



Joint Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Impact Evaluation Report

Energy Efficiency / Demand Response Plan:
Program Year 2019 (CY2019)
(1/1/2019-12/31/2019)

Presented to
ComEd
Nicor Gas
Peoples Gas
North Shore Gas

FINAL

April 29, 2020

Prepared by:

Kyle McKenna
EcoMetric Consulting

Mike Frischmann
EcoMetric Consulting





Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

Submitted to:

ComEd
2011 Swift Drive
Oak Brook, IL 60523

Nicor Gas Company
1844 Ferry Road
Naperville, IL 60563

Peoples Gas and North Shore Gas
200 East Randolph Street
Chicago, IL 60601

Submitted by:

Guidehouse (which acquired Navigant in 2019)
150 N. Riverside Plaza, Suite 2100
Chicago, IL 60606

Contact:

Randy Gunn, Partner
312.583.5714
randy.gunn@guidehouse.com

Jeff Erickson, Director
608.616.4962
jeff.erickson@guidehouse.com

Kevin Grabner, Associate Director
608.616.5805
kevin.grabner@guidehouse.com

Nishant Mehta, Managing Consultant
608.616.5823
nishant.mehta@guidehouse.com

Disclaimer: This report was prepared by Guidehouse for ComEd, Nicor Gas, Peoples Gas, and North Shore Gas. The work presented in this report represents Guidehouse's professional judgment based on the information available at the time this report was prepared. Use of this report by any other party for whatever purpose should not, and does not, absolve such party from using due diligence in verifying the report's contents. Neither Guidehouse nor any of its subsidiaries or affiliates assumes any liability or duty of care to such parties, and hereby disclaims any such liability.

TABLE OF CONTENTS

1. Introduction	1
2. Program Description	1
3. Program Savings Detail	4
4. ComEd Cumulative Persisting Annual Savings	5
5. Program Savings by Measure.....	12
5.1 ComEd	13
5.2 Nicor Gas	19
5.3 Peoples Gas.....	19
5.4 North Shore Gas	20
6. Impact Analysis Findings and Recommendations	21
6.1 Impact Parameter Estimates.....	21
6.2 Adjustment to Evaluation Approach.....	22
6.3 CY2020 Carryover Savings Estimate for ComEd	23
6.4 Other Impact Findings and Recommendations.....	24
6.4.1 ComEd.....	24
6.4.2 Nicor Gas.....	24
6.4.3 Peoples Gas	25
6.4.4 North Shore Gas.....	25
7. Appendix 1. Impact Analysis Methodology	25
7.1 Impact Parameter Estimate.....	25
8. Appendix 2. Impact Analysis Detail.....	26
8.1 Verified Measure Per Unit Savings Findings	26
8.1.1 ComEd.....	26
8.1.2 Nicor Gas.....	27
8.1.3 Peoples Gas	27
8.1.4 North Shore Gas.....	28
8.2 ComEd Input and Assumption Comparison.....	29
8.3 Nicor Gas Input and Assumption Comparison.....	35
8.4 Peoples Gas Input and Assumption Comparison	39
8.5 North Shore Gas Input and Assumption Comparison.....	44
9. Appendix 3. Total Resource Cost Detail	48

LIST OF TABLES AND FIGURES

Figure 2-1. Measures by Type for ComEd Only and All Joint Utility Kits.....	2
Figure 2-2. Measures by Type for Nicor Gas Only Kits	3
Figure 4-1. Cumulative Persisting Annual Savings.....	12
Figure 5-1. Verified Net Savings by Measure – Electric	13
Figure 8-1. CY2019 Verified Measure Per Unit Savings Findings for ComEd	26
Figure 8-2. CY2019 Verified Measure Per Unit Savings Findings for Nicor Gas	27
Figure 8-3. CY2019 Verified Measure Per Unit Savings Findings for Peoples Gas.....	27
Figure 8-4. CY2019 Verified Measure Per Unit Savings Findings for North Shore Gas	28
Table 2-1. CY2019 Volumetric Findings Detail	2
Table 3-1. CY2019 Total Annual Incremental Electric Savings	4
Table 3-2. CY2019 Total Annual Incremental Therm Savings	5
Table 4-1. Cumulative Persisting Annual Savings (CPAS) – Electric.....	6



Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

Table 4-2. Cumulative Persisting Annual Savings (CPAS) – Gas	8
Table 4-3. Cumulative Persisting Annual Savings (CPAS) – Total.....	10
Table 5-1. CY2019 Energy Savings by Measure – Electric.....	14
Table 5-2. CY2019 Non-Coincident Demand Savings by Measure	15
Table 5-3. CY2019 Summer Peak Demand Savings by Measure.....	15
Table 5-4. CY2019 Energy Savings by Measure – Gas	16
Table 5-5. CY2019 Energy Savings by Measure – Total Combining Electricity and Gas	17
Table 5-6. Secondary Energy Savings from Water Reduction by Measure – Electric	18
Table 5-7. CY2019 Natural Gas Energy Savings by Measure – Nicor Gas	19
Table 5-8. CY2019 Natural Gas Energy Savings by Measure – Peoples Gas.....	20
Table 5-9. CY2019 Natural Gas Energy Savings by Measure – North Shore Gas	21
Table 6-1. Savings Parameters	22
Table 6-2. CY2020 Verified Savings Carryover Estimate	23
Table 8-1. Low Flow Showerhead - Custom and Deemed Values Comparison	29
Table 8-2. Kitchen Faucet Aerator - Custom and Deemed Values Comparison	30
Table 8-3. Bathroom Faucet Aerator - Custom and Deemed Values Comparison	31
Table 8-4. LED - Custom and Deemed Values Comparison	32
Table 8-5. Water heater Temperature Setback - Custom and Deemed Values Comparison	33
Table 8-6. Shower Timer - Custom and Deemed Values Comparison.....	34
Table 8-7. Low Flow Showerhead - Custom and Deemed Values Comparison	35
Table 8-8. Kitchen Faucet Aerator - Custom and Deemed Values Comparison	36
Table 8-9. Water Heater Temperature Setback - Custom and Deemed Values Comparison.....	37
Table 8-10. Shower Timer - Custom and Deemed Values Comparison	38
Table 8-11. Low Flow Showerhead - Custom and Deemed Values Comparison	39
Table 8-12. Kitchen Faucet Aerator - Custom and Deemed Values Comparison	40
Table 8-13. Bathroom Faucet Aerator - Custom and Deemed Values Comparison	41
Table 8-14. Water Heater Temperature Setback - Custom and Deemed Values Comparison.....	42
Table 8-15. Shower Timer - Custom and Deemed Values Comparison	43
Table 8-16. Low Flow Showerhead - Custom and Deemed Value Comparison	44
Table 8-17. Kitchen Faucet Aerator - Custom and Deemed Value Comparison.....	45
Table 8-18. Bathroom Faucet Aerator - Custom and Deemed Value Comparison	46
Table 8-19. Water Heater Temperature Setback - Custom and Deemed Value Comparison	47
Table 8-20. Shower Timer - Custom and Deemed Values Comparison	47
Table 9-1. Total Resource Cost Savings Summary.....	48
Table 9-2. Total Resource Cost Savings Summary for Nicor Gas	49
Table 9-3. Total Resource Cost Savings Summary for Peoples Gas.....	50
Table 9-4. Total Resource Cost Savings Summary for North Shore Gas	51

1. INTRODUCTION

This report presents the results of the impact evaluation of the Joint Utility CY2019 Elementary Energy Education (EEE) Program. It includes a summary of the energy, demand, and natural gas impacts for the total program broken out by relevant measure and program structure details. The appendix provides the impact analysis methodology and details of the Total Resource Cost inputs. CY2019 covers January 1, 2019 through December 31, 2019.

2. PROGRAM DESCRIPTION

This program is offered jointly to schools served by ComEd, Nicor Gas, Peoples Gas, and North Shore Gas. Nicor Gas also offered this program to schools who are served by Nicor Gas and an electricity provider other than ComEd (Nicor Gas Only). ComEd claimed all the electric savings from kits sent to the joint utility customers (ComEd-Nicor Gas, ComEd-Peoples Gas, and ComEd-North Shore Gas while Nicor Gas, Peoples Gas, and North Shore Gas claimed the gas savings for the kits sent to their respective customers. Starting in CY2018, ComEd began offering additional kits to schools served by ComEd but none of the joint participating gas utilities (Nicor Gas, Peoples Gas, and North Shore Gas). The program refers to these kits as ComEd Only kits. ComEd claimed electric and gas savings for the ComEd Only kits.

The program used a “teacher-lead instruction” program model where the teacher could choose to teach the curriculum over five or ten days and focus on one kit measure per day. After the lesson, students took home a kit that included water conservation measures; instruments to measure water and ambient temperature, as well as water flow rates; LEDs; shower timers; and a student survey form where participants reported details of their family’s participation.

The EEE Program’s primary focus is to produce electricity and natural gas savings in the residential sector by motivating students and their families to reduce energy consumption for water heating and lighting in their home. A secondary goal of the program is to reduce residential water use. Additionally, the EEE Program aims to increase participation in other ComEd, Nicor Gas, Peoples Gas and North Shore Gas energy efficiency programs via cross-marketing and increased customer awareness of energy efficiency issues.

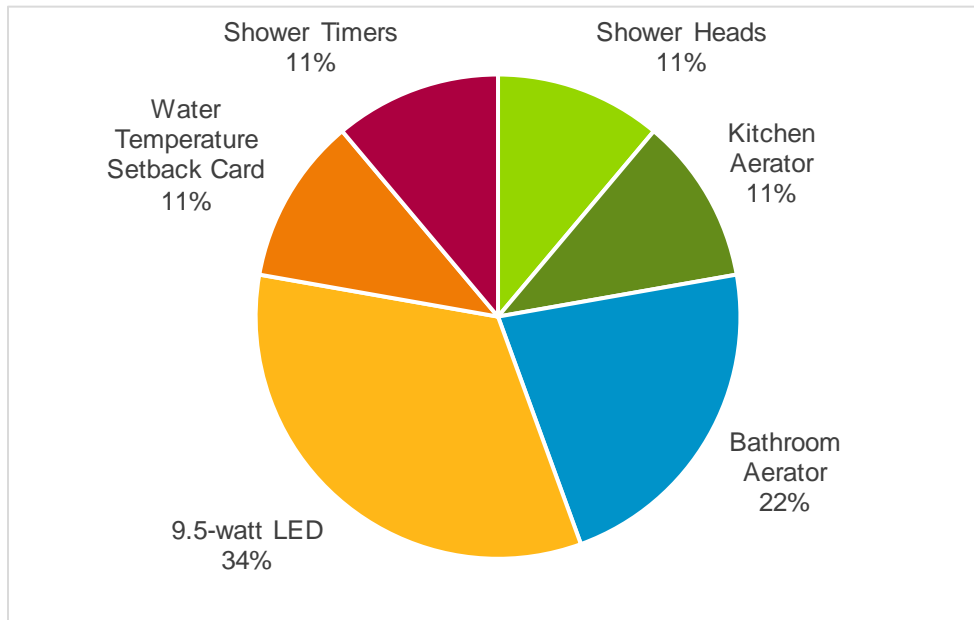
The EEE Program had varying levels of participation based on utility combination. Overall, the EEE Program had 59,507 total participants in CY2019 and distributed 530,925 measures as shown in the following table and graphs.

Table 2-1. CY2019 Volumetric Findings Detail

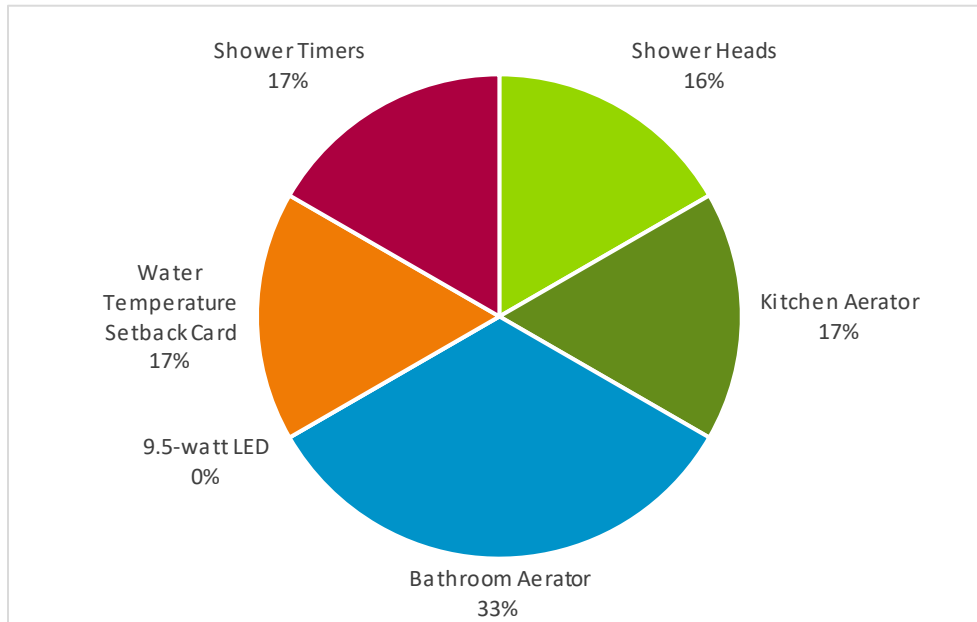
Participation	ComEd Only	ComEd / PGL	ComEd / NSG	ComEd / Nicor Gas	Nicor Gas Only	Total
Number of Total Kits Distributed	18,627	17,210	2,048	20,076	1,546	59,507
Number of Measures per Kit Distributed	9	9	9	9	6	
Total Number of Measures Distributed	167,643	154,890	18,432	180,684	9,276	530,925
Number of Shower Heads Distributed	18,627	17,210	2,048	20,076	1,546	59,507
Number of Kitchen Aerators Distributed	18,627	17,210	2,048	20,076	1,546	59,507
Number of Bathroom Aerators	37,254	34,420	4,096	40,152	3,092	119,014
Number of 9.0-watt LEDs Distributed	55,881	51,630	6,144	60,228	0	173,883
Number of Water Temperature Setback Cards Distributed	18,627	17,210	2,048	20,076	1,546	59,507
Number of Shower Timers Distributed	18,627	17,210	2,048	20,076	1,546	59,507

Source: ComEd and gas utility tracking data and evaluation team analysis

Figure 2-1. Measures by Type for ComEd Only and All Joint Utility Kits



Source: ComEd and gas utility tracking data and evaluation team analysis

Figure 2-2. Measures by Type for Nicor Gas Only Kits

Source: ComEd and gas utility tracking data and evaluation team analysis

3. PROGRAM SAVINGS DETAIL

Table 3-1 summarizes the incremental energy and demand savings the EEE Program achieved in CY2019. The gas savings in Table 3-1 are only those that ComEd may be able to claim, which excludes savings the gas utilities claim, either via joint or non-joint programs.¹

Table 3-1. CY2019 Total Annual Incremental Electric Savings

Savings Category	Energy Savings (kWh)	Non-Coincident Demand Savings (kW)	Summer Peak* Demand Savings (kW)
Electricity			
Ex Ante Gross Savings	8,429,847	NR	960
Program Gross Realization Rate	0.97	NA	1.01
Verified Gross Savings	8,203,143	26,512	967
Program Net-to-Gross Ratio (NTG)	Varies	Varies	Varies
PY9 and CY2018 Net Carryover Savings	1,512,721	1,567	201
Verified Net Savings	9,211,683	27,562	1,102
Converted from Gas†			
Ex Ante Gross Savings	6,432,872	NA	NA
Program Gross Realization Rate	1.00	NA	NA
Verified Gross Savings	6,432,872	NA	NA
Program Net-to-Gross Ratio (NTG)	Varies	NA	NA
Verified Net Savings	6,432,872	NA	NA
Total Electric Plus Gas			
Ex Ante Gross Savings	14,862,720	NR	960
Program Gross Realization Rate	0.98	NA	1.01
Verified Gross Savings	14,636,015	26,512	967
Program Net-to-Gross Ratio (NTG)	Varies	Varies	Varies
PY9 and CY2018 Net Carryover Savings	1,512,721	1,567	201
Total Verified Net Savings including Carryover	15,644,555	27,562	1,102

NR = Not reported (refers a piece of data that was not reported, i.e., non-coincident demand savings)

NA = Not applicable (refers a piece of data cannot be produced or does not apply)

* The coincident summer peak period is defined as 1:00-5:00 p.m. Central Prevailing Time on non-holiday weekdays, June through August.

† Gas savings converted to kWh by multiplying therms * 29.31 (which is based on 100,000 Btu/therm and 3,412 Btu/kWh). The evaluation will determine which gas savings will be converted to kWh and counted toward ComEd's electric savings goal while producing the portfolio-wide Summary Report. According to Section 8-103B(b-25) of the Illinois Public Utilities Act, "In no event shall more than 10% of each year's applicable annual incremental goal as defined in paragraph (7) of subsection (g) of this Section be met through savings of fuels other than electricity."

Source: ComEd tracking data and evaluation team analysis

Table 3-2 summarizes the incremental gas savings that gas utilities achieved through the EEE Program in CY2019.

¹ The evaluation will determine which gas savings will be counted toward goal while producing the portfolio-wide Summary Report.

Table 3-2. CY2019 Total Annual Incremental Therm Savings

Savings Category	Nicor Gas (therms)	Peoples Gas (therms)	North Shore Gas (therms)
Natural Gas*			
Ex Ante Gross Savings	253,958†	266,315	32,732
Program Gross Realization Rate	1.00	1.07	1.13
Verified Gross Savings‡	253,958	285,128	36,987
Program Net-to-Gross Ratio (NTG)	1.00	1.00	1.00
Verified Net Savings	253,958	285,128	36,987

* Natural gas savings with electric interactive effects removed.

† Nicor Gas tracked program-level ex ante savings was 254,059 therms, based on a rounded value of 11.75 therms saved per kit. Ex ante gross savings shown are calculated at a measure level, and there is a minor rounding difference with kit-level savings.

‡. Verified gross savings are calculated at a measure level, and may have minor differences when compared with kit-level rounded savings.

Source: ComEd, Nicor Gas, Peoples Gas, and North Shore Gas tracking data and Guidehouse team analysis.

4. COMED CUMULATIVE PERSISTING ANNUAL SAVINGS

Table 4-1 to Table 4-3 and Figure 4-1 show the measure-specific and total verified gross savings for the EEE Program and the cumulative persisting annual savings (CPAS) for the measures installed in CY2019. The electric CPAS across all measures installed in 2019 is 9,211,683 kWh (Table 4-1). The CY2019 gas contribution to CPAS (converted to equivalent electricity) is 6,432,872 kWh (Table 4-2). Adding the gas and electric contributions produces 15,644,555 kWh of total CY2019 contribution to CPAS (Table 4-3). The “historic” rows in each table are the CPAS contribution back to CY2018. The “Program Total Electric CPAS” and the “Program Total Gas CPAS” are the sum of the CY2019 contribution and the historic contribution.



Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

Table 4-1. Cumulative Persisting Annual Savings (CPAS) – Electric

End Use Type	Research Category	EUL	CY2019 Verified Gross Savings (kWh)	Lifetime Net Savings (kWh)†	Verified Net kWh Savings										
					2018	2019	2020	2021	2022	2023	2024	2025	2026		
Hot Water	Showerhead (1.5 GPM) - Single Family	10.0	1,664,502	1.00	16,645,024		1,664,502	1,664,502	1,664,502	1,664,502	1,664,502	1,664,502	1,664,502	1,664,502	1,664,502
Hot Water	Showerhead (1.5 GPM) - Multi Family	10.0	1,047,547	1.00	10,475,469		1,047,547	1,047,547	1,047,547	1,047,547	1,047,547	1,047,547	1,047,547	1,047,547	1,047,547
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	10.0	1,024,148	1.00	10,241,482		1,024,148	1,024,148	1,024,148	1,024,148	1,024,148	1,024,148	1,024,148	1,024,148	1,024,148
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	10.0	564,773	1.00	5,647,732		564,773	564,773	564,773	564,773	564,773	564,773	564,773	564,773	564,773
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	10.0	85,397	1.00	853,972		85,397	85,397	85,397	85,397	85,397	85,397	85,397	85,397	85,397
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	10.0	84,250	1.00	842,504		84,250	84,250	84,250	84,250	84,250	84,250	84,250	84,250	84,250
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	10.0	85,758	1.00	857,575		85,758	85,758	85,758	85,758	85,758	85,758	85,758	85,758	85,758
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	10.0	68,048	1.00	680,484		68,048	68,048	68,048	68,048	68,048	68,048	68,048	68,048	68,048
Lighting	9.0-watt LED 1 - Single Family	10.0	864,971	0.84	3,275,013		726,576	726,576	227,733	227,733	227,733	227,733	227,733	227,733	227,733
Lighting	9.0-watt LED 1 - Multi Family	10.0	377,470	0.84	1,429,202		317,075	317,075	99,382	99,382	99,382	99,382	99,382	99,382	99,382
Lighting	9.0-watt LED 2 - Single Family	10.0	725,987	0.84	2,748,781		609,829	609,829	191,140	191,140	191,140	191,140	191,140	191,140	191,140
Lighting	9.0-watt LED 2 - Multi Family	10.0	301,114	0.84	1,140,098		252,936	252,936	79,278	79,278	79,278	79,278	79,278	79,278	79,278
Lighting	9.0-watt LED 3 - Single Family	10.0	629,291	0.84	2,382,663		528,604	528,604	165,682	165,682	165,682	165,682	165,682	165,682	165,682
Lighting	9.0-watt LED 3 - Multi Family	10.0	252,295	0.84	955,258		211,928	211,928	66,425	66,425	66,425	66,425	66,425	66,425	66,425
Hot Water	Water Heater Temperature SetBack Electric SF	2.0	19,881	1.00	39,763		19,881	19,881							
Hot Water	Water Heater Temperature SetBack Electric MF	2.0	15,293	1.00	30,586		15,293	15,293							
Hot Water	Shower Timer Install - Single Family	2.0	298,573	1.00	597,146		298,573	298,573							
Hot Water	Shower Timer Install - Single Family	2.0	93,844	1.00	187,688		93,844	93,844							
Carryover	PY9 and CY2018 Carryover	9.81§	1,512,721	1.00	6,576,028		1,512,721	1,512,721	443,823	443,823	443,823	443,823	443,823	443,823	443,823
CY2019 Program Total Electric Contribution to CPAS			9,715,863		65,606,467		9,211,683	9,211,683	5,897,888	5,897,888	5,897,888	5,897,888	5,897,888	5,897,888	5,897,888
Historic Program Total Electric Contribution to CPAS†						6,104,453	6,104,453	5,847,835	3,958,787	3,958,787	3,958,787	3,958,787	3,958,787	3,958,787	3,958,787
Program Total Electric CPAS						6,104,453	15,316,136	15,059,518	9,856,675	9,856,675	9,856,675	9,856,675	9,856,675	9,856,675	9,856,675
CY2019 Program Incremental Expiring Electric Savings§									3,313,795						
Historic Program Incremental Expiring Electric Savings†§									256,618	1,889,048					
Program Total Incremental Expiring Electric Savings§									256,618	5,202,843					



Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Hot Water	Showerhead (1.5 GPM) - Single Family	1,664,502	1,664,502										
Hot Water	Showerhead (1.5 GPM) - Multi Family	1,047,547	1,047,547										
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	1,024,148	1,024,148										
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	564,773	564,773										
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	85,397	85,397										
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	84,250	84,250										
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	85,758	85,758										
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	68,048	68,048										
Lighting	9.0-watt LED 1 - Single Family	227,733	227,733										
Lighting	9.0-watt LED 1 - Multi Family	99,382	99,382										
Lighting	9.0-watt LED 2 - Single Family	191,140	191,140										
Lighting	9.0-watt LED 2 - Multi Family	79,278	79,278										
Lighting	9.0-watt LED 3 - Single Family	165,682	165,682										
Lighting	9.0-watt LED 3 - Multi Family	66,425	66,425										
Hot Water	Water Heater Temperature SetBack Electric SF												
Hot Water	Water Heater Temperature SetBack Electric MF												
Hot Water	Shower Timer Install - Single Family												
Hot Water	Shower Timer Install - Single Family												
Carryover	PY9 and CY2018 Carryover	443,823	443,823										
CY2019 Program Total Electric Contribution to CPAS		5,897,888	5,897,888	-	-	-	-	-	-	-	-	-	-
Historic Program Total Electric Contribution to CPAS†		2,945,576											
Program Total Electric CPAS		8,843,463	5,897,888										
CY2019 Program Incremental Expiring Electric Savings§		-	-	5,897,888									
Historic Program Incremental Expiring Electric Savings‡§		1,013,211	2,945,576										
Program Total Incremental Expiring Electric Savings§		1,013,211	2,945,576	5,897,888									

Note: The green highlighted cell shows program total first year electric savings. The gray cells are blank, indicating values irrelevant to the CY2019 contribution to CPAS.

* A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/ntg_2019.

† Lifetime savings are the sum of CPAS savings through the EUL.

‡ Historical savings go back to CY2018

§ Incremental expiring savings are equal to CPAS Y_{n-1} - CPAS Y_n

†§ This is the weighted average EUL for all the lamps included in the carryover calculations from PY9 and CY2018.

Source: Evaluation team analysis



Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

Table 4-2. Cumulative Persisting Annual Savings (CPAS) – Gas

End Use Type	Research Category	EUL	CY2019 Verified Gross Savings (Therms)	NTG*	Lifetime Net Savings (Therms)†	Verified Net Therms Savings									
						2018	2019	2020	2021	2022	2023	2024	2025	2026	
Hot Water	Showerhead (1.5 GPM) - Single Family	10.0	82,807	1.00	828,066		82,807	82,807	82,807	82,807	82,807	82,807	82,807	82,807	82,807
Hot Water	Showerhead (1.5 GPM) - Multi Family	10.0	36,178	1.00	361,784		36,178	36,178	36,178	36,178	36,178	36,178	36,178	36,178	36,178
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	10.0	46,599	1.00	465,986		46,599	46,599	46,599	46,599	46,599	46,599	46,599	46,599	46,599
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	10.0	23,007	1.00	230,069		23,007	23,007	23,007	23,007	23,007	23,007	23,007	23,007	23,007
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Famil	10.0	3,850	1.00	38,502		3,850	3,850	3,850	3,850	3,850	3,850	3,850	3,850	3,850
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	10.0	3,852	1.00	38,522		3,852	3,852	3,852	3,852	3,852	3,852	3,852	3,852	3,852
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Fami	10.0	4,720	1.00	47,196		4,720	4,720	4,720	4,720	4,720	4,720	4,720	4,720	4,720
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	10.0	2,623	1.00	26,228		2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623
Lighting	9.0-watt LED 1 - Single Family	10.0	-	0.84	-										
Lighting	9.0-watt LED 1 - Multi Family	10.0	-	0.84	-										
Lighting	9.0-watt LED 2 - Single Family	10.0	-	0.84	-										
Lighting	9.0-watt LED 2 - Multi Family	10.0	-	0.84	-										
Lighting	9.0-watt LED 3 - Single Family	10.0	-	0.84	-										
Lighting	9.0-watt LED 3 - Multi Family	10.0	-	0.84	-										
Hot Water	Water Heater Temperature SetBack Electric SF	2.0	821	1.00	1,642			821	821						
Hot Water	Water Heater Temperature SetBack Electric MF	2.0	(182)	1.00	(364)			(182)	(182)						
Hot Water	Shower Timer Install - Single Family	2.0	10,907	1.00	21,813			10,907	10,907						
Hot Water	Shower Timer Install - Single Family	2.0	4,296	1.00	8,592			4,296	4,296						
Carryover	PY9 and CY2018 Carryover	9.8†§	-	1.00	-										
CY2019 Program Total Gas Contribution to CPAS (Therms)			219,477		2,068,037			219,477	219,477	203,635	203,635	203,635	203,635	203,635	203,635
CY2019 Program Total Gas Contribution to CPAS (kWh Equivalent)†					9,703,896			6,432,872	6,432,872	5,968,554	5,968,554	5,968,554	5,968,554	5,968,554	5,968,554
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)†§						5,157,303	5,157,303	4,838,839	4,838,839	4,838,839	4,838,839	4,838,839	4,838,839	4,838,839	4,838,839
Program Total Gas CPAS (kWh Equivalent)†						5,157,303	11,590,175	11,271,711	10,807,393	10,807,393	10,807,393	10,807,393	10,807,393	10,807,393	10,807,393
CY2019 Program Incremental Expiring Gas Savings (Therms)								-	15,842	-	-	-	-	-	
CY2019 Program Incremental Expiring Gas Savings (kWh Equivalent)†								-	464,318	-	-	-	-	-	
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)†§								-	318,464	-	-	-	-	-	
Program Total Incremental Expiring Gas Savings (kWh Equivalent)†								-	318,464	464,318	-	-	-	-	



Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Hot Water	Showerhead (1.5 GPM) - Single Family	82,807	82,807										
Hot Water	Showerhead (1.5 GPM) - Multi Family	36,178	36,178										
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	46,599	46,599										
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	23,007	23,007										
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Famil	3,850	3,850										
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	3,852	3,852										
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Fami	4,720	4,720										
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	2,623	2,623										
Lighting	9.0-watt LED 1 - Single Family												
Lighting	9.0-watt LED 1 - Multi Family												
Lighting	9.0-watt LED 2 - Single Family												
Lighting	9.0-watt LED 2 - Multi Family												
Lighting	9.0-watt LED 3 - Single Family												
Lighting	9.0-watt LED 3 - Multi Family												
Hot Water	Water Heater Temperature SetBack Electric SF												
Hot Water	Water Heater Temperature SetBack Electric MF												
Hot Water	Shower Timer Install - Single Family												
Hot Water	Shower Timer Install - Single Family												
Carryover	PY9 and CY2018 Carryover												
CY2019 Program Total Gas Contribution to CPAS (Therms)		203,635	203,635	-	-	-	-	-	-	-	-	-	-
CY2019 Program Total Gas Contribution to CPAS (kWh Equivalent)†		5,968,554	5,968,554	-	-	-	-	-	-	-	-	-	-
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)‡§		3,337,812											
Program Total Gas CPAS (kWh Equivalent)‡		9,306,366	5,968,554	-	-	-	-	-	-	-	-	-	-
CY2019 Program Incremental Expiring Gas Savings (Therms)		-	-	203,635	-	-	-	-	-	-	-	-	-
CY2019 Program Incremental Expiring Gas Savings (kWh Equivalent)‡		-	-	5,968,554	-	-	-	-	-	-	-	-	-
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)‡:§		1,501,027	3,337,812	-	-	-	-	-	-	-	-	-	-
Program Total Incremental Expiring Gas Savings (kWh Equivalent)‡		1,501,027	3,337,812	5,968,554	-	-	-	-	-	-	-	-	-

Note: The green highlighted cell shows program total first year gas savings in kWh equivalents. The gray cells are blank, indicating no values or do not contribute to calculating CPAS in CY2019.

* A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/ntg_2019.

† Lifetime savings are the sum of CPAS savings through the EUL.

‡ kWh equivalent savings are calculated by multiplying therm savings by 29.31.

§ Historic savings go back to CY2018.

|| Incremental expiring savings are equal to CPAS Yn-1 - CPAS Yn.

†§ This is the weighted average EUL for all the lamps included in the carryover calculations from PY9 and CY2018.

Source: Evaluation team analysis



Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

Table 4-3. Cumulative Persisting Annual Savings (CPAS) – Total

End Use Type	Research Category	EUL	CY2019 Verified Gross Savings		Lifetime Net Savings (kWh)†	Verified Net kWh Savings (Including Those Converted from Gas Savings)									
			(kWh)	NTG*		2018	2019	2020	2021	2022	2023	2024	2025	2026	
Hot Water	Showerhead (1.5 GPM) - Single Family	10.0	4,091,564	1.00	40,915,643		4,091,564	4,091,564	4,091,564	4,091,564	4,091,564	4,091,564	4,091,564	4,091,564	4,091,564
Hot Water	Showerhead (1.5 GPM) - Multi Family	10.0	2,107,937	1.00	21,079,368		2,107,937	2,107,937	2,107,937	2,107,937	2,107,937	2,107,937	2,107,937	2,107,937	2,107,937
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	10.0	2,389,953	1.00	23,899,526		2,389,953	2,389,953	2,389,953	2,389,953	2,389,953	2,389,953	2,389,953	2,389,953	2,389,953
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	10.0	1,239,104	1.00	12,391,042		1,239,104	1,239,104	1,239,104	1,239,104	1,239,104	1,239,104	1,239,104	1,239,104	1,239,104
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	10.0	198,248	1.00	1,982,477		198,248	198,248	198,248	198,248	198,248	198,248	198,248	198,248	198,248
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	10.0	197,159	1.00	1,971,593		197,159	197,159	197,159	197,159	197,159	197,159	197,159	197,159	197,159
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	10.0	224,090	1.00	2,240,904		224,090	224,090	224,090	224,090	224,090	224,090	224,090	224,090	224,090
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	10.0	144,923	1.00	1,449,226		144,923	144,923	144,923	144,923	144,923	144,923	144,923	144,923	144,923
Lighting	9.0-watt LED 1 - Single Family	10.0	864,971	0.84	3,275,013		726,576	726,576	227,733	227,733	227,733	227,733	227,733	227,733	227,733
Lighting	9.0-watt LED 1 - Multi Family	10.0	377,470	0.84	1,429,202		317,075	317,075	99,382	99,382	99,382	99,382	99,382	99,382	99,382
Lighting	9.0-watt LED 2 - Single Family	10.0	725,987	0.84	2,748,781		609,829	609,829	191,140	191,140	191,140	191,140	191,140	191,140	191,140
Lighting	9.0-watt LED 2 - Multi Family	10.0	301,114	0.84	1,140,098		252,936	252,936	79,278	79,278	79,278	79,278	79,278	79,278	79,278
Lighting	9.0-watt LED 3 - Single Family	10.0	629,291	0.84	2,382,663		528,604	528,604	165,682	165,682	165,682	165,682	165,682	165,682	165,682
Lighting	9.0-watt LED 3 - Multi Family	10.0	252,295	0.84	955,258		211,928	211,928	66,425	66,425	66,425	66,425	66,425	66,425	66,425
Hot Water	Water Heater Temperature SetBack Electric SF	2.0	43,943	1.00	87,886		43,943	43,943							
Hot Water	Water Heater Temperature SetBack Electric MF	2.0	9,962	1.00	19,924		9,962	9,962							
Hot Water	Shower Timer Install - Single Family	2.0	618,247	1.00	1,236,493		618,247	618,247							
Hot Water	Shower Timer Install - Single Family	2.0	219,758	1.00	439,516		219,758	219,758							
Carryover	PY9 and CY2018 Carryover	9.81\$	1,512,721	1.00	6,132,204		1,512,721	1,512,721	443,823	443,823	443,823	443,823	443,823	443,823	443,823
CY2019 Program Total Contribution to CPAS			16,148,736		125,776,818		15,644,555	15,644,555	11,866,441	11,866,441	11,866,441	11,866,441	11,866,441	11,866,441	11,866,441
Historic Program Total Contribution to CPAS†							11,261,756	11,261,756	10,686,674	8,797,626	8,797,626	8,797,626	8,797,626	8,797,626	8,797,626
Program Total CPAS							11,261,756	26,906,311	26,331,229	20,664,067	20,664,067	20,664,067	20,664,067	20,664,067	20,664,067
CY2019 Program Incremental Expiring Savings\$									3,778,114						
Historic Program Incremental Expiring Savings†\$									575,082	1,889,048					
Program Total Incremental Expiring Savings\$									575,082	5,667,162					



Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Hot Water	Showerhead (1.5 GPM) - Single Family	4,091,564	4,091,564										
Hot Water	Showerhead (1.5 GPM) - Multi Family	2,107,937	2,107,937										
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	2,389,953	2,389,953										
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	1,239,104	1,239,104										
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	198,248	198,248										
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	197,159	197,159										
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	224,090	224,090										
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	144,923	144,923										
Lighting	9.0-watt LED 1 - Single Family	227,733	227,733										
Lighting	9.0-watt LED 1 - Multi Family	99,382	99,382										
Lighting	9.0-watt LED 2 - Single Family	191,140	191,140										
Lighting	9.0-watt LED 2 - Multi Family	79,278	79,278										
Lighting	9.0-watt LED 3 - Single Family	165,682	165,682										
Lighting	9.0-watt LED 3 - Multi Family	66,425	66,425										
Hot Water	Water Heater Temperature SetBack Electric SF												
Hot Water	Water Heater Temperature SetBack Electric MF												
Hot Water	Shower Timer Install - Single Family												
Hot Water	Shower Timer Install - Single Family												
Carryover	PY9 and CY2018 Carryover	443,823	443,823										
CY2019 Program Total Contribution to CPAS		11,866,441	11,866,441										
Historic Program Total Contribution to CPAS†		6,283,388											
Program Total CPAS		18,149,829	11,866,441										
CY2019 Program Incremental Expiring Savings§				11,866,441									
Historic Program Incremental Expiring Savings†§		2,514,238	6,283,388										
Program Total Incremental Expiring Savings§		2,514,238	6,283,388	11,866,441									

Note: The green highlighted cell shows program total first year electric savings (including direct electric savings and those converted from gas). The gray cells are blank, indicating no values or do not contribute to calculating CPAS in CY2019.

* A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/ntg_2019.

† Lifetime savings are the sum of CPAS savings through the EUL.

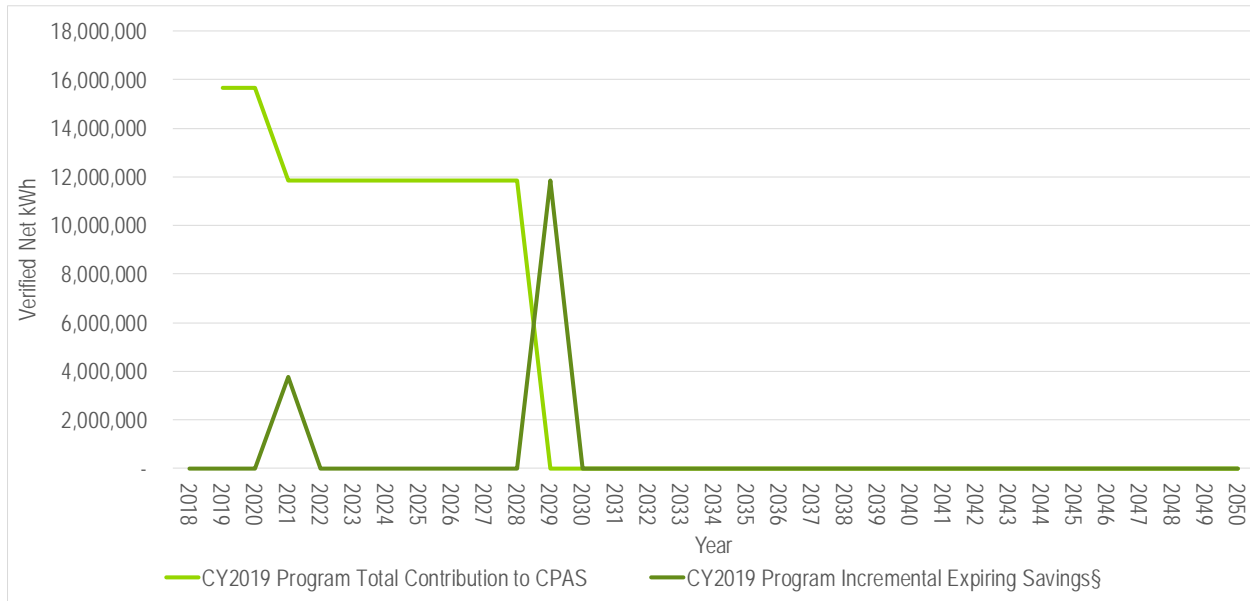
‡ Historic savings go back to CY2018.

§ Incremental expiring savings are equal to CPAS Y_{n-1} - CPAS Y_n

†§ This is the weighted average EUL for all the lamps included in the carryover calculations from PY9 and CY2018.

Source: *Evaluation team analysis*

Figure 4-1. Cumulative Persisting Annual Savings



* Expiring savings are equal to $CPAS_{Y_{n-1}} - CPAS_{Y_n}$.
Source: Evaluation team analysis

5. PROGRAM SAVINGS BY MEASURE

The Guidehouse team’s analysis of the ComEd CY2019 EEE Program resulted in a verified gross energy, peak demand, and natural gas savings of 9,715,863 kWh, 1,168 kW, and 219,477 therms, respectively. The verified gross realization rates for energy savings, peak demand savings, and natural gas savings attributable to ComEd were 115%, 122%, and 100%, respectively. These realization rates are calculated after adding the PY9 and CY2018 carryover savings to the CY2019 verified savings, since the ex ante savings do not include PY9 or CY2018 carryover savings this leads to higher realization rates. The CY2019 verified energy and peak demand savings detailed in this section include carryover from PY9 and CY2018. Carryover savings were not included in the ex ante energy or peak demand savings.

Converting natural gas savings not claimed by a gas utility to electricity results in a total verified savings of 16,148,736 kWh, and a combined realization rate of 109%.

The evaluation team calculated verified gross natural gas savings of 253,958 therms for Nicor Gas, 285,128 therms for Peoples Gas, and 36,987 therms for North Shore Gas. The verified gross realization rate for natural gas was 100%, 107%, 113%, respectively for each utility.

The lifetime energy and demand savings are estimated by multiplying the verified savings by the effective useful life for each measure.

The program includes energy efficient kits with various number of measures distributed to ComEd, Nicor Gas, Peoples Gas, and North Shore Gas customers. The measure level savings for each utility are shown in Table 5-1 through Table 5-9.

The energy efficiency kits distributed to ComEd Only, ComEd-Nicor Gas, ComEd-Peoples Gas, and ComEd-North Shore Gas participants included a low flow showerhead, faucet aerators, LEDs, a water

heater temperature setback card, and a shower timer. The energy efficiency kits distributed to the Nicor Gas Only participants included a low flow showerhead, faucet aerators, a water heater temperature setback card, and a shower timer.

Across ComEd participants, LED bulbs and low flow showerheads contributed the most towards verified gross energy savings (38% and 33%, respectively), when considering electric savings only. Low flow showerheads and all aerators contributed the most to the verified gross energy savings (48% and 34%, respectively) after gas savings were converted to energy savings.

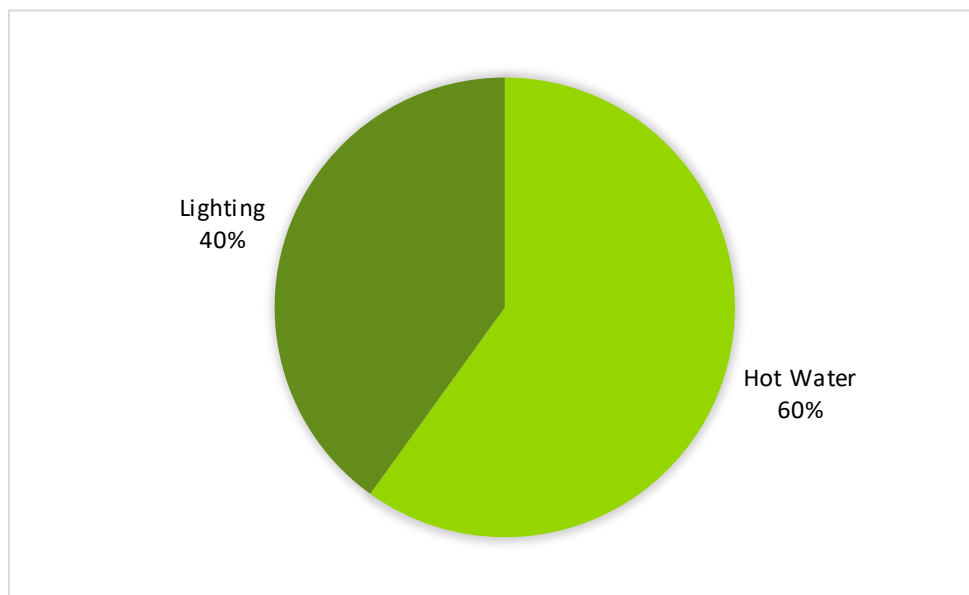
Low flow showerheads contribute the most towards the verified gross gas savings (53%, 56%, 59%) for Nicor Gas, Peoples Gas, and North Shore Gas, respectively. All kitchen aerators (29%, 32%, 28%, respectively) contributed the second largest verified gross savings for the gas utilities.

The following sections provide a summary of factors that contribute to the realization rates for each utility. A detailed description of the ex post analysis methodology and a comparison of the input variables to the savings equations are provided in Appendix 1 and Appendix 2.

5.1 ComEd

Figure 5-1 below shows the distribution by end use of verified electric savings for ComEd. The electric realization rate for ComEd is 97%, excluding PY9 and PY2018 carryover savings. The verified gross savings are less than the claimed savings due to evaluation team accounting for the electric heating penalty associated with installing the LED bulbs. The Guidehouse team recently received guidance to include the heating penalty in the verified gross and net savings values if the heating source is known for each participant. The evaluation team also made an adjustment to the shower timer measure that marginally decreased the energy savings but increased the peak demand savings.

Figure 5-1. Verified Net Savings by Measure – Electric



Source: ComEd tracking data and evaluation team analysis

Table 5-1. CY2019 Energy Savings by Measure – Electric

End Use Type	Research Category	Ex Ante Gross Savings (kWh)	Verified Gross Realization Rate	Verified Gross Savings (kWh)	NTG*	Verified Net Savings (kWh)	EUL (years)
Hot Water	Showerhead (1.5 GPM) - Single Family	1,664,502	1.00	1,664,502	1.00	1,664,502	10.0
Hot Water	Showerhead (1.5 GPM) - Multi Family	1,047,547	1.00	1,047,547	1.00	1,047,547	10.0
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	1,024,148	1.00	1,024,148	1.00	1,024,148	10.0
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	564,773	1.00	564,773	1.00	564,773	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	85,397	1.00	85,397	1.00	85,397	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	84,250	1.00	84,250	1.00	84,250	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	85,758	1.00	85,758	1.00	85,758	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	68,048	1.00	68,048	1.00	68,048	10.0
Lighting	9.0-watt LED 1 - Single Family	926,618	0.93	864,971	0.84	726,576	10.0
Lighting	9.0-watt LED 1 - Multi Family	404,927	0.93	377,470	0.84	317,075	10.0
Lighting	9.0-watt LED 2 - Single Family	777,728	0.93	725,987	0.84	609,829	10.0
Lighting	9.0-watt LED 2 - Multi Family	323,017	0.93	301,114	0.84	252,936	10.0
Lighting	9.0-watt LED 3 - Single Family	674,140	0.93	629,291	0.84	528,604	10.0
Lighting	9.0-watt LED 3 - Multi Family	270,647	0.93	252,295	0.84	211,928	10.0
Hot Water	Water Heater Temperature SetBack Electric SF	19,881	1.00	19,881	1.00	19,881	2.0
Hot Water	Water Heater Temperature SetBack Electric MF	15,293	1.00	15,293	1.00	15,293	2.0
Hot Water	Shower Timer Install - Single Family	298,573	1.00	298,573	1.00	298,573	2.0
Hot Water	Shower Timer Install - Multi Family	94,599	0.99	93,844	1.00	93,844	2.0
Carryover	PY9 and CY2018 Carryover	NR	NA	1,512,721	1.00	1,512,721	9.8
Total		8,429,847	1.15	9,715,863	1.00	9,211,683	

* A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/ntg_2019.

Note: The savings in this table includes secondary electric energy (kWh) savings from water supply and wastewater treatment plants for measures claimed by ComEd.

NR = Not Reported

NA = not applicable (refers a piece of data cannot be produced or does not apply)

Source: ComEd tracking data and evaluation team analysis

Table 5-2. CY2019 Non-Coincident Demand Savings by Measure

End Use Type	Research Category	Ex Ante Gross Non-Coincident Demand Reduction (kW)	Verified Gross Realization Rate	Verified Gross Non-Coincident Demand Reduction (kW)	NTG*	Verified Net Non-Coincident Demand Reduction (kW)
Hot Water	Showerhead (1.5 GPM) - Single Family	NR	NA	3,226	1.00	3,226
Hot Water	Showerhead (1.5 GPM) - Multi Family	NR	NA	2,016	1.00	2,016
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	NR	NA	5,126	1.00	5,126
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	NR	NA	2,806	1.00	2,806
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	NR	NA	2,999	1.00	2,999
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	NR	NA	1,557	1.00	1,557
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	NR	NA	3,011	1.00	3,011
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	NR	NA	1,257	1.00	1,257
Lighting	9.0-watt LED 1 - Single Family	NR	NA	891	0.84	748
Lighting	9.0-watt LED 1 - Multi Family	NR	NA	383	0.84	321
Lighting	9.0-watt LED 2 - Single Family	NR	NA	748	0.84	628
Lighting	9.0-watt LED 2 - Multi Family	NR	NA	305	0.84	256
Lighting	9.0-watt LED 3 - Single Family	NR	NA	648	0.84	545
Lighting	9.0-watt LED 3 - Multi Family	NR	NA	256	0.84	215
Hot Water	Water Heater Temperature SetBack Electric SF	NR	NA	2	1.00	2
Hot Water	Water Heater Temperature SetBack Electric MF	NR	NA	2	1.00	2
Hot Water	Shower Timer Install - Single Family	NR	NA	910	1.00	910
Hot Water	Shower Timer Install - Multi Family	NR	NA	369	1.00	369
Carryover	PY9 and CY2018 Carryover	NR	NA	1,567	1.00	1,567
	Total	NR	NA	28,079	Varies	27,562

* A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/ntg_2019.

NR = Not Reported

NA = Not applicable (refers a piece of data cannot be produced or does not apply)

Source: ComEd tracking data and evaluation team analysis

Table 5-3. CY2019 Summer Peak Demand Savings by Measure

End Use Type	Research Category	Ex Ante Gross Peak Demand Reduction (kW)	Verified Gross Realization Rate	Verified Gross Peak Demand Reduction (kW)	NTG*	Verified Net Peak Demand Reduction (kW)
Hot Water	Showerhead (1.5 GPM) - Single Family	90	1.00	90	1.00	90
Hot Water	Showerhead (1.5 GPM) - Multi Family	56	1.00	56	1.00	56
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	113	1.00	113	1.00	113
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	62	1.00	62	1.00	62
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	66	1.00	66	1.00	66
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	34	1.00	34	1.00	34
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	66	1.00	66	1.00	66
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	28	1.00	28	1.00	28
Lighting	9.0-watt LED 1 - Single Family	114	1.00	114	0.84	96
Lighting	9.0-watt LED 1 - Multi Family	49	1.00	49	0.84	41
Lighting	9.0-watt LED 2 - Single Family	96	1.00	96	0.84	80
Lighting	9.0-watt LED 2 - Multi Family	39	1.00	39	0.84	33
Lighting	9.0-watt LED 3 - Single Family	83	1.00	83	0.84	70
Lighting	9.0-watt LED 3 - Multi Family	33	1.00	33	0.84	27
Hot Water	Water Heater Temperature SetBack Electric SF	2	1.00	2	1.00	2
Hot Water	Water Heater Temperature SetBack Electric MF	2	1.00	2	1.00	2
Hot Water	Shower Timer Install - Single Family	25	1.00	25	1.00	25
Hot Water	Shower Timer Install - Multi Family	3	3.50	10	1.00	10
Carryover	PY9 and CY2018 Carryover	NR	NA	201	1.00	201
	Total	960	1.22	1,168	Varies	1,102

*A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/ntg_2019.

NR = Not Reported

NA = Not applicable (refers a piece of data cannot be produced or does not apply)

Source: ComEd tracking data and evaluation team analysis

Table 5-4. CY2019 Energy Savings by Measure – Gas

End Use Type	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate	Verified Gross Savings (Therms)	NTG*	Verified Net Savings (Therms)	EUL (years)
Hot Water	Showerhead (1.5 GPM) - Single Family	82,807	1.00	82,807	1.00	82,807	10.0
Hot Water	Showerhead (1.5 GPM) - Multi Family	36,178	1.00	36,178	1.00	36,178	10.0
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	46,599	1.00	46,599	1.00	46,599	10.0
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	23,007	1.00	23,007	1.00	23,007	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	3,850	1.00	3,850	1.00	3,850	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	3,852	1.00	3,852	1.00	3,852	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	4,720	1.00	4,720	1.00	4,720	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	2,623	1.00	2,623	1.00	2,623	10.0
Lighting	9.0-watt LED 1 - Single Family	0	NA	0	0.84	0	10.0
Lighting	9.0-watt LED 1 - Multi Family	0	NA	0	0.84	0	10.0
Lighting	9.0-watt LED 2 - Single Family	0	NA	0	0.84	0	10.0
Lighting	9.0-watt LED 2 - Multi Family	0	NA	0	0.84	0	10.0
Lighting	9.0-watt LED 3 - Single Family	0	NA	0	0.84	0	10.0
Lighting	9.0-watt LED 3 - Multi Family	0	NA	0	0.84	0	10.0
Hot Water	Water Heater Temperature SetBack Electric SF	821	1.00	821	1.00	821	2.0
Hot Water	Water Heater Temperature SetBack Electric MF	-182	1.00	-182	1.00	-182	2.0
Hot Water	Shower Timer Install - Single Family	10,907	1.00	10,907	1.00	10,907	2.0
Hot Water	Shower Timer Install - Multi Family	4,296	1.00	4,296	1.00	4,296	2.0
Carryover	PY9 and CY2018 Carryover	NR	NA	0	1.00	0	9.8
Total Therms		219,477	1.00	219,477	Varies	219,477	
Total kWh Converted From Therms†		6,432,872	1.00	6,432,872	Varies	6,432,872	

* A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/intg_2019.

† Gas savings converted to kWh by multiplying therms * 29.31 (which is based on 100,000 Btu/therm and 3,412 Btu/kWh).

NR = Not reported

NA = Not applicable (refers a piece of data cannot be produced or does not apply)

Source: ComEd tracking data and evaluation team analysis

Table 5-5. CY2019 Energy Savings by Measure – Total Combining Electricity and Gas

End Use Type	Research Category	Ex Ante Gross Savings (kWh)	Verified Gross Realization Rate	Verified Gross Savings (kWh)	NTG*	Verified Net Savings (kWh)
Hot Water	Showerhead (1.5 GPM) - Single Family	4,091,564	1.00	4,091,564	1.00	4,091,564
Hot Water	Showerhead (1.5 GPM) - Multi Family	2,107,937	1.00	2,107,937	1.00	2,107,937
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	2,389,953	1.00	2,389,953	1.00	2,389,953
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	1,239,104	1.00	1,239,104	1.00	1,239,104
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	198,248	1.00	198,248	1.00	198,248
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	197,159	1.00	197,159	1.00	197,159
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	224,090	1.00	224,090	1.00	224,090
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	144,923	1.00	144,923	1.00	144,923
Lighting	9.0-watt LED 1 - Single Family	926,618	0.93	864,971	0.84	726,576
Lighting	9.0-watt LED 1 - Multi Family	404,927	0.93	377,470	0.84	317,075
Lighting	9.0-watt LED 2 - Single Family	777,728	0.93	725,987	0.84	609,829
Lighting	9.0-watt LED 2 - Multi Family	323,017	0.93	301,114	0.84	252,936
Lighting	9.0-watt LED 3 - Single Family	674,140	0.93	629,291	0.84	528,604
Lighting	9.0-watt LED 3 - Multi Family	270,647	0.93	252,295	0.84	211,928
Hot Water	Water Heater Temperature SetBack Electric SF	43,943	1.00	43,943	1.00	43,943
Hot Water	Water Heater Temperature SetBack Electric MF	9,962	1.00	9,962	1.00	9,962
Hot Water	Shower Timer Install - Single Family	618,247	1.00	618,247	1.00	618,247
Hot Water	Shower Timer Install - Multi Family	220,514	1.00	219,758	1.00	219,758
Carryover	PY9 and CY2018 Carryover	NR	NA	1,512,721	1.00	1,512,721
	Total†	14,862,720	1.09	16,148,736	Varies	15,644,555

* A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/ntg_2019.

† The total includes the electric equivalent of the total therms.

NR = Not reported

NA = Not applicable (refers a piece of data cannot be produced or does not apply)

Source: ComEd tracking data and evaluation team analysis

The EEE Program includes measures that save water. That reduction in water produces secondary kWh savings from water supply and wastewater treatment. Table 5-6 shows the secondary measure level savings. The savings in this table are included within the electricity savings in the previous tables in this section.

Table 5-6. Secondary Energy Savings from Water Reduction by Measure – Electric

End Use Type	Research Category	Ex Ante Annual Water Savings (gallons)	Ex Ante Gross Savings (kWh)	Verified Gross Realization Rate (RR _{water})	Verified Gross Savings (kWh)	NTG*	Verified Net Savings (kWh)
Hot Water	Showerhead (1.5 GPM) - Single Family	13,782,464	51,954	1.00	51,954	1.00	51,954
Hot Water	Showerhead (1.5 GPM) - Multi Family	8,673,930	32,697	1.00	32,697	1.00	32,697
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	10,173,362	38,349	1.00	38,349	1.00	38,349
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	5,610,167	21,148	1.00	21,148	1.00	21,148
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	1,025,551	3,866	1.00	3,866	1.00	3,866
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	1,011,778	3,814	1.00	3,814	1.00	3,814
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	1,029,878	3,882	1.00	3,882	1.00	3,882
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	817,205	3,081	1.00	3,081	1.00	3,081
Lighting	9.0-watt LED 1 - Single Family	NA	NA	NA	NA	0.84	NA
Lighting	9.0-watt LED 1 - Multi Family	NA	NA	NA	NA	0.84	NA
Lighting	9.0-watt LED 2 - Single Family	NA	NA	NA	NA	0.84	NA
Lighting	9.0-watt LED 2 - Multi Family	NA	NA	NA	NA	0.84	NA
Lighting	9.0-watt LED 3 - Single Family	NA	NA	NA	NA	0.84	NA
Lighting	9.0-watt LED 3 - Multi Family	NA	NA	NA	NA	0.84	NA
Hot Water	Water Heater Temperature SetBack Electric SF	NA	NA	NA	NA	1.00	NA
Hot Water	Water Heater Temperature SetBack Electric MF	NA	NA	NA	NA	1.00	NA
Hot Water	Shower Timer Install - Single Family	1,930,063	7,276	1.00	7,276	1.00	7,276
Hot Water	Shower Timer Install - Multi Family	777,048	2,929	1.00	2,929	1.00	2,929
	Total	44,831,447	168,996	1.00	168,996	Varies	168,996

Note: The savings in this table reflects only secondary electric energy (kWh) savings from water supply and wastewater treatment plants for measures claimed by ComEd, not those claimed by gas utilities.

* A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/intg_2019.

NR = Not reported

NA = Not applicable (refers a piece of data cannot be produced or does not apply)

Source: ComEd tracking data and evaluation team analysis

5.2 Nicor Gas

The gas realization rate for Nicor Gas is 100%. Nicor Gas claimed the savings values recommended by the Guidehouse team in the EEE Wave 1 memo. Table 5-7 shows the savings and verified realization rates for the measures distributed to Nicor Gas customers.

Table 5-7. CY2019 Natural Gas Energy Savings by Measure – Nicor Gas

End Use Type	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate	Verified Gross Savings (Therms)	NTG*	Verified Net Savings (Therms)	EUL (years)
Hot Water	Showerhead (1.5 GPM) - Single Family	90,792	1.00	90,792	1.00	90,792	10.0
Hot Water	Showerhead (1.5 GPM) - Multi Family	43,325	1.00	43,325	1.00	43,325	10.0
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	52,023	1.00	52,023	1.00	52,023	10.0
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	22,800	1.00	22,800	1.00	22,800	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	4,708	1.00	4,708	1.00	4,708	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	3,212	1.00	3,212	1.00	3,212	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	4,533	1.00	4,533	1.00	4,533	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	2,807	1.00	2,807	1.00	2,807	10.0
Hot Water	Water Heater Temperature SetBack Gas - Single	2,447	1.00	2,447	1.00	2,447	2.0
Hot Water	Water Heater Temperature SetBack Gas - Multi Family	926	1.00	926	1.00	926	2.0
Hot Water	Shower Timer Install - Single Family	18,831	1.00	18,831	1.00	18,831	2.0
Hot Water	Shower Timer Install - Multi Family	7,552	1.00	7,552	1.00	7,552	2.0
Total Therms		253,958[‡]	1.00	253,958[†]	1.00	253,958	

* A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/ntg_2019.

† The total excludes the electric interactive effects on the total therms.

‡ Nicor Gas tracked program-level ex ante savings was 254,059 therms, based on a rounded value of 11.75 therms saved per kit. Ex ante and verified gross savings shown are calculated at a measure level, and there is a minor rounding difference with kit-level savings.

Source: Nicor Gas tracking data and Guidehouse team analysis.

5.3 Peoples Gas

The overall realization rate for Peoples Gas is 107%. The evaluation team calculated the custom DHW split and input parameters to the Illinois TRM (TRM) v7.0 savings algorithms using survey responses from participants in CY2018 Wave 2 and CY2019 Wave 1. Guidehouse used the custom calculated input parameters and the total kits distributed in CY2019 (Wave 1 and Wave 2) to calculate the total savings.

The verified savings calculations resulted in realization rates generally lower than 100% for low flow shower heads due in part to lower installation rates and in part to lower household values when compared to the CY2018 verified savings. Similarly, the realization rates for the hot water temperature setbacks and shower timers were less than 100% due to lower water temperature reduction (ΔT) values and household values when compared to the CY2018 verified results. The lower realization rates were offset by realization rates over 100% for the aerator measures. The realization rates for the aerator measures increased due to a change in the TRM v7.0. The TRM v7.0 included updates to the GPM_base algorithm input for the bathroom faucet and kitchen aerator measures. The GPM_base was increased from 1.39 to 1.53 for bathroom faucet aerators and from 1.39 to 1.63 for kitchen aerators.

The quantity of survey results specific to the North Shore Gas participants were not sufficient to calculate the custom input values to the TRM savings algorithms for the water temperature setback measure. The survey responses that the IC received had varying levels of completeness. Due to the lack of available and complete survey data, the evaluation team combined the Peoples Gas and North Shore Gas survey responses to calculate the custom input variables for the water temperature setback measure.

Table 5-8. CY2019 Natural Gas Energy Savings by Measure – Peoples Gas

End Use Type	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate	Verified Gross Savings (Therms)	NTG*	Verified Net Savings (Therms)	EUL (years)
Hot Water	Showerhead (1.5 GPM) - Single Family	63,409	0.89	56,503	1.00	56,503	10.0
Hot Water	Showerhead (1.5 GPM) - Multi Family	106,878	0.96	103,060	1.00	103,060	10.0
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	23,274	1.51	35,188	1.00	35,188	9.0
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	32,514	1.69	55,102	1.00	55,102	9.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	2,430	1.33	3,226	1.00	3,226	9.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	5,598	1.41	7,917	1.00	7,917	9.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	2,368	1.15	2,718	1.00	2,718	9.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	5,787	1.11	6,433	1.00	6,433	9.0
Hot Water	Water Heater Temperature SetBack Gas - Single	2,271	0.62	1,418	1.00	1,418	2.0
Hot Water	Water Heater Temperature SetBack Gas - Multi Family	3,166	0.28	893	1.00	893	2.0
Hot Water	Shower Timer Install - Single Family	10,004	0.81	8,103	1.00	8,103	2.0
Hot Water	Shower Timer Install - Multi Family	8,615	0.53	4,566	1.00	4,566	2.0
Total Therms		266,315	1.07	285,128	1.00	285,128	

* A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/ntg_2019.

† The total excludes the electric interactive effects on the total therms.

Source: Peoples Gas tracking data and Guidehouse team analysis.

5.4 North Shore Gas

The realization rate for North Shore Gas is 113%. The evaluation team calculated the custom DHW split and input parameters to the TRM v7.0 savings algorithms using survey responses from participants in CY2018 Wave 2 and CY2019 Wave 1. Guidehouse used the custom calculated input parameters and the total kits distributed in CY2019 (Wave 1 and Wave 2) to calculate the total savings.

The verified savings calculations resulted in realization rates less than 100% for the multi-family (MF) water temperature setbacks and shower timers due to lower installation rates when compared to the CY2018 verified savings. The lower realization rates for the MF measure were offset by realization rates over 100% for aerators and single family (SF) measures. The SF measures generally had a higher installation rate and other custom calculated input parameters when compared to the CY2018 verified savings. The realization rates for the aerator measures increased due to a change in the TRM v7.0. The TRM v7.0 included updates to the GPM_base algorithm input for the bathroom faucet and kitchen aerator measures. The GPM_base was increased from 1.39 to 1.53 for bathroom faucet aerators and from 1.39 to 1.63 for kitchen aerators.

The quantity of survey results specific to the North Shore Gas participants were not sufficient to calculate the custom input values to the TRM savings algorithms for the water temperature setback measure. The survey responses that the implementation contractor received had varying levels of completeness. Due to the lack of available and complete survey data, the evaluation team combined the Peoples Gas and North Shore Gas survey responses to calculate the custom input variables for the water temperature setback measure.

Table 5-9. CY2019 Natural Gas Energy Savings by Measure – North Shore Gas

End Use Type	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate	Verified Gross Savings (Therms)	NTG*	Verified Net Savings (Therms)	EUL (years)
Hot Water	Showerhead (1.5 GPM) - Single Family	14,718	0.96	14,189	1.00	14,189	10.0
Hot Water	Showerhead (1.5 GPM) - Multi Family	7,026	1.09	7,646	1.00	7,646	10.0
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	4,587	1.58	7,262	1.00	7,262	9.0
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	1,955	1.60	3,129	1.00	3,129	9.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	433	1.42	616	1.00	616	9.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	270	1.90	512	1.00	512	9.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	600	1.17	699	1.00	699	9.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	540	0.79	427	1.00	427	9.0
Hot Water	Water Heater Temperature SetBack Gas - Single	355	0.64	227	1.00	227	2.0
Hot Water	Water Heater Temperature SetBack Gas - Multi Family	172	0.29	50	1.00	50	2.0
Hot Water	Shower Timer Install - Single Family	1,533	1.30	1,986	1.00	1,986	2.0
Hot Water	Shower Timer Install - Multi Family	544	0.45	245	1.00	245	2.0
Total Therms		32,732	1.13	36,987	1.00	36,987	

* A deemed value. Source: is to be found on the Illinois SAG web site here: https://www.ilsag.info/ntg_2019.

† The total excludes the electric interactive effects on the total therms.

Source: North Shore Gas tracking data and Guidehouse team analysis.

6. IMPACT ANALYSIS FINDINGS AND RECOMMENDATIONS

6.1 Impact Parameter Estimates

Table 6-1 details all the custom and deemed inputs used for calculating the energy and demand savings for each measure, as well as their source. The evaluation team calculated savings for each measure based on the savings algorithms noted in the TRM v7.0 and the TRM v7.0 Errata for each respective measure. The custom inputs were calculated using the CY2018 Wave 2 and CY2019 Wave 1 participant survey data supplied by the implementer.

Table 6-1. Savings Parameters

Measure	Custom Input Parameters	Deemed Input Parameters	Deemed* Input Source
Low-flow Showerhead	%DHW, Household, ISR, %SF, % MF, Hours	GPM_base, GPM_low, L_base, L_low, days/yr, SPCD, SPH, EPG, CF, NTG	TRM v7.0 - Section 5.4.5
Kitchen Aerators	%DHW, Household, ISR, %SF, % MF, Hours	GPM_base, GPM_low, L_base, L_low, KFPH, EPG_electric, CF, NTG	TRM v7.0 - Section 5.4.4
Bathroom Aerator	%DHW, Household, ISR, %SF, % MF, Hours	GPM_base, GPM_low, L_base, L_low, KFPH, EPG_electric, CF, NTG	TRM v7.0 - Section 5.4.4
9W LEDs	WattsEE, ISR, %SF, %MF	Wattbase, Hours, WHFe, WHFd, CF, Leakage, NTG	TRM v7.0 - Section 5.4.8
How Water Temperature Setback	Tpre, Tpost, %DHW, %SF, %MF	U, A, Hours, RE_electric, CF	TRM v7.0 - Section 5.4.6
Shower Timer	%DHW, GPM, L_timer, Household, Usage, %SF, %MF, Hours	L_base, CF, SPCD, EPG_Electric	TRM v7.0 - Section 5.4.9

* TRM is the State of Illinois Technical Reference Manual version 7.0 from <http://www.ilsag.info/technical-reference-manual.html>. The NTG values can be found on the Illinois SAG web site here: https://www.ilsag.info/ntg_2019.

6.2 Adjustment to Evaluation Approach

Guidehouse proposed to alter the timeframe used for calculating the measure savings for all of the utilities. Due to the joint nature of this program, Guidehouse received a consensus and approval from each of the utilities (ComEd, Nicor Gas, Peoples Gas, and North Shore Gas) on the proposed approach change prior to drafting the CY2019 Wave 1 impact evaluation memo. The evaluation approach change is described below.

Guidehouse will report final input parameters and measure savings during the interim data review period that takes place during the summer. The evaluation will use a full year of survey data, but instead of a calendar year, it will be a school year consisting of fall survey data from the previous year and spring survey data of the current year. The results of the analysis would also be applied prospectively to the upcoming year, as opposed to retroactively to the previous year.

Therefore, for CY2019, Guidehouse used the CY2018 Wave 2 (fall) survey data, combined with the CY2019 Wave 1 (spring) survey data, to calculate the necessary input parameters for each measure. The tables in the Appendix of this report show the input parameters for each measure and indicates if Guidehouse used the TRM values or survey responses to calculate the input parameter. The Guidehouse team used these input parameters, along with the total number of kits shipped in CY2019, to calculate the verified savings for CY2019. Also, the verified 2019 values will be used to deem the input parameters and measure savings for CY2020 prospectively. Then, during the summer of 2020, Guidehouse will use the CY2019 Wave 2 (fall) and CY2020 Wave 1 (spring) survey data to determine the deemed input parameters and per measure savings for CY2021.

6.3 CY2020 Carryover Savings Estimate for ComEd

Calculation of the CY2020 carryover estimate relies upon the TRM v8.0 and the CY2018 and CY2019 reports. At this time all of these data sources are available and thus it is possible to estimate the gross and net carryover energy savings that the evaluation team recommends for CY2020. The energy and demand savings from these CY2018 and CY2019 late installed bulbs are calculated based on the following parameters:

- Delta Watts – Verified savings estimate from the year of installation (source: TRM v7.0, CY2019 program data).
- HOU and Peak CF – Verified savings estimate from the year of installation (source: TRM v7.0).
- Energy and Demand Interactive Effects – Verified savings estimate from the year of installation (source: TRM v7.0.)
- Installation Rate - Verified savings estimate from the year of purchase (CY2019 program survey data). The Guidehouse team subtracted the CY2019 custom ISR from the lifetime ISR found in the TRM v7.0 and split the remaining installs between the second and third years using the same ratio found in the TRM v7.0.
- NTG – Evaluation research from the year of purchase (source: CY2018 and CY2019 Reports).

Table 6-2 shows that in CY2020, 54,611 bulbs, purchased during either CY2018 or CY2019, are expected to be installed within ComEd service territory. The table provides both the gross and net energy and demand savings from these bulbs. The total net energy savings is estimated to be 1,904,073 kWh and 233 summer peak kW, which will be counted in CY2020 as EEE Program carryover savings.

Table 6-2. CY2020 Verified Savings Carryover Estimate

CY2020 Verified Savings Carryover Estimate	CY2018 Bulbs	CY2019 Bulbs	CY2020 Carryover
Carryover Bulbs Installed During CY2019	22,804	31,807	54,611
Average Delta Watts	33.5	33.5	33.5
Average Annual Hours of Use	1,089	1,089	1,089.0
Energy Interactive Effects	1.054	1.054	1.054
Demand Interactive Effects	1.098	1.098	1.098
Summer Peak Load Coincidence Factor	0.128	0.128	0.128
Carryover Gross Energy Savings (kWh)	818,979	1,142,287	1,961,266
Carryover Gross Demand Savings (kW)	839	1,170	2,009
Carryover Gross Summer Peak Demand Savings (kW)	107	150	257
Net-to-Gross Ratio	1.00	0.84	0.91
Carryover Net Energy Savings (kWh)	818,979	959,521	1,778,500
Carryover Net Demand Savings (kW)	839	983	1,821
Carryover Net Summer Peak Demand Savings (kW)	107	126	233
Effective Useful Life	10.0	10.0	10.0

Source: ComEd tracking data and Guidehouse team analysis.

6.4 Other Impact Findings and Recommendations

The Guidehouse team has developed several recommendations based on the findings from the CY2019 evaluation and are detailed in the sections below.

6.4.1 ComEd

Finding 1. ComEd claimed 145.44 kW and 0.01657 kW for each ComEd EEE kit distributed in CY2019, which is consistent with the values the Guidehouse team recommended in the CY2019 Wave 1 memo.

The utilities are adjusting the measures that are included in the CY2020 EEE kits. The LED bulbs are being removed while an advanced power strip, furnace filter whistle, and a LED night are being added to the kit. This adjustment changes the per-kit electric and gas savings.

Recommendation 1. Due to the adjustment of measures included in the CY2020 kits, Guidehouse recommends that ComEd claim the per-kit savings value that the evaluation team will calculate in the CY2020 Wave 1 memo.

Finding 2. ComEd did not include the electric heating penalty associated with the installation of the LED bulbs in the claimed gross and net savings.

The evaluation team recently received guidance to include the electric heating penalty in the verified gross and net savings values. The electric heating penalty is included in the verified gross and net savings if the participant's home heating source is known. ComEd realizes the benefit from reduced cooling loads due the installation of efficient LEDs, therefore ComEd will also need to account for any impacts with an increased heating load.

Recommendation 2. As noted in Recommendation 1, Guidehouse will account for this new guidance when calculating the savings values in the CY2020 Wave 1 memo. Therefore, Guidehouse recommends that ComEd claim the savings values recommended in the CY2020 Wave 1 memo.

Finding 3. ComEd claimed 11.78 therms for each ComEd Only EEE kit distributed in CY2019, which is consistent with the values the Guidehouse team recommended in the CY2019 Wave 1 memo.

Recommendation 3. Due to the adjustment of measures included in the CY2020 kits, Guidehouse recommends that ComEd claim the per-kit savings value that the evaluation team will calculate in the CY2020 Wave 1 memo.

6.4.2 Nicor Gas

Finding 4. Nicor gas claimed 11.75 therms for each Nicor Gas EEE kit distributed in CY2019, which is consistent with the value the Guidehouse team recommended in the CY2019 Wave 1 memo.

Recommendation 4. The Guidehouse team does not expect the measures included in the joint Nicor Gas and Nicor Gas only kits to change in CY2020. Therefore, Guidehouse recommends that Nicor Gas claim 11.745 therms per kit in CY2020 to reduce rounding differences with measure-level savings results.

6.4.3 Peoples Gas

Finding 5. Peoples Gas claimed 15.47 therms for each EEE kit distributed in CY2019, which is not consistent with the savings value (16.57 therms per kit) Guidehouse recommended in the CY2019 Wave 1 memo.

The utilities are adjusting the measures that are included in the CY2020 EEE kits. The utilities are adding a furnace filter whistle to the EEE kits distributed to Peoples Gas' customers. This adjustment changes the per-kit gas savings.

Recommendation 5. Due to the adjustment of measures included in the CY2020 kits, Guidehouse recommends that Peoples Gas claim the per-kit savings value that the evaluation team will calculate in the CY2020 Wave 1 memo.

6.4.4 North Shore Gas

Finding 6. North Shore Gas claimed 15.98 therms for each EEE kit distributed in CY2019, which is not consistent with the savings value (18.06 therm per kit) Guidehouse recommended in the CY2019 Wave 1 memo.

The utilities are adjusting the measures that are included in the CY2020 EEE kits. The utilities are adding a furnace filter whistle to the EEE kits distributed to North Shore Gas' customers. This adjustment changes the per-kit gas savings.

Recommendation 6. Due to the adjustment of measures included in the CY2020 kits, Guidehouse recommends that North Shore Gas claim the per-kit savings value that the evaluation team will calculate in the CY2020 Wave 1 memo.

7. APPENDIX 1. IMPACT ANALYSIS METHODOLOGY

7.1 Impact Parameter Estimate

The evaluation team utilized the appropriate input parameters and equations found in the TRM v7.0 and TRM v7.0 Errata. The evaluation team used the deemed input parameters for all measures except where survey data was available to custom calculate input parameters. A detailed summary of the input parameters used by the evaluation team and the IC is found in Appendix 2.

8. APPENDIX 2. IMPACT ANALYSIS DETAIL

The tables below show the verified gross per unit savings for each utility as well as a comparison between the inputs and assumptions that were used by the evaluation team and the implementation contractor in the ex ante and the ex post calculations for each measure.

8.1 Verified Measure Per Unit Savings Findings

8.1.1 ComEd

Figure 8-1. CY2019 Verified Measure Per Unit Savings Findings for ComEd

End Use Type	Measures	Verified Gross kWh Per unit	Verified Gross kW Per unit	Verified Gross Therms Per unit
Hot Water	Showerhead (1.5 GPM) - Single Family	28.718	0.00155	4.446
Hot Water	Showerhead (1.5 GPM) - Multi Family	18.073	0.00097	1.942
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	17.670	0.00195	2.502
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	9.744	0.00107	1.235
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	1.473	0.00114	0.207
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	1.454	0.00059	0.207
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	1.480	0.00114	0.253
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	1.174	0.00048	0.141
Lighting	9.0-watt LED 1 - Single Family	14.923	0.00197	0
Lighting	9.0-watt LED 1 - Multi Family	6.512	0.00084	0
Lighting	9.0-watt LED 2 - Single Family	12.525	0.00165	0
Lighting	9.0-watt LED 2 - Multi Family	5.195	0.00067	0
Lighting	9.0-watt LED 3 - Single Family	10.857	0.00143	0
Lighting	9.0-watt LED 3 - Multi Family	4.353	0.00056	0
Hot Water	Water Heater Temperature SetBack Electric SF	0.343	0.00004	0.044
Hot Water	Water Heater Temperature SetBack Electric MF	0.264	0.00003	-0.010
Hot Water	Shower Timer Install - Single Family	5.151	0.00044	0.586
Hot Water	Shower Timer Install - Multi Family	1.619	0.00018	0.231
	Total	141.529	0.01669	11.783

Source: ComEd tracking data and Guidehouse team analysis.

8.1.2 Nicor Gas

Figure 8-2. CY2019 Verified Measure Per Unit Savings Findings for Nicor Gas

End Use Type	Measures	Verified Gross Therms Per unit
Hot Water	Showerhead (1.5 GPM) - Single Family	4.199
Hot Water	Showerhead (1.5 GPM) - Multi Family	2.004
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	2.406
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	1.054
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	0.218
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	0.149
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	0.210
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	0.130
Hot Water	Water Heater Temperature SetBack Electric SF	0.113
Hot Water	Water Heater Temperature SetBack Electric MF	0.043
Hot Water	Shower Timer Install - Single Family	0.871
Hot Water	Shower Timer Install - Multi Family	0.349
	Total	11.745

Source: Nicor Gas tracking data and Guidehouse team analysis.

8.1.3 Peoples Gas

Figure 8-3. CY2019 Verified Measure Per Unit Savings Findings for Peoples Gas

End Use Type	Measures	Verified Gross Therms Per unit
Hot Water	Showerhead (1.5 GPM) - Single Family	3.283
Hot Water	Showerhead (1.5 GPM) - Multi Family	5.988
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	2.045
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	3.202
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	0.187
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	0.460
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	0.158
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	0.374
Hot Water	Water Heater Temperature SetBack Electric SF	0.082
Hot Water	Water Heater Temperature SetBack Electric MF	0.052
Hot Water	Shower Timer Install - Single Family	0.471
Hot Water	Shower Timer Install - Multi Family	0.265
	Total	16.568

Source: Peoples Gas and North Shore Gas tracking data and Guidehouse team analysis.

8.1.4 North Shore Gas

Figure 8-4. CY2019 Verified Measure Per Unit Savings Findings for North Shore Gas

End Use Type	Measures	Verified Gross Therms Per unit
Hot Water	Showerhead (1.5 GPM) - Single Family	6.928
Hot Water	Showerhead (1.5 GPM) - Multi Family	3.733
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	3.546
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	1.528
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	0.301
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	0.250
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	0.341
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	0.208
Hot Water	Water Heater Temperature SetBack Electric SF	0.111
Hot Water	Water Heater Temperature SetBack Electric MF	0.024
Hot Water	Shower Timer Install - Single Family	0.970
Hot Water	Shower Timer Install - Multi Family	0.119
	Total	18.060

Source: North Shore Gas and Peoples Gas tracking data and Guidehouse team analysis.

8.2 ComEd Input and Assumption Comparison

Table 8-1. Low Flow Showerhead - Custom and Deemed Values Comparison

Navigant Value	ComEd Value	Variable	Source	Deemed/ Custom	Discrepancy?
2.35	2.35	GPM_base	IL TRM 5.4.5	Deemed	-
1.50	1.50	GPM_low	Specifications	Custom	-
7.80	7.80	L_base	IL TRM 5.4.5	Deemed	-
7.80	7.80	L_low	IL TRM 5.4.5	Deemed	-
365.25	365.25	days/year	IL TRM 5.4.5	Deemed	-
4.81	4.81	Household SF	Survey - HCU2	Custom	-
4.84	4.84	Household MF	Survey - HCU2	Custom	-
0.60	0.60	SPCD	IL TRM 5.4.5	Deemed	-
1.79	1.79	SPH SF	IL TRM 5.4.5	Deemed	-
1.30	1.30	SPH MF	IL TRM 5.4.5	Deemed	-
0.12	0.12	EPG_electric	IL TRM 5.4.5	Deemed	-
0.43	0.43	ISR SF	Survey - HA1	Custom	-
0.45	0.45	ISR MF	Survey - HA1	Custom	-
0.70	0.70	%SF	Survey - HCU1	Custom	-
0.30	0.30	%MF	Survey - HCU1	Custom	-
499.78	499.78	Hours - SF	IL TRM 5.4.5	Custom	-
503.40	503.40	Hours - MF	IL TRM 5.4.5	Custom	-
0.03	0.03	CF	IL TRM 5.4.5	Deemed	-
3770	3770	E_water total	IL TRM 5.4.5	Custom	-
0.20	0.20	%ElectricDHW	Survey - HCU4	Custom	-
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	-
0.01	0.01	EPG_gas SF	IL TRM 5.4.5	Deemed	-
0.01	0.01	EPG_gas MF	IL TRM 5.4.5	Deemed	-

Source: ComEd tracking data and Guidehouse team analysis.

Table 8-2. Kitchen Faucet Aerator - Custom and Deemed Values Comparison

Navigant Value	ComEd Value	Variable	Source	Deemed/ Custom	Discrepancy?
1.63	1.63	GPM_base	IL TRM 5.4.4	Deemed	-
0.94	0.94	GPM_low	Specifications	Deemed	-
4.50	4.50	L_base	IL TRM 5.4.4	Deemed	-
4.50	4.50	L_low	IL TRM 5.4.4	Deemed	-
365.25	365.25	days/year	IL TRM 5.4.4	Deemed	-
4.81	4.81	Household SF	Survey - HCU2	Custom	-
4.84	4.84	Household MF	Survey - HCU2	Custom	-
0.75	0.75	DF	IL TRM 5.4.4	Deemed	-
1.00	1.00	KFPH	IL TRM 5.4.4	Deemed	-
0.10	0.10	EPG_electric	IL TRM 5.4.4	Deemed	-
0.31	0.31	ISR SF	Survey - HA2	Custom	-
0.39	0.39	ISR MF	Survey - HA2	Custom	-
0.70	0.70	%SF	Survey - HCU1	Custom	-
0.30	0.30	%MF	Survey - HCU1	Custom	-
192.32	192.32	Hours - SF	IL TRM 5.4.4	Custom	-
193.71	193.71	House - MF	IL TRM 5.4.4	Custom	-
0.02	0.02	CF	IL TRM 5.4.4	Deemed	-
3770	3770	E_water total	IL TRM 5.4.5	Custom	-
0.20	0.20	%ElectricDHW	Survey - HCU4	Custom	-
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	-
0.0042	0.0042	EPG_gas SF	IL TRM 5.4.5	Deemed	-
0.0048	0.0048	EPG_gas MF	IL TRM 5.4.5	Deemed	-

Source: ComEd tracking data and Guidehouse team analysis.

Table 8-3. Bathroom Faucet Aerator - Custom and Deemed Values Comparison

Navigant Value	ComEd Value	Variable	Source	Deemed/ Custom	Discrepancy?
1.53	1.53	GPM_base	IL TRM 5.4.4	Deemed	-
0.94	0.94	GPM_low	Specifications	Deemed	-
1.60	1.60	L_base	IL TRM 5.4.4	Deemed	-
1.60	1.60	L_low	IL TRM 5.4.4	Deemed	-
365.25	365.25	days/year	IL TRM 5.4.4	Deemed	-
4.81	4.81	Household SF	Survey - HCU2	Custom	-
4.84	4.84	Household MF	Survey - HCU2	Custom	-
0.90	0.90	DF	IL TRM 5.4.4	Deemed	-
2.83	2.83	BFPH - SF	IL TRM 5.4.4	Deemed	-
1.50	1.50	BFPH - MF	IL TRM 5.4.4	Deemed	-
0.08	0.08	EPG_electric	IL TRM 5.4.4	Deemed	-
0.24	0.24	ISR SF - 1	Survey - HA3	Custom	-
0.29	0.29	ISR MF - 1	Survey - HA3	Custom	-
0.70	0.70	ISR SF - 2	Survey - HA3	Custom	-
0.12	0.12	ISR MF - 2	Survey - HA3	Custom	-
0.70	0.70	%SF	Survey - HCU1	Custom	-
0.30	0.30	%MF	Survey - HCU1	Custom	-
27.19	27.19	Hours - SF	IL TRM 5.4.4	Custom	-
51.67	51.67	Hours - MF	IL TRM 5.4.4	Custom	-
0.02	0.02	CF	IL TRM 5.4.4	Deemed	-
3770	3770	E_water total	IL TRM 5.4.5	Custom	-
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	-
0.0034	0.0034	EPG_gas SF	IL TRM 5.4.5	Deemed	-
0.0040	0.0040	EPG_gas MF	IL TRM 5.4.5	Deemed	-

Source: ComEd tracking data and Guidehouse team analysis.

Table 8-4. LED - Custom and Deemed Values Comparison

Navigant Value	ComEd Value	Variable	Source	Deemed/ Custom	Discrepancy?
43.00	43.00	WattsBase	IL TRM 5.5.8	Actual	-
9.50	9.50	WattsEE	Specifications	Actual	-
1089.00	1089.00	Hours	IL TRM 5.5.8	Deemed	-
1.06	1.06	WHFe - SF	IL TRM 5.5.8	Deemed	-
1.04	1.04	WHFe - MF	IL TRM 5.5.8	Deemed	-
0.00	0.00	Leakage	IL TRM 5.5.8	Actual	-
0.59	0.59	ISR - SF 1	Survey - HA4	Custom	-
0.61	0.61	ISR - MF 1	Survey - HA4	Custom	-
0.50	0.50	ISR - SF 2	Survey - HA4	Custom	-
0.48	0.48	ISR - MF 2	Survey - HA4	Custom	-
0.43	0.43	ISR - SF 3	Survey - HA5	Custom	-
0.41	0.41	ISR - MF 3	Survey - HA5	Custom	-
0.70	0.70	%SF	Survey - HCU1	Custom	-
0.30	0.30	%MF	Survey - HCU1	Custom	-
1.11	1.11	WHFd - SF	IL TRM 5.5.8	Deemed	-
1.07	1.07	WHFd - MF	IL TRM 5.5.8	Deemed	-
0.13	0.13	CF	IL TRM 5.5.8	Deemed	-

Source: ComEd tracking data and Guidehouse team analysis.

Table 8-5. Water heater Temperature Setback - Custom and Deemed Values Comparison

Navigant Value	ComEd Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.08	0.08	U (Overall heat transfer coefficient of tank)	IL TRM 5.4.6	Actual if known	-
24.99	24.99	A (Square feet) Surface area of storage tank	IL TRM 5.4.6	Actual if known	-
2.07	2.07	(Tpre-Tpost) SF	Survey - HA13and14	Custom	-
3.23	3.23	(Tpre-Tpost) MF	Survey - HA13and14	Custom	-
8766.00	8766.00	Hours	IL TRM 5.4.6	Deemed	-
3412.00	3412.00	Conversion from Btu to kWh	IL TRM 5.4.6	Deemed	-
0.98	0.98	RE_electric (recovery efficiency of electric hot water heater)	IL TRM 5.4.6	Deemed	-
1.00	1.00	CF (Summer Peak Coincidence Factor for measure)	IL TRM 5.4.6	Deemed	-
0.22	0.22	ISR SF	Survey - HA12	Custom	-
0.25	0.25	ISR MF	Survey - HA12	Custom	-
0.20	0.20	% ElectricDHW	Survey - HCU4	Custom	-
0.75	0.75	% GasDHW	Survey - HCU4	Custom	-
0.70	0.70	% SF	Survey - HCU1	Custom	-
0.30	0.30	% MF	Survey - HCU1	Custom	-
100,000	100,000	Conversion from Btu to therms	IL TRM 5.4.6	Deemed	-
0.78	0.78	RE_gas (Recovery efficiency of gas water heater) - SF	IL TRM 5.4.6	Deemed	-
0.67	0.67	RE_gas (Recovery efficiency of gas water heater) - MF	IL TRM 5.4.6	Deemed	-

Source: ComEd tracking data and Guidehouse team analysis.

Table 8-6. Shower Timer - Custom and Deemed Values Comparison

Navigant Value	ComEd Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.20	0.20	% Electric DHW	Survey - HCU4	Custom	-
0.75	0.75	% Gas DHW	Survey - HCU4	Custom	-
1.96	1.96	GPM_MF	Survey - HA1	Custom	-
1.98	1.98	GPM_SF	Survey - HA1	Custom	-
7.80	7.80	L_base	IL TRM 5.4.9 (v6)	Deemed	-
7.45	7.45	L_timer_MF	Survey - HA9, HA10	Custom	-
2.84	2.84	Household_MF	Survey - HA8	Custom	-
0.51	0.51	UsageFactor_MF	Survey - HA7	Custom	-
7.42	7.42	L_timer_SF	Survey - HA9, HA10	Custom	-
2.83	2.83	Household_SF	Survey - HA8	Custom	-
0.51	0.51	UsageFactor_SF	Survey - HA7	Custom	-
0.70	0.70	% SF	Survey - HCU1	Custom	-
0.30	0.30	% MF	Survey - HCU1	Custom	-
248.21	248.21	Hours_SF	Survey - HA1, HA8	Custom	-
246.45	246.45	Hours_MF	Survey - HA1, HA8	Custom	-
0.03	0.03	CF	IL TRM 5.4.9 (v6)	Deemed	-
365.25	365.25	Days/yr	IL TRM 5.4.9 (v6)	Deemed	-
0.60	0.60	SPCD	IL TRM 5.4.9 (v6)	Deemed	-
0.12	0.12	EPG_Electric	IL TRM 5.4.9 (v6)	Deemed	-
0.0050	0.0050	EPG_gas SF	IL TRM 5.4.9	Deemed	-
0.0058	0.0058	EPG_gas MF	IL TRM 5.4.9	Deemed	-
3770	3770	E_water total	IL TRM 5.4.5	Custom	-

Source: ComEd tracking data and Guidehouse team analysis.

8.3 Nicor Gas Input and Assumption Comparison

Table 8-7. Low Flow Showerhead - Custom and Deemed Values Comparison

Navigant Value	Nicor Gas Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	-
2.35	2.35	GPM_base	IL TRM 5.4.5	Deemed	-
1.50	1.50	GPM_low	Specifications	Actual	-
7.80	7.80	L_base	IL TRM 5.4.5	Deemed	-
7.80	7.80	L_low	IL TRM 5.4.5	Deemed	-
365.25	365.25	days/year	IL TRM 5.4.5	Deemed	-
4.73	4.73	Household SF	Survey - HCU2	Custom	-
4.67	4.67	Household MF	Survey - HCU2	Custom	-
0.60	0.60	SPCD	IL TRM 5.4.5	Deemed	-
1.79	1.79	SPH SF	IL TRM 5.4.5	Deemed	-
1.30	1.30	S PH MF	IL TRM 5.4.5	Deemed	-
0.0050	0.01	EPG_Gas_SF	IL TRM 5.4.5	Deemed	-
0.0058	0.01	EPG_Gas_MF	IL TRM 5.4.5	Deemed	-
0.38	0.38	ISR SF	Survey - HA1	Custom	-
0.40	0.40	ISR MF	Survey - HA1	Custom	-
0.78	0.78	%SF	Survey - HCU1	Custom	-
0.22	0.22	%MF	Survey - HCU1	Custom	-

Source: Guidehouse team analysis.

Table 8-8. Kitchen Faucet Aerator - Custom and Deemed Values Comparison

Navigant Value	Nicor Gas Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	% FossilDHW	Survey - HCU4	Custom	-
1.63	1.63	GPM_base	IL TRM 5.4.4	Deemed	-
0.94	0.94	GPM_low	Specifications	Deemed	-
4.50	4.50	L_base	IL TRM 5.4.4	Deemed	-
4.50	4.50	L_low	IL TRM 5.4.4	Deemed	-
365.25	365.25	days/year	IL TRM 5.4.4	Deemed	-
4.73	4.73	Household SF	Survey - HCU2	Custom	-
4.67	4.67	Household MF	Survey - HCU2	Custom	-
0.75	0.75	DF	IL TRM 5.4.4	Deemed	-
1.00	1.00	KFPH	IL TRM 5.4.4	Deemed	-
0.004	0.004	EPG_gas_SF	IL TRM 5.4.4	Deemed	-
0.005	0.005	EPG_gas_MF	IL TRM 5.4.4	Deemed	-
0.25	0.25	ISR SF	Survey - HA2	Custom	-
0.33	0.33	ISR MF	Survey - HA2	Custom	-
0.78	0.78	%SF	Survey - HCU1	Custom	-
0.22	0.22	%MF	Survey - HCU1	Custom	-

Source: Guidehouse team analysis.

Table 8-9. Water Heater Temperature Setback - Custom and Deemed Values Comparison

Navigant Value	Nicor Gas Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.08	0.08	U (Heat transfer coeff of tank)	IL TRM 5.4.6	Actual if known	-
24.99	24.99	A (Surface Area of Tank)	IL TRM 5.4.6	Actual if known	-
6.44	6.44	(Tpre-Tpost)_SF	Survey - HA13and14	Custom	-
4.65	4.65	(Tpre-Tpost)_MF	Survey - HA13and15	Custom	-
8766.00	8766.00	Hours	IL TRM 5.4.6	Deemed	-
3412.00	3412.00	Conversion from Btu to kWh	IL TRM 5.4.6	Deemed	-
0.78	0.78	RE_gas_SF	IL TRM 5.4.6	Deemed	-
0.67	0.67	RE_gas_MF	IL TRM 5.4.6	Deemed	-
0.13	0.13	ISR_SF	Survey - HA12	Custom	-
0.21	0.21	ISR_MF	Survey - HA12	Custom	-
0.78	0.78	%SF	Survey - HCU1	Custom	-
0.22	0.22	%MF	Survey - HCU1	Custom	-
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	-

Source: Guidehouse team analysis.

Table 8-10. Shower Timer - Custom and Deemed Values Comparison

Navigant Value	Nicor Gas Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	% FossilDHW	Survey - HCU4	Custom	-
2.03	2.03	GPM_SF	Survey - HA1	Custom	-
2.01	2.01	GPM_MF	Survey - HA1	Custom	-
7.80	7.80	L_base	IL TRM 5.4.9	Deemed	-
7.26	7.26	L_timer_SF	Survey - HA9, HA10	Custom	-
2.55	2.55	Household_SF	Survey - HA8	Custom	-
0.49	0.49	UsageFactor_SF	Survey - HA7	Custom	-
7.20	7.20	L_timer_MF	Survey - HA9, HA10	Custom	-
2.79	2.79	Household_MF	Survey - HA8	Custom	-
0.49	0.49	UsageFactor_MF	Survey - HA7	Custom	-
0.78	0.78	%SF	Survey - HCU3	Custom	-
0.22	0.22	%MF	Survey - HCU4	Custom	-
365.25	365.25	Days/yr	IL TRM 5.4.9	Deemed	-
0.60	0.60	SPCD	IL TRM 5.4.9	Deemed	-
0.01	0.01	EPG_gas_SF	IL TRM 5.4.9	Deemed	-
0.01	0.01	EPG_gas_MF	IL TRM 5.4.9	Deemed	-

Source: Guidehouse team analysis.

8.4 Peoples Gas Input and Assumption Comparison

Table 8-11. Low Flow Showerhead - Custom and Deemed Values Comparison

Navigant Value	PGL Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	Yes*
2.35	2.35	GPM_base	IL TRM 5.4.5	Deemed	-
1.50	1.50	GPM_low	Specifications	Custom	-
7.80	7.80	L_base	IL TRM 5.4.5	Deemed	-
7.80	7.80	L_low	IL TRM 5.4.5	Deemed	-
365.25	365.25	days/year	IL TRM 5.4.5	Deemed	-
4.96	5.00	Household SF	Survey - HCU2	Custom	Yes
4.95	4.99	Household MF	Survey - HCU2	Custom	Yes
0.60	0.60	SPCD	IL TRM 5.4.5	Deemed	-
1.79	1.79	SPH SF	IL TRM 5.4.5	Deemed	-
1.30	1.30	SPH MF	IL TRM 5.4.5	Deemed	-
0.00501	0.00501	EPG_gas SF	IL TRM 5.4.5	Deemed	-
0.00583	0.00583	EPG_gas MF	IL TRM 5.4.5	Deemed	-
0.44	0.46	ISR SF	Survey - HA1	Custom	Yes
0.49	0.53	ISR MF	Survey - HA1	Custom	Yes
0.49	0.52	%SF	Survey - HCU1	Custom	Yes
0.50	0.48	%MF	Survey - HCU1	Custom	Yes

* The values appear to be the same due to rounding.
Source: Guidehouse team analysis.

Table 8-12. Kitchen Faucet Aerator - Custom and Deemed Values Comparison

Navgant Value	PGL Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	% FossilDHW	Survey - HCU4	Custom	Yes*
1.63	1.39	GPM_base	IL TRM 5.4.4	Deemed	Yes
0.94	0.94	GPM_low	Specifications	Deemed	-
4.5	4.5	L_base	IL TRM 5.4.4	Deemed	-
4.5	4.5	L_low	IL TRM 5.4.4	Deemed	-
365.25	365.25	days/year	IL TRM 5.4.4	Deemed	-
4.96	5.00	Household SF	Survey - HCU2	Custom	Yes
4.95	4.99	Household MF	Survey - HCU2	Custom	Yes
0.75	0.75	DF	IL TRM 5.4.4	Deemed	-
1	1	KFPH	IL TRM 5.4.4	Deemed	-
0.00415	0.00415	EPG_gas_SF	IL TRM 5.4.4	Deemed	-
0.00484	0.00484	EPG_gas_MF	IL TRM 5.4.4	Deemed	-
0.32	0.30	ISR SF	Survey - HA2	Custom	Yes
0.42	0.39	ISR MF	Survey - HA2	Custom	Yes
0.49	0.52	%SF	Survey - HCU1	Custom	Yes
0.50	0.48	%MF	Survey - HCU1	Custom	Yes

* The values appear to be the same due to rounding.
Source: Guidehouse team analysis.

Table 8-13. Bathroom Faucet Aerator - Custom and Deemed Values Comparison

Navigator Value	PGL Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	% FossilDHW	Survey - HCU4	Custom	Yes*
1.53	1.39	GPM_base	IL TRM 5.4.4	Deemed	Yes
0.94	0.94	GPM_low	Specifications	Deemed	-
1.60	1.60	L_base	IL TRM 5.4.4	Deemed	-
1.60	1.60	L_low	IL TRM 5.4.4	Deemed	-
365.25	365.25	days/year	IL TRM 5.4.4	Deemed	-
4.96	5.00	Household SF	Survey - HCU2	Custom	Yes
4.95	4.99	Household MF	Survey - HCU2	Custom	Yes
0.90	0.90	DF	IL TRM 5.4.4	Deemed	-
2.83	2.83	BFPH_SF	IL TRM 5.4.4	Deemed	-
1.50	1.50	BFPH_MF	IL TRM 5.4.4	Deemed	-
0.00341	0.00341	EPG_gas_SF	IL TRM 5.4.4	Deemed	-
0.00397	0.00397	EPG_gas_MF	IL TRM 5.4.4	Deemed	-
0.27	0.25	ISR SF - 1	Survey - HA2	Custom	Yes
0.30	0.29	ISR MF - 1	Survey - HA2	Custom	Yes
0.12	0.12	ISR SF - 2	Survey - HA2	Custom	Yes*
0.12	0.15	ISR MF - 2	Survey - HA2	Custom	Yes
0.49	0.52	%SF	Survey - HCU1	Custom	Yes
0.50	0.48	%MF	Survey - HCU1	Custom	Yes

* The values appear to be the same due to rounding.
Source: Guidehouse team analysis.

Table 8-14. Water Heater Temperature Setback - Custom and Deemed Values Comparison

Navigant Value	PGL Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.08	0.08	U (Heat Transfer Coefficient)	<i>IL TRM 5.4.6</i>	Actual if known	-
24.99	24.99	A (Square feet)	<i>IL TRM 5.4.6</i>	Actual if known	-
4.81	5.95	(Tpre-Tpost)_SF	<i>Survey - HA13and14</i>	Custom	Yes
2.16	5.69	(Tpre-Tpost)_MF	<i>Survey - HA13and15</i>	Custom	Yes
8766	8766	Hours	<i>IL TRM 5.4.6</i>	Deemed	-
3412	3412	Conversion from Btu to kWh	<i>IL TRM 5.4.6</i>	Deemed	-
0.78	0.78	RE_gas_SF	<i>IL TRM 5.4.6</i>	Deemed	-
0.67	0.67	RE_gas_MF	<i>IL TRM 5.4.6</i>	Deemed	-
0.20	0.24	ISR_SF	<i>Survey - HA12</i>	Custom	Yes
0.24	0.33	ISR_MF	<i>Survey - HA12</i>	Custom	Yes
0.49	0.52	%SF	<i>Survey - HCU1</i>	Custom	Yes
0.50	0.48	%MF	<i>Survey - HCU1</i>	Custom	Yes
0.75	0.75	%FossilDHW	<i>Survey - HCU4</i>	Custom	Yes*

* The values appear to be the same due to rounding.
Source: Guidehouse team analysis.

Table 8-15. Shower Timer - Custom and Deemed Values Comparison

Navigant Value	PGL Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	% FossilDHW	Survey - HCU4	Custom	Yes*
1.98	1.96	GPM_SF	Survey - HA1	Custom	Yes
1.93	1.90	GPM_MF	Survey - HA1	Custom	Yes
7.80	7.80	L_base	IL TRM 5.4.9	Deemed	-
7.42	7.37	L_timer_SF	Survey - HA9, HA10	Custom	Yes
2.96	3.07	Household_SF	Survey - HA8	Custom	Yes
0.52	0.52	UsageFactor_SF	Survey - HA7	Custom	Yes*
7.61	7.45	L_timer_MF	Survey - HA9, HA10	Custom	Yes
2.90	3.13	Household_MF	Survey - HA8	Custom	Yes
0.52	0.53	UsageFactor_MF	Survey - HA7	Custom	Yes
0.49	0.52	%SF	Survey - HCU3	Custom	Yes
0.50	0.48	%MF	Survey - HCU4	Custom	Yes
365.25	365.25	Days/yr	IL TRM 5.4.9	Deemed	-
0.60	0.60	SPCD	IL TRM 5.4.9	Deemed	-
0.01	0.01	EPG_gas_SF	IL TRM 5.4.9	Deemed	-
0.0058	0.0058	EPG_gas_MF	IL TRM 5.4.9	Deemed	-

* The values appear to be the same due to rounding.
Source: Guidehouse team analysis.

8.5 North Shore Gas Input and Assumption Comparison

Table 8-16. Low Flow Showerhead - Custom and Deemed Value Comparison

Navigator Value	NSG Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	%FossilDHW	<i>Survey - HCU4</i>	Custom	Yes*
2.35	2.35	GPM_base	<i>IL TRM 5.4.5</i>	Deemed	-
1.50	1.50	GPM_low	<i>Specifications</i>	Custom	-
7.80	7.80	L_base	<i>IL TRM 5.4.5</i>	Deemed	-
7.80	7.80	L_low	<i>IL TRM 5.4.5</i>	Deemed	-
365.25	365.25	days/year	<i>IL TRM 5.4.5</i>	Deemed	-
4.87	4.71	Household SF	<i>Survey - HCU2</i>	Custom	Yes
4.78	4.58	Household MF	<i>Survey - HCU2</i>	Custom	Yes
0.60	0.60	SPCD	<i>IL TRM 5.4.5</i>	Deemed	-
1.79	1.79	SPH SF	<i>IL TRM 5.4.5</i>	Deemed	-
1.30	1.30	SPH MF	<i>IL TRM 5.4.5</i>	Deemed	-
0.00501	0.00501	EPG_gas SF	<i>IL TRM 5.4.5</i>	Deemed	-
0.00583	0.00583	EPG_gas MF	<i>IL TRM 5.4.5</i>	Deemed	-
0.65	0.67	ISR SF	<i>Survey - HA1</i>	Custom	Yes
0.58	0.59	ISR MF	<i>Survey - HA1</i>	Custom	Yes
0.72	0.74	%SF	<i>Survey - HCU1</i>	Custom	Yes
0.28	0.26	%MF	<i>Survey - HCU1</i>	Custom	Yes

* The values appear to be the same due to rounding.
Source: Guidehouse team analysis.

Table 8-17. Kitchen Faucet Aerator - Custom and Deemed Value Comparison

Navgant Value	NSG Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	%FossilDHW	<i>Survey - HCU4</i>	Custom	Yes*
1.63	1.39	GPM_base	<i>IL TRM 5.4.4</i>	Deemed	Yes
0.94	0.94	GPM_low	<i>Specifications</i>	Deemed	-
4.50	4.50	L_base	<i>IL TRM 5.4.4</i>	Deemed	-
4.50	4.50	L_low	<i>IL TRM 5.4.4</i>	Deemed	-
365.25	365.25	days/year	<i>IL TRM 5.4.4</i>	Deemed	-
4.87	4.71	Household SF	<i>Survey - HCU2</i>	Custom	Yes
4.78	4.58	Household MF	<i>Survey - HCU2</i>	Custom	Yes
0.75	0.75	DF	<i>IL TRM 5.4.4</i>	Deemed	-
1.00	1.00	KFPH	<i>IL TRM 5.4.4</i>	Deemed	-
0.00415	0.00415	EPG_gas_SF	<i>IL TRM 5.4.4</i>	Deemed	-
0.00484	0.00484	EPG_gas_MF	<i>IL TRM 5.4.4</i>	Deemed	-
0.38	0.37	ISR SF	<i>Survey - HA2</i>	Custom	Yes
0.38	0.40	ISR MF	<i>Survey - HA2</i>	Custom	Yes
0.72	0.74	%SF	<i>Survey - HCU1</i>	Custom	Yes
0.28	0.26	%MF	<i>Survey - HCU1</i>	Custom	Yes

* The values appear to be the same due to rounding.
Source: Guidehouse team analysis.

Table 8-18. Bathroom Faucet Aerator - Custom and Deemed Value Comparison

Navgant Value	NSG Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	%FossilDHW	<i>Survey - HCU4</i>	Custom	Yes*
1.53	1.39	GPM_base	<i>IL TRM 5.4.4</i>	Deemed	Yes
0.94	0.94	GPM_low	<i>Specifications</i>	Deemed	-
1.60	1.60	L_base	<i>IL TRM 5.4.4</i>	Deemed	-
1.60	1.60	L_low	<i>IL TRM 5.4.4</i>	Deemed	-
365.25	365.25	days/year	<i>IL TRM 5.4.4</i>	Deemed	-
4.87	4.71	Household SF	<i>Survey - HCU2</i>	Custom	Yes
4.78	4.58	Household MF	<i>Survey - HCU2</i>	Custom	Yes
0.90	0.90	DF	<i>IL TRM 5.4.4</i>	Deemed	-
2.83	2.83	BFPH_SF	<i>IL TRM 5.4.4</i>	Deemed	-
1.50	1.50	BFPH_MF	<i>IL TRM 5.4.4</i>	Deemed	-
0.003	0.003	EPG_gas_SF	<i>IL TRM 5.4.4</i>	Deemed	-
0.004	0.004	EPG_gas_MF	<i>IL TRM 5.4.4</i>	Deemed	-
0.31	0.28	ISR SF - 1	<i>Survey - HA2</i>	Custom	Yes
0.31	0.24	ISR MF - 1	<i>Survey - HA2</i>	Custom	Yes
0.17	0.20	ISR SF - 2	<i>Survey - HA2</i>	Custom	Yes
0.13	0.24	ISR MF - 2	<i>Survey - HA2</i>	Custom	Yes
0.72	0.74	%SF	<i>Survey - HCU1</i>	Custom	Yes
0.28	0.26	%MF	<i>Survey - HCU1</i>	Custom	Yes

* The values appear to be the same due to rounding.
Source: Guidehouse team analysis.

Table 8-19. Water Heater Temperature Setback - Custom and Deemed Value Comparison

Navigant Value	NSG Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.08	0.08	U (Heat Transfer Coefficient)	<i>IL TRM 5.4.6</i>	Actual if known	-
24.99	24.99	A (Square feet)	<i>IL TRM 5.4.6</i>	Actual if known	-
4.81	5.54	(Tpre-Tpost)_SF	<i>Survey - HA13and14</i>	Custom	Yes
2.16	4.85	(Tpre-Tpost)_MF	<i>Survey - HA13and15</i>	Custom	Yes
8766.00	8766.00	Hours	<i>IL TRM 5.4.6</i>	Deemed	-
3412.00	3412.00	Conversion from Btu to kWh	<i>IL TRM 5.4.6</i>	Deemed	-
0.78	0.78	RE_gas_SF	<i>IL TRM 5.4.6</i>	Deemed	-
0.67	0.67	RE_gas_MF	<i>IL TRM 5.4.6</i>	Deemed	-
0.18	0.29	ISR_SF	<i>Survey - HA12</i>	Custom	Yes
0.20	0.27	ISR_MF	<i>Survey - HA12</i>	Custom	Yes
0.72	0.48	%SF	<i>Survey - HCU1</i>	Custom	Yes
0.28	0.52	%MF	<i>Survey - HCU1</i>	Custom	Yes
0.75	0.84	%FossilDHW	<i>Survey - HCU4</i>	Custom	Yes

Source: Guidehouse team analysis.

Table 8-20. Shower Timer - Custom and Deemed Values Comparison

Navigant Value	NSG Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	%FossilDHW	<i>Survey - HCU4</i>	Custom	Yes*
1.80	1.78	GPM_SF	<i>Survey - HA1</i>	Custom	Yes
1.86	1.85	GPM_MF	<i>Survey - HA1</i>	Custom	Yes
7.80	7.80	L_base	<i>IL TRM 5.4.9</i>	Deemed	-
7.19	7.37	L_timer_SF	<i>Survey - HA9, HA10</i>	Custom	Yes
2.93	3.07	Household_SF	<i>Survey - HA8</i>	Custom	Yes
0.51	0.52	UsageFactor_SF	<i>Survey - HA7</i>	Custom	Yes
7.65	7.45	L_timer_MF	<i>Survey - HA9, HA10</i>	Custom	Yes
2.72	3.13	Household_MF	<i>Survey - HA8</i>	Custom	Yes
0.61	0.53	UsageFactor_MF	<i>Survey - HA7</i>	Custom	Yes
0.72	0.74	%SF	<i>Survey - HCU3</i>	Custom	Yes
0.28	0.26	%MF	<i>Survey - HCU4</i>	Custom	Yes
365.25	365.25	Days/yr	<i>IL TRM 5.4.9</i>	Deemed	-
0.60	0.60	SPCD	<i>IL TRM 5.4.9</i>	Deemed	-
0.0050	0.0050	EPG_gas_SF	<i>IL TRM 5.4.9</i>	Deemed	-
0.0058	0.0058	EPG_gas_MF	<i>IL TRM 5.4.9</i>	Deemed	-

* The values appear to be the same due to rounding.

Source: Guidehouse team analysis.



Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

9. APPENDIX 3. TOTAL RESOURCE COST DETAIL

Table 9-1 shows the Total Resource Cost (TRC) cost-effectiveness analysis inputs available at the time of finalizing this impact evaluation report. Additional required cost data (e.g., measure costs, program level incentive and non-incentive costs) are not included in this table and will be provided to the evaluation team later.

Table 9-1. Total Resource Cost Savings Summary

End Use Type	Research Category	Units	Quantity	EUL (years)*	ER Flag†	Verified Gross Electric Energy Savings (kWh)	Verified Gross Demand Reduction (kW)	Verified Gross Gas Savings (Therms)	Gross Heating Penalty (kWh)‡	Gross Heating Penalty (Therms)	NTG (kWh)	NTG (kW)	NTG (Therms)	Verified Net Electric Savings (kWh)	Verified Net Peak Demand Reduction (kW)	Verified Net Gas Savings (Therms)	Net Heating Penalty (kWh)	Net Heating Penalty (Therms)
Hot Water	Showerhead (1.5 GPM) - Single Family	Each	57,961	10.0	No	1,612,548	89.70	82,807	0	0	1.00	1.00	1.00	1,612,548	89.70	82,807	0	0
Hot Water	Showerhead (1.5 GPM) - Multi Family	Each	57,961	10.0	No	1,014,850	56.04	36,178	0	0	1.00	1.00	1.00	1,014,850	56.04	36,178	0	0
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	Each	57,961	10.0	No	985,799	112.77	46,599	0	0	1.00	1.00	1.00	985,799	112.77	46,599	0	0
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	Each	57,961	10.0	No	543,625	61.74	23,007	0	0	1.00	1.00	1.00	543,625	61.74	23,007	0	0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	Each	57,961	10.0	No	81,531	65.97	3,850	0	0	1.00	1.00	1.00	81,531	65.97	3,850	0	0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	Each	57,961	10.0	No	80,436	34.25	3,852	0	0	1.00	1.00	1.00	80,436	34.25	3,852	0	0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	Each	57,961	10.0	No	81,875	66.25	4,720	0	0	1.00	1.00	1.00	81,875	66.25	4,720	0	0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	Each	57,961	10.0	No	64,968	27.66	2,623	0	0	1.00	1.00	1.00	64,968	27.66	2,623	0	0
Lighting	9.0-watt LED 1 - Single Family‡	Lamp	57,961	10.0	No	864,971	114.05	0	0	-12,212	0.84	0.84	0.84	726,576	95.80	0	0	-10,258
Lighting	9.0-watt LED 1 - Multi Family‡	Lamp	57,961	10.0	No	377,470	48.97	0	0	-5,432	0.84	0.84	0.84	317,075	41.13	0	0	-4,563
Lighting	9.0-watt LED 2 - Single Family‡	Lamp	57,961	10.0	No	725,987	95.73	0	0	-10,250	0.84	0.84	0.84	609,829	80.41	0	0	-8,610
Lighting	9.0-watt LED 2 - Multi Family‡	Lamp	57,961	10.0	No	301,114	39.06	0	0	-4,333	0.84	0.84	0.84	252,936	32.81	0	0	-3,640
Lighting	9.0-watt LED 3 - Single Family‡	Lamp	57,961	10.0	No	629,291	82.98	0	0	-8,885	0.84	0.84	0.84	528,604	69.70	0	0	-7,463
Lighting	9.0-watt LED 3 - Multi Family‡	Lamp	57,961	10.0	No	252,295	32.73	0	0	-3,631	0.84	0.84	0.84	211,928	27.49	0	0	-3,050
Hot Water	Water Heater Temperature SetBack Electric SF	Each	57,961	2.0	No	19,881	2.27	821	0	0	1.00	1.00	1.00	19,881	2.27	821	0	0
Hot Water	Water Heater Temperature SetBack Electric MF	Each	57,961	2.0	No	15,293	1.74	-182	0	0	1.00	1.00	1.00	15,293	1.74	-182	0	0
Hot Water	Shower Timer Install - Single Family	Each	57,961	2.0	No	291,297	25.29	10,907	0	0	1.00	1.00	1.00	291,297	25.29	10,907	0	0
Hot Water	Shower Timer Install - Multi Family	Each	57,961	2.0	No	90,915	10.26	4,296	0	0	1.00	1.00	1.00	90,915	10.26	4,296	0	0
Carryover	PY9 and CY2018 Carryover‡			9.8	No	1,512,721	200.59	0	0	0	1.00	1.00	1.00	1,512,721	200.59	0	0	0
Total				9.6		9,546,867	1,168	219,477	0	-44,742	NA	NA	NA	9,042,687	1,102	219,477	0	-37,583

Note: To avoid double counting, the verified gross kWh and net kWh used in the TRC analysis excludes secondary energy savings from water reduction measures. Table 9-1 represents the kWh savings from Table 5-1 minus those shown in Table 5-6)

* The total of the EUL column is the weighted average measure life (WAML), and is calculated as the sum product of EUL and measure savings divided by total program savings.

† Early Replacement (ER) measures are flagged as YES, otherwise a NO is indicated in the column.

‡ The EUL for this measure varies over time. See the CPAS tables (Table 4-1 to Table 4-3).

|| The electric heating penalties are included in the verified gross and net savings columns.

Source: ComEd tracking data and evaluation team analysis



Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

Table 9-2. Total Resource Cost Savings Summary for Nicor Gas

End Use Type	Research Category	Units	Quantity	EUL (years)*	ER Flag†	Ex Ante Gross Savings (Therms)‡	Verified Gross Savings (Therms)	NTG (Therms)	Verified Net Savings (Therms)
Hot Water	Showerhead (1.5 GPM) - Single Family	Each	21,622	10.0	No	90,792	90,792	1.00	90,792
Hot Water	Showerhead (1.5 GPM) - Multi Family	Each	21,622	10.0	No	43,325	43,325	1.00	43,325
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	Each	21,622	10.0	No	52,023	52,023	1.00	52,023
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	Each	21,622	10.0	No	22,800	22,800	1.00	22,800
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	Each	21,622	10.0	No	4,708	4,708	1.00	4,708
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	Each	21,622	10.0	No	3,212	3,212	1.00	3,212
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	Each	21,622	10.0	No	4,533	4,533	1.00	4,533
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	Each	21,622	10.0	No	2,807	2,807	1.00	2,807
Hot Water	Water Heater Temperature SetBack Gas - Single	Each	21,622	2.0	No	2,447	2,447	1.00	2,447
Hot Water	Water Heater Temperature SetBack Gas - Multi Family	Each	21,622	2.0	No	926	926	1.00	926
Hot Water	Shower Timer Install - Single Family	Each	21,622	2.0	No	18,831	18,831	1.00	18,831
Hot Water	Shower Timer Install - Multi Family	Each	21,622	2.0	No	7,552	7,552	1.00	7,552
Total				9.1		253,958	253,958	1.00	253,958

* The total of the EUL column is the weighted average measure life (WAML), and is calculated as the sum product of EUL and measure savings divided by total program savings.

† Early Replacement (ER) measures are flagged as YES, otherwise a NO is indicated in the column.

‡ Nicor Gas tracked program-level ex ante savings was 254,059 therms, based on a rounded value of 11.75 therms saved per kit. Ex ante and verified gross savings shown are calculated at a measure level, and there is a minor rounding difference with kit-level savings.

Source: Guidehouse analysis of tracking data.



Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

Table 9-3. Total Resource Cost Savings Summary for Peoples Gas

End Use Type	Research Category	Units	Quantity	EUL (years)*	ER Flag†	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	NTG (Therms)	Verified Net Savings (Therms)
Hot Water	Showerhead (1.5 GPM) - Single Family	Each	17,210	10.0	No	63,409	56,503	1.00	56,503
Hot Water	Showerhead (1.5 GPM) - Multi Family	Each	17,210	10.0	No	106,878	103,060	1.00	103,060
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	Each	17,210	10.0	No	23,274	35,188	1.00	35,188
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	Each	17,210	10.0	No	32,514	55,102	1.00	55,102
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	Each	17,210	10.0	No	2,430	3,226	1.00	3,226
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	Each	17,210	10.0	No	5,598	7,917	1.00	7,917
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	Each	17,210	10.0	No	2,368	2,718	1.00	2,718
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	Each	17,210	10.0	No	5,787	6,433	1.00	6,433
Hot Water	Water Heater Temperature SetBack Gas - Single	Each	17,210	2.0	No	2,271	1,418	1.00	1,418
Hot Water	Water Heater Temperature SetBack Gas - Multi Family	Each	17,210	2.0	No	3,166	893	1.00	893
Hot Water	Shower Timer Install - Single Family	Each	17,210	2.0	No	10,004	8,103	1.00	8,103
Hot Water	Shower Timer Install - Multi Family	Each	17,210	2.0	No	8,615	4,566	1.00	4,566
Total				9.6		266,315	285,128	1.00	285,128

* The total of the EUL column is the weighted average measure life (WAML), and is calculated as the sum product of EUL and measure savings divided by total program savings.

† Early Replacement (ER) measures are flagged as YES, otherwise a NO is indicated in the column.

Source: Guidehouse analysis of tracking data.



Nicor Gas, Peoples Gas, North Shore Gas, and ComEd Elementary Energy Education Kits Impact Evaluation Report

Table 9-4. Total Resource Cost Savings Summary for North Shore Gas

End Use Type	Research Category	Units	Quantity	EUL (years)*	ER Flag†	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	NTG (Therms)	Verified Net Savings (Therms)
Hot Water	Showerhead (1.5 GPM) - Single Family	Each	2,048	10.0	No	14,718	14,189	1.00	14,189
Hot Water	Showerhead (1.5 GPM) - Multi Family	Each	2,048	10.0	No	7,026	7,646	1.00	7,646
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	Each	2,048	10.0	No	4,587	7,262	1.00	7,262
Hot Water	Kitchen Aerator (1.5 GPM) - Multi Family	Each	2,048	10.0	No	1,955	3,129	1.00	3,129
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	Each	2,048	10.0	No	433	616	1.00	616
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi Family	Each	2,048	10.0	No	270	512	1.00	512
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	Each	2,048	10.0	No	600	699	1.00	699
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi Family	Each	2,048	10.0	No	540	427	1.00	427
Hot Water	Water Heater Temperature SetBack Gas - Single	Each	2,048	2.0	No	355	227	1.00	227
Hot Water	Water Heater Temperature SetBack Gas - Multi Family	Each	2,048	2.0	No	172	50	1.00	50
Hot Water	Shower Timer Install - Single Family	Each	2,048	2.0	No	1,533	1,986	1.00	1,986
Hot Water	Shower Timer Install - Multi Family	Each	2,048	2.0	No	544	245	1.00	245
Total				9.5		32,732	36,987	1.00	36,987

* The total of the EUL column is the weighted average measure life (WAML), and is calculated as the sum product of EUL and measure savings divided by total program savings.

† Early Replacement (ER) measures are flagged as YES, otherwise a NO is indicated in the column.

Source: Guidehouse analysis of tracking data.