposal Comparisons with SAG.xls, available on the IL SAG web site: http://ilsag.info/net-to-gross-framework.html

**Programmable thermostats NTGR values were based on research findings from the 2010 Gas Efficiency Annual Report by the Massachusetts Joint Utility and Efficiency Vermont Year 2010 Savings Claim.

Source: Navigant analysis

5 Findings and Recommendations

This section summarizes key program findings and recommendations.[6]

- **Program Savings Achievement**
  - **Finding 1.** Verified gross savings were 3,681 MWh, with a corresponding gross realization rate of 102 percent for energy savings. The program exceeded its planning target and achieved 146 percent of its planning target of 2,000 net MWh. Verified net savings were 2,921 MWh. Verified net peak demand reduction was 0.29 MW and verified net total demand reduction was 3.00 MW. With a few minor discrepancies, the program is accurately tracking gross savings.

- **Gross Realization Rates**
  - **Finding 2.** Overall verified gross realization rate was 102 percent for PY6. Several of the measure-specific realization rates were not 100 percent. Some were higher than 100 percent, with an overall realization rate of 102 percent. These measures include 9 watt (W) candelabra CFLs, 14 W flood CFLs, and 9 W globe CFLs. Programmable thermostat measures had realization rates below 100 percent.
  - **Recommendation 2.** Navigant recommends updating ex ante calculation assumptions for specialty CFLs, including candelabra, flood, and globe CFLs. Additionally, Navigant recommends only applying programmable thermostat or programmable thermostat reprogramming savings to one unit per household. These changes will increase the accuracy of the verified gross realization rate.

- **Net-to-Gross Ratio**
  - **Finding 3.** For all electric measures except programmable thermostats, the evaluation determined that the NTG values found in the PY4 ComEd/Nicor Gas HES program evaluation are appropriate values to use for the PY6 HEJ program, including lighting (0.79) and electrically heated water measures (0.75). Navigant used 0.90 NTGR for programmable thermostats, based on findings from previous ComEd programmable thermostats and thermostat education research.

- **Program Participation**
  - **Finding 4.** The PY6 ComEd HEJ program had 7,035 electric participants.

- **Program Tracking Database**
  - **Finding 5.** The PY6 ComEd HEJ program tracking database did not track demand reduction estimates.
  - **Recommendation 3:** Navigant recommends tracking demand reduction estimates in future program data extracts.

[6] For ease of reference between each section, the numbered findings and recommendations in this section are the same as those found in the Findings and Recommendations section of the evaluation report.