



Combined Utility Elementary Energy Education Impact Evaluation Report

Energy Efficiency / Demand Response Plan:
Program Year 2020 (CY2020)
(1/1/2020-12/31/2020)

Prepared for:
ComEd
Nicor Gas
Peoples Gas
North Shore Gas

FINAL

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1. Introduction

This report presents results from the joint utility 2020 impact evaluation of the Elementary Energy Education (EEE) Program. It summarizes the total energy and demand impacts for the program broken out by relevant measure and program structure details. The appendices provide the impact analysis methodology and details of the total resource cost (TRC) inputs. CY2020 covers January 1, 2020 through December 31, 2020.

2. Program Description

The EEE 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 served by Nicor Gas and an electricity provider other than ComEd (Nicor Gas Only). The program is implemented by Franklin Energy Services (Franklin). 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). 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, and ComEd claimed electric and gas savings for these kits.

The program used a teacher-led instruction program model where the teacher could choose to teach the curriculum over 5 or 10 days and focus on one kit measure per day. After the lesson, students took home a kit that included:

- instruments to measure water temperature, ambient temperature, and water flow rates
- high efficiency showerhead
- faucet aerators
- an advanced power strip (Tier 1)
- furnace filter alarm
- LED nightlight
- shower timer
- student survey form where participants reported details of their family's participation

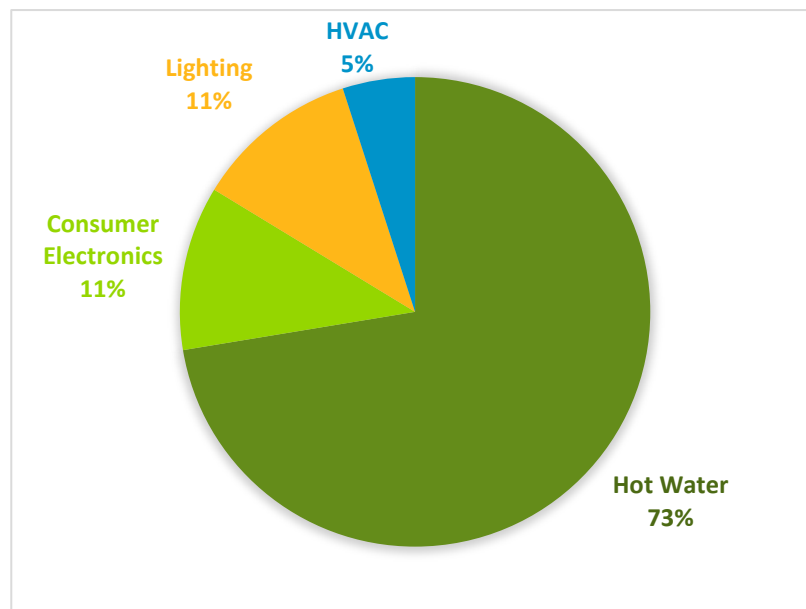
The EEE Program's focus is to produce electricity and natural gas savings in the residential sector by motivating students and their families to reduce energy consumption for water heating and lighting in their home. A secondary goal of the program is to reduce residential water use. Additionally, the 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 22,544 total participants in CY2020 and distributed 186,851 measures as Table 2-1 and Figure 2-1 show.

Table 2-1. CY2020 Volumetric Findings Detail for All Kits

Participation	ComEd Only	ComEd-PGL	ComEd-NSG	ComEd-Nicor Gas	Nicor Gas Only	Total
Number of Total Kits Distributed	2,469	6,113	705	11,863	1,394	22,544
Number of Measures per Kits Distributed	9	9	9	8	6	
Total Number of Measures Distributed	22,221	55,017	6,345	94,904	8,364	186,851
Number of Showerheads Distributed	2,469	6,113	705	11,863	1,394	22,544
Number of Kitchen Aerators Distributed	2,469	6,113	705	11,863	1,394	22,544
Number of Bathroom Aerators Distributed	4,938	12,226	1,410	23,726	2,788	45,088
Number of Advanced Power Strips Distributed	2,469	6,113	705	11,863	0	21,150
Number of Furnace Filter Alarms Distributed	2,469	6,113	705	0	0	9,287
Number of LED Nightlights Distributed	2,469	6,113	705	11,863	0	21,150
Number of Water Heater Setback Cards Distributed	2,469	6,113	705	11,863	1,394	22,544
Number of Shower Timers Distributed	2,469	6,113	705	11,863	1,394	22,544

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

Figure 2-1. Share of Measures Distributed by End Use Type for All Kits


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

Figure 2-1 summarizes the measure types included in the kits distributed to all of the utility customers (ComEd Only, ComEd-Nicor Gas, ComEd-Peoples Gas, ComEd-North Shore Gas, and Nicor Gas Only). The kits distributed to Nicor Gas customers (ComEd-Nicor Gas and Nicor Gas Only) did not include a furnace filter alarm. The Nicor Gas Only kits include solely hot water measures (showerhead, bathroom and kitchen aerators, water heater setback card, and a shower timer).

3. Program Savings Detail

Table 3-1 details the incremental energy and demand savings the EEE Program achieved in CY2020. The gas savings shown in this table are only those from the ComEd-only kits and represent savings that ComEd may be able to claim.¹

Table 3-1. CY2020 Total Annual Incremental Electric Savings

Savings Category	Energy Savings (kWh)	Summer Peak* Demand Savings (kW)
Electricity		
Ex Ante Gross Savings†	3,161,851	336
Program Gross Realization Rate	0.99	1.00
Verified Gross Savings	3,134,975	336
Program Net-to-Gross Ratio (NTG)	Varies	Varies
CY2018 and CY2019 Net Carryover Savings	1,817,650	240
Verified Net Savings§	4,952,625	576
Converted from Gas†		
Ex Ante Gross Savings	889,123	NA
Program Gross Realization Rate	1.07	NA
Verified Gross Savings	949,601	NA
Program Net-to-Gross Ratio (NTG)	Varies	NA
Verified Net Savings	949,601	NA
Total Electric Plus Gas		
Ex Ante Gross Savings‡	4,050,974	336
Program Gross Realization Rate	1.01	1.00
Verified Gross Savings	4,084,575	336
Program Net-to-Gross Ratio (NTG)	Varies	Varies
CY2018 and CY2019 Net Carryover Savings	1,817,650	240
Verified Net Savings§	5,902,225	576

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

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

† Gas savings converted to kilowatt-hours (kWh) by multiplying therms by 29.31 (which is based on 100,000 Btu/therm and 3,412 Btu/kWh). The evaluation determines which gas savings are 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."

‡ Ex ante and verified gross savings exclude gross carryover savings from CY2018 and CY2019 bulb sales.

§ Verified net savings includes net carryover savings from CY2018 and CY2019.

Source: ComEd tracking data and evaluation team analysis

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

Table 3-2 summarizes the incremental natural gas energy savings for Nicor Gas, Peoples Gas, and North Shore Gas that the EEE Program achieved in CY2020.

Table 3-2. CY2020 Total Annual Incremental Therm Savings

Savings Category	Nicor Gas (Therms)	Peoples Gas (Therms)	North Shore Gas (Therms)
Natural Gas*			
Ex Ante Gross Savings	155,708	91,593	11,268
Program Gross Realization Rate	1.00	1.20	1.21
Verified Gross Savings	155,708	109,459	13,676
Program Net-to-Gross Ratio (NTG)	1.00	1.00	1.00
Verified Net Savings	155,708	109,459	13,676

* Natural gas savings with electric interactive effects removed.

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

4. Cumulative Persisting Annual Savings

Table 4-1 to Table 4-3 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 CY2020. Figure 4-1 shows the savings across the useful life of the measures. The electric CPAS across all measures installed in 2020 is 4,952,625 kWh (Table 4-1). The CY2020 gas contribution to CPAS (converted to equivalent electricity) is 949,601 kWh (Table 4-2). Adding the gas and electric contributions produces 5,902,225 kWh of total CY2020 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 Program Total Gas CPAS rows are the sum of the CY2020 contribution and the historic contribution.

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

End Use Type	Research Category	CY2020 Verified Gross EUL Savings (kWh)		NTG*	Lifetime Net Savings (kWh)†	Verified Net kWh Savings									
						2018	2019	2020	2021	2022	2023	2024	2025	2026	
Consumer Electronics	Advanced Power Strip (Tier 1)	7.0	871,380	1.00	6,099,660			871,380	871,380	871,380	871,380	871,380	871,380	871,380	871,380
Hot Water	Showerhead (1.5 GPM) - Single Family	10.0	607,378	1.00	6,073,778			607,378	607,378	607,378	607,378	607,378	607,378	607,378	607,378
Hot Water	Showerhead (1.5 GPM) - Multi-Family	10.0	382,250	1.00	3,822,504			382,250	382,250	382,250	382,250	382,250	382,250	382,250	382,250
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	10.0	373,712	1.00	3,737,122			373,712	373,712	373,712	373,712	373,712	373,712	373,712	373,712
Lighting	LED Nightlight - Single Family	8.0	246,235	1.00	1,969,882			246,235	246,235	246,235	246,235	246,235	246,235	246,235	246,235
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	10.0	206,086	1.00	2,060,862			206,086	206,086	206,086	206,086	206,086	206,086	206,086	206,086
Lighting	LED Nightlight - Multi-Family	8.0	104,813	1.00	838,506			104,813	104,813	104,813	104,813	104,813	104,813	104,813	104,813
Hot Water	Shower Timer Install - Single Family	2.0	85,056	1.00	170,111			85,056	85,056						
HVAC	Furnace Filter Alarm - Single Family	3.0	64,799	1.00	194,396			64,799	64,799	64,799					
Hot Water	Shower Timer Install - Multi-Family	2.0	34,244	1.00	68,487			34,244	34,244						
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	10.0	31,293	1.00	312,930			31,293	31,293	31,293	31,293	31,293	31,293	31,293	31,293
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	10.0	31,161	1.00	311,615			31,161	31,161	31,161	31,161	31,161	31,161	31,161	31,161
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	10.0	30,743	1.00	307,430			30,743	30,743	30,743	30,743	30,743	30,743	30,743	30,743
HVAC	Furnace Filter Alarm - Multi-Family	3.0	28,158	1.00	84,475			28,158	28,158	28,158					
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	10.0	24,831	1.00	248,309			24,831	24,831	24,831	24,831	24,831	24,831	24,831	24,831
Hot Water	Water Heater Temperature Setback Electric - Single Family	2.0	7,255	1.00	14,509			7,255	7,255						
Hot Water	Water Heater Temperature Setback Electric - Multi-Family	2.0	5,580	1.00	11,161			5,580	5,580						
Carryover	CY2018 and CY2019 Carryover	10.0	1,999,176	0.91	12,418,396			1,817,650	1,817,650	1,817,650	1,817,650	1,295,306	840,144	840,144	
CY2020 Program Total Electric Contribution to CPAS			5,134,150		38,744,132			4,952,625	4,952,625	4,820,490	4,727,533	4,205,189	3,750,027	3,750,027	
Historic Program Total Electric Contribution to 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
Program Total Electric CPAS						6,104,453	15,316,136	20,012,143	14,809,299	14,677,165	14,584,208	14,061,864	13,606,702	13,606,702	
CY2020 Program Incremental Expiring Electric Savings§									-	132,135	92,957	522,344	455,162	-	-
Historic Program Incremental Expiring Electric Savings‡§								256,618	5,202,843	-	-	-	-	-	-
Program Total Incremental Expiring Electric Savings§								256,618	5,202,843	132,135	92,957	522,344	455,162	-	-

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Consumer Electronics	Advanced Power Strip (Tier 1)												
Hot Water	Showerhead (1.5 GPM) - Single Family	607,378	607,378	607,378									
Hot Water	Showerhead (1.5 GPM) - Multi-Family	382,250	382,250	382,250									
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	373,712	373,712	373,712									
Lighting	LED Nightlight - Single Family	246,235											
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	206,086	206,086	206,086									
Lighting	LED Nightlight - Multi-Family	104,813											
Hot Water	Shower Timer Install - Single Family												
HVAC	Furnace Filter Alarm - Single Family												
Hot Water	Shower Timer Install - Multi-Family												
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	31,293	31,293	31,293									
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	31,161	31,161	31,161									
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	30,743	30,743	30,743									
HVAC	Furnace Filter Alarm - Multi-Family												
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	24,831	24,831	24,831									
Hot Water	Water Heater Temperature Setback Electric - Single Family												
Hot Water	Water Heater Temperature Setback Electric - Multi-Family												
Carryover	CY2018 and CY2019 Carryover	840,144	840,144	491,915									
CY2020 Program Total Electric Contribution to CPAS		2,878,647	2,527,599	2,179,369	-	-	-	-	-	-	-	-	-
Historic Program Total Electric Contribution to CPAS†		8,843,463	5,897,888	-	-	-	-	-	-	-	-	-	-
Program Total Electric CPAS		11,722,111	8,425,486	2,179,369	-	-	-	-	-	-	-	-	-
CY2020 Program Incremental Expiring Electric Savings§		871,380	351,048	348,229	2,179,369	-	-	-	-	-	-	-	-
Historic Program Incremental Expiring Electric Savings‡§		1,013,211	2,945,576	5,897,888	-	-	-	-	-	-	-	-	-
Program Total Incremental Expiring Electric Savings§		1,884,591	3,296,624	6,246,117	2,179,369	-	-	-	-	-	-	-	-

Note: The green highlighted cell shows program total first year electric savings. The gray cells are blank, indicating values irrelevant to the CY2020 contribution to CPAS.

* A deemed value. Source: is found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

† Lifetime savings are the sum of CPAS savings through the effective useful life (EUL).

‡ Historical savings go back to CY2018.

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

Source: Evaluation team analysis

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

End Use Type	Research Category	EUL	CY2020 Verified Gross Savings (Therms)	NTG*	Lifetime Net Savings (Therms)†	Verified Net Therms Savings								
						2018	2019	2020	2021	2022	2023	2024	2025	2026
Consumer Electronics	Advanced Power Strip (Tier 1)	7.0	-	1.00	-									
Hot Water	Showerhead (1.5 GPM) - Single Family	10.0	10,976	1.00	109,760			10,976	10,976	10,976	10,976	10,976	10,976	10,976
Hot Water	Showerhead (1.5 GPM) - Multi-Family	10.0	4,795	1.00	47,954			4,795	4,795	4,795	4,795	4,795	4,795	4,795
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	10.0	6,177	1.00	61,766			6,177	6,177	6,177	6,177	6,177	6,177	6,177
Lighting	LED Nightlight - Single Family	8.0	-	1.00	-									
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	10.0	3,050	1.00	30,495			3,050	3,050	3,050	3,050	3,050	3,050	3,050
Lighting	LED Nightlight - Multi-Family	8.0	-	1.00	-									
Hot Water	Shower Timer Install - Single Family	2.0	1,446	1.00	2,891			1,446	1,446					
HVAC	Furnace Filter Alarm - Single Family	3.0	2,552	1.00	7,655			2,552	2,552	2,552				
Hot Water	Shower Timer Install - Multi-Family	2.0	569	1.00	1,139			569	569					
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Fami	10.0	626	1.00	6,256			626	626	626	626	626	626	626
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Famil	10.0	510	1.00	5,103			510	510	510	510	510	510	510
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	10.0	511	1.00	5,106			511	511	511	511	511	511	511
HVAC	Furnace Filter Alarm - Multi-Family	3.0	755	1.00	2,266			755	755	755				
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	10.0	348	1.00	3,477			348	348	348	348	348	348	348
Hot Water	Water Heater Temperature Setback Electric - Single Fam	2.0	109	1.00	218			109	109					
Hot Water	Water Heater Temperature Setback Electric - Multi-Famil	2.0	(24)	1.00	(48)			(24)	(24)					
Carryover	CY2018 and CY2019 Carryover	10.0	-	0.91	-									
CY2020 Program Total Gas Contribution to CPAS (Therms)			32,399		284,038			32,399	32,399	30,299	26,992	26,992	26,992	26,992
CY2020 Program Total Gas Contribution to CPAS (kWh Equivalent)‡								949,601	949,601	888,056	791,129	791,129	791,129	791,129
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)‡§								5,157,303	11,590,175	11,271,711	10,807,393	10,807,393	10,807,393	10,807,393
Program Total Gas CPAS (kWh Equivalent)‡								5,157,303	11,590,175	12,221,312	11,756,994	11,695,448	11,598,522	11,598,522
CY2020 Program Incremental Expiring Gas Savings (Therms)										2,100	3,307	-	-	-
CY2020 Program Incremental Expiring Gas Savings (kWh Equivalent)										61,545	96,927	-	-	-
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)‡§										318,464	464,318	-	-	-
Program Total Incremental Expiring Gas Savings (kWh Equivalent)‡										318,464	464,318	61,545	96,927	-

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Consumer Electronics	Advanced Power Strip (Tier 1)												
Hot Water	Showerhead (1.5 GPM) - Single Family	10,976	10,976	10,976									
Hot Water	Showerhead (1.5 GPM) - Multi-Family	4,795	4,795	4,795									
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	6,177	6,177	6,177									
Lighting	LED Nightlight - Single Family												
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	3,050	3,050	3,050									
Lighting	LED Nightlight - Multi-Family												
Hot Water	Shower Timer Install - Single Family												
HVAC	Furnace Filter Alarm - Single Family												
Hot Water	Shower Timer Install - Multi-Family												
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Fami	626	626	626									
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Famil	510	510	510									
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	511	511	511									
HVAC	Furnace Filter Alarm - Multi-Family												
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	348	348	348									
Hot Water	Water Heater Temperature Setback Electric - Single Family												
Hot Water	Water Heater Temperature Setback Electric - Multi-Family												
Carryover	CY2018 and CY2019 Carryover												
CY2020 Program Total Gas Contribution to CPAS (Therms)		26,992	26,992	26,992	-	-	-	-	-	-	-	-	-
CY2020 Program Total Gas Contribution to CPAS (kWh Equivalent)†		791,129	791,129	791,129	-	-	-	-	-	-	-	-	-
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)‡§		9,306,366	5,968,554	-	-	-	-	-	-	-	-	-	-
Program Total Gas CPAS (kWh Equivalent)‡		10,097,495	6,759,683	791,129	-	-	-	-	-	-	-	-	-
CY2020 Program Incremental Expiring Gas Savings (Therms)		-	-	-	26,992	-	-	-	-	-	-	-	-
CY2020 Program Incremental Expiring Gas Savings (kWh Equivalent)‡		-	-	-	791,129	-	-	-	-	-	-	-	-
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)‡§		1,501,027	3,337,812	5,968,554	-	-	-	-	-	-	-	-	-
Program Total Incremental Expiring Gas Savings (kWh Equivalent)‡		1,501,027	3,337,812	5,968,554	791,129	-	-	-	-	-	-	-	-

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 CY2020.

* A deemed value. Source: is found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

† 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 Y_{n-1} - CPAS Y_n .

Source: Evaluation team analysis

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

End Use Type	Research Category	EUL	CY2020 Verified Gross Savings (kWh)	NTG*	Lifetime Net Savings (kWh)†	Verified Net kWh Savings (Including Those Converted from Gas Savings)									
						2018	2019	2020	2021	2022	2023	2024	2025	2026	
Consumer Electronics	Advanced Power Strip (Tier 1)	7.0	871,380	1.00	6,099,660			871,380	871,380	871,380	871,380	871,380	871,380	871,380	871,380
Hot Water	Showerhead (1.5 GPM) - Single Family	10.0	929,084	1.00	9,290,837			929,084	929,084	929,084	929,084	929,084	929,084	929,084	929,084
Hot Water	Showerhead (1.5 GPM) - Multi-Family	10.0	522,805	1.00	5,228,046			522,805	522,805	522,805	522,805	522,805	522,805	522,805	522,805
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	10.0	554,749	1.00	5,547,489			554,749	554,749	554,749	554,749	554,749	554,749	554,749	554,749
Lighting	LED Nightlight - Single Family	8.0	246,235	1.00	1,969,882			246,235	246,235	246,235	246,235	246,235	246,235	246,235	246,235
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	10.0	295,468	1.00	2,954,683			295,468	295,468	295,468	295,468	295,468	295,468	295,468	295,468
Lighting	LED Nightlight - Multi-Family	8.0	104,813	1.00	838,506			104,813	104,813	104,813	104,813	104,813	104,813	104,813	104,813
Hot Water	Shower Timer Install - Single Family	2.0	127,428	1.00	254,857			127,428	127,428						
HVAC	Furnace Filter Alarm - Single Family	3.0	139,589	1.00	418,767			139,589	139,589	139,589					
Hot Water	Shower Timer Install - Multi-Family	2.0	50,934	1.00	101,867			50,934	50,934						
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	10.0	49,629	1.00	496,289			49,629	49,629	49,629	49,629	49,629	49,629	49,629	49,629
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	10.0	46,120	1.00	461,198			46,120	46,120	46,120	46,120	46,120	46,120	46,120	46,120
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	10.0	45,709	1.00	457,090			45,709	45,709	45,709	45,709	45,709	45,709	45,709	45,709
HVAC	Furnace Filter Alarm - Multi-Family	3.0	50,294	1.00	150,883			50,294	50,294	50,294					
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	10.0	35,021	1.00	350,205			35,021	35,021	35,021	35,021	35,021	35,021	35,021	35,021
Hot Water	Water Heater Temperature Setback Electric - Single Family	2.0	10,444	1.00	20,888			10,444	10,444						
Hot Water	Water Heater Temperature Setback Electric - Multi-Family	2.0	4,874	1.00	9,748			4,874	4,874						
Carryover	CY2018 and CY2019 Carryover	10.0	1,999,176	0.91	12,418,396			1,817,650	1,817,650	1,817,650	1,817,650	1,295,306	840,144	840,144	840,144
CY2020 Program Total Contribution to CPAS			6,083,751		47,069,292			5,902,225	5,902,225	5,708,546	5,518,662	4,996,318	4,541,156	4,541,156	4,541,156
Historic Program Total Contribution to 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	20,664,067
Program Total CPAS						11,261,756	26,906,311	32,233,455	26,566,293	26,372,613	26,182,730	25,660,386	25,205,224	25,205,224	25,205,224
CY2020 Program Incremental Expiring Savings§										193,680	189,883	522,344	455,162	-	-
Historic Program Incremental Expiring Savings†§								575,082	5,667,162	-	-	-	-	-	-
Program Total Incremental Expiring Savings§								575,082	5,667,162	193,680	189,883	522,344	455,162	-	-

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Consumer Electronics Advanced Power Strip (Tier 1)													
Hot Water	Showerhead (1.5 GPM) - Single Family	929,084	929,084	929,084									
Hot Water	Showerhead (1.5 GPM) - Multi-Family	522,805	522,805	522,805									
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	554,749	554,749	554,749									
Lighting	LED Nightlight - Single Family	246,235											
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	295,468	295,468	295,468									
Lighting	LED Nightlight - Multi-Family	104,813											
Hot Water	Shower Timer Install - Single Family												
HVAC	Furnace Filter Alarm - Single Family												
Hot Water	Shower Timer Install - Multi-Family												
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	49,629	49,629	49,629									
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	46,120	46,120	46,120									
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	45,709	45,709	45,709									
HVAC	Furnace Filter Alarm - Multi-Family												
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	35,021	35,021	35,021									
Hot Water	Water Heater Temperature Setback Electric - Single Family												
Hot Water	Water Heater Temperature Setback Electric - Multi-Family												
Carryover	CY2018 and CY2019 Carryover	840,144	840,144	491,915									
CY2020 Program Total Contribution to CPAS		3,669,776	3,318,728	2,970,498	-	-	-	-	-	-	-	-	-
Historic Program Total Contribution to CPAS†		18,149,829	11,866,441	-	-	-	-	-	-	-	-	-	-
Program Total CPAS		21,819,606	15,185,169	2,970,498	-	-	-	-	-	-	-	-	-
CY2020 Program Incremental Expiring Savings§		871,380	351,048	348,229	2,970,498	-	-	-	-	-	-	-	-
Historic Program Incremental Expiring Savings‡§		2,514,238	6,283,388	11,866,441	-	-	-	-	-	-	-	-	-
Program Total Incremental Expiring Savings§		3,385,618	6,634,436	12,214,671	2,970,498	-	-	-	-	-	-	-	-

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 CY2020.

* A deemed value. Source: is found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

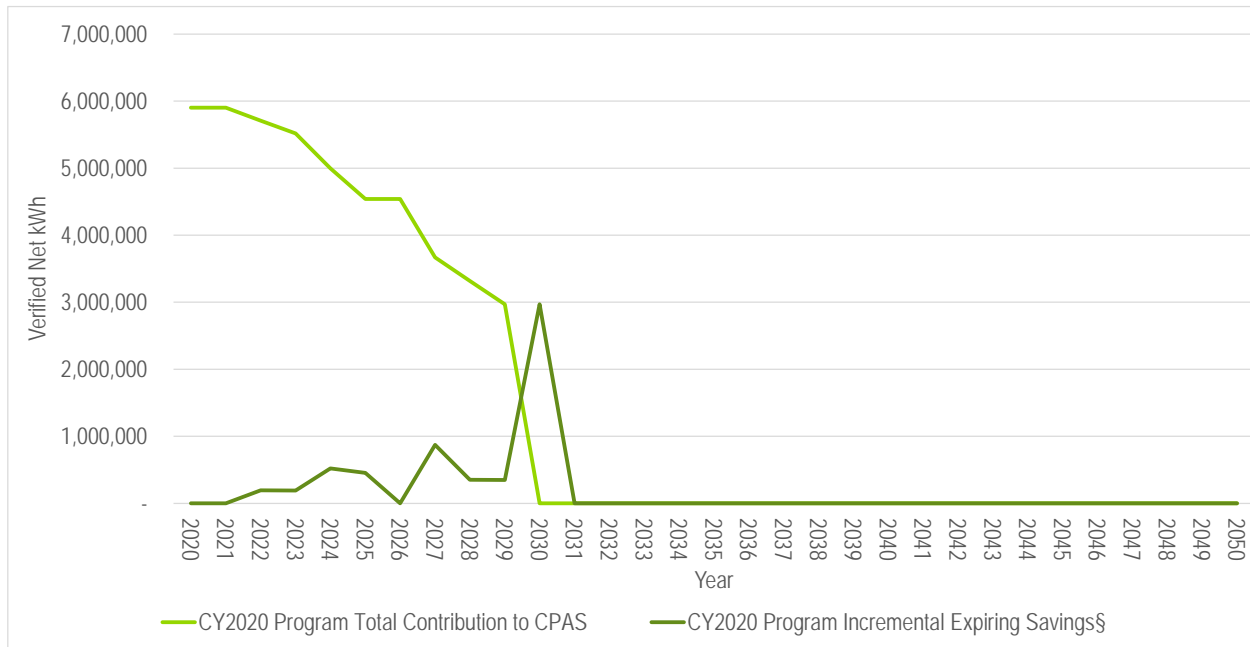
† Lifetime savings are the sum of CPAS savings through the EUL.

‡ Historic savings go back to CY2018.

§ Incremental expiring savings are equal to $CPAS_{Y_{n-1}} - CPAS_{Y_n}$.

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 program includes energy efficient kits with a various number of measures distributed to ComEd, Nicor Gas, Peoples Gas, and North Shore Gas customers. The energy efficiency kits distributed to the customers varied by utility combination. Table 5-1 shows which measures were included in each of the energy efficiency kits distributed to the utility customers. Table 5-2 through Table 5-9 show the measure level savings for each utility.

Table 5-1. Summary of Measures Included in each Utility Kit Combination

Measure	ComEd Only	ComEd- Peoples Gas	ComEd-North Shore Gas	ComEd-Nicor Gas	Nicor Gas Only
Low Flow Showerhead	✓	✓	✓	✓	✓
Kitchen Faucet Aerators	✓	✓	✓	✓	✓
Bathroom Faucet Aerators	✓	✓	✓	✓	✓
Advanced Power Strip (Tier 1)	✓	✓	✓	✓	
Furnace Filter Alarm	✓	✓	✓		
LED Nightlight	✓	✓	✓	✓	
Water Heater Temperature Setback Card	✓	✓	✓	✓	✓
Shower Timer	✓	✓	✓	✓	✓

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

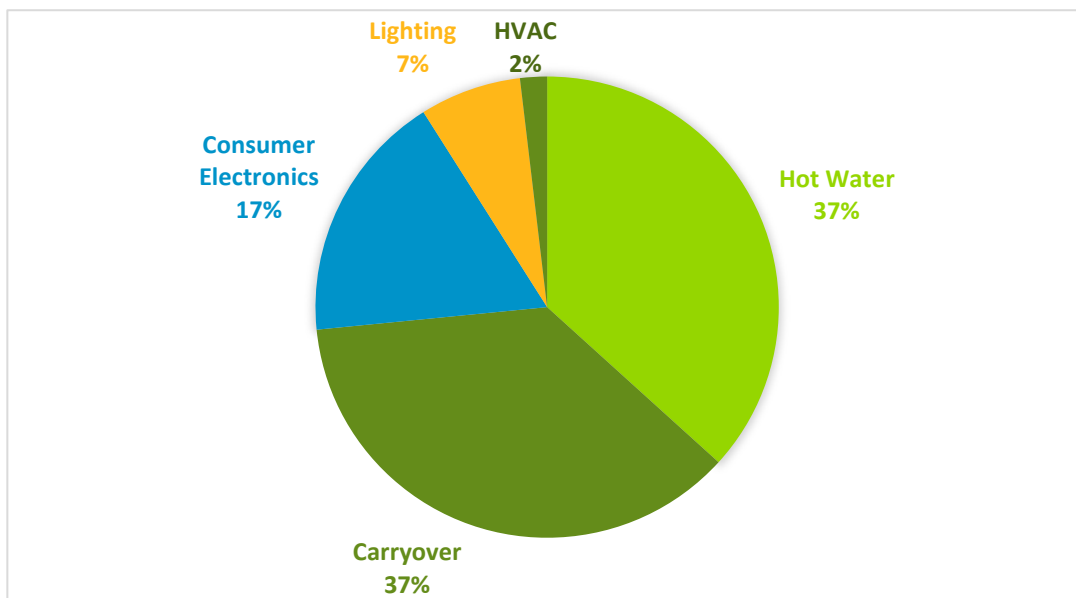
The following sections summarize factors that contributed to the realization rates for each utility. Appendix A and Appendix B provide detailed descriptions of the ex post analysis methodology and a comparison of the input variables to the savings equations.

5.1 ComEd

Figure 5-1 shows the verified electric savings by end use for ComEd. Low flow showerheads and advanced power strips contributed the most verified gross energy savings (30% and 27%, respectively) when considering electric savings only. Low flow showerheads and all aerators contributed the most verified gross energy savings (49% and 35%, respectively) after gas savings were converted to energy savings.

The electric realization rate for ComEd is 0.99, excluding CY2018 and CY2019 carryover savings. The verified gross savings are less than the claimed savings due to the evaluation team accounting for the electric heating penalty associated with the LED nightlights. The evaluation team also adjusted the single family/multi-family reference for the LED nightlight measure that marginally decreased the energy savings.

Figure 5-1. Verified Net Savings by End Use – Electric



Source: ComEd tracking data and evaluation team analysis

Table 5-2 through Table 5-4 show measure level electric energy savings, peak demand savings, and gas energy savings, respectively. Table 5-5 shows the total combined electric and gas energy savings by measure.

Table 5-2. CY2020 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)
Consumer Electronics	Advanced Power Strip (Tier 1)	871,380	1.00	871,380	1.00	871,380	7.0
Hot Water	Showerhead (1.5 GPM) - Single Family	607,378	1.00	607,378	1.00	607,378	10.0
Hot Water	Showerhead (1.5 GPM) - Multi-Family	382,250	1.00	382,250	1.00	382,250	10.0
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	373,712	1.00	373,712	1.00	373,712	10.0
Lighting	LED Nightlight - Single Family	116,006	2.12	246,235	1.00	246,235	8.0
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	206,086	1.00	206,086	1.00	206,086	10.0
Lighting	LED Nightlight - Multi-Family	261,918	0.40	104,813	1.00	104,813	8.0
Hot Water	Shower Timer Install - Single Family	85,056	1.00	85,056	1.00	85,056	2.0
HVAC	Furnace Filter Alarm - Single Family	64,799	1.00	64,799	1.00	64,799	3.0
Hot Water	Shower Timer Install - Multi-Family	34,244	1.00	34,244	1.00	34,244	2.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	31,293	1.00	31,293	1.00	31,293	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	31,161	1.00	31,161	1.00	31,161	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	30,743	1.00	30,743	1.00	30,743	10.0
HVAC	Furnace Filter Alarm - Multi-Family	28,158	1.00	28,158	1.00	28,158	3.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	24,831	1.00	24,831	1.00	24,831	10.0
Hot Water	Water Heater Temperature Setback Electric - Single Family	7,255	1.00	7,255	1.00	7,255	2.0
Hot Water	Water Heater Temperature Setback Electric - Multi-Family	5,580	1.00	5,580	1.00	5,580	2.0
Carryover	CY2018 and CY2019 Carryover	NR	NA	1,999,176	0.91	1,817,650	10.0
Total§		3,161,851	1.62	5,134,150	NA	4,952,625	NA

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

* A deemed value. Source: is found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

§ The total realization rate (1.62) is calculated after including verified gross electric carryover savings to verified electric savings.

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. CY2020 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)
Consumer Electronics	Advanced Power Strip (Tier 1)	98	1.00	98	1.00	98
Hot Water	Showerhead (1.5 GPM) - Single Family	33	1.00	33	1.00	33
Hot Water	Showerhead (1.5 GPM) - Multi-Family	20	1.00	20	1.00	20
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	41	1.00	41	1.00	41
Lighting	LED Nightlight - Single Family	0	NA	0	1.00	0
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	23	1.00	23	1.00	23
Lighting	LED Nightlight - Multi-Family	0	NA	0	1.00	0
Hot Water	Shower Timer Install - Single Family	9	1.00	9	1.00	9
HVAC	Furnace Filter Alarm - Single Family	25	1.00	25	1.00	25
Hot Water	Shower Timer Install - Multi-Family	4	1.00	4	1.00	4
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	24	1.00	24	1.00	24
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	24	1.00	24	1.00	24
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	12	1.00	12	1.00	12
HVAC	Furnace Filter Alarm - Multi-Family	11	1.00	11	1.00	11
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	10	1.00	10	1.00	10
Hot Water	Water Heater Temperature Setback Electric - Single Family	1	1.00	1	1.00	1
Hot Water	Water Heater Temperature Setback Electric - Multi-Family	1	1.00	1	1.00	1
Carryover	CY2018 and CY2019 Carryover	NR	NA	264	0.91	240
	Total†	336	1.79	600	NA	576

* A deemed value. Source: is found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

† The Total realization rate (1.79) includes carryover savings in the verified savings.

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. CY2020 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)
Consumer Electronics	Advanced Power Strip (Tier 1)	NA	NA	NA	1.00	NA	7.0
Hot Water	Showerhead (1.5 GPM) - Single Family	10,976	1.00	10,976	1.00	10,976	10.0
Hot Water	Showerhead (1.5 GPM) - Multi-Family	4,795	1.00	4,795	1.00	4,795	10.0
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	6,177	1.00	6,177	1.00	6,177	10.0
Lighting	LED Nightlight - Single Family	-744	0.00	0	1.00	0	8.0
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	3,050	1.00	3,050	1.00	3,050	10.0
Lighting	LED Nightlight - Multi-Family	-317	0.00	0	1.00	0	8.0
Hot Water	Shower Timer Install - Single Family	1,446	1.00	1,446	1.00	1,446	2.0
HVAC	Furnace Filter Alarm - Single Family	2,305	1.11	2,552	1.00	2,552	3.0
Hot Water	Shower Timer Install - Multi-Family	569	1.00	569	1.00	569	2.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	626	1.00	626	1.00	626	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	510	1.00	510	1.00	510	10.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	511	1.00	511	1.00	511	10.0
HVAC	Furnace Filter Alarm - Multi-Family	NR	NA	755	1.00	755	3.0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	348	1.00	348	1.00	348	10.0
Hot Water	Water Heater Temperature Setback Electric - Single Family	109	1.00	109	1.00	109	2.0
Hot Water	Water Heater Temperature Setback Electric - Multi-Family	-24	1.00	-24	1.00	-24	2.0
Carryover	CY2018 and CY2019 Carryover	NA	NA	NA	NA	NA	NA
	Total Therms	30,335	1.07	32,399	NA	32,399	NA
	Total kWh Converted From Therms†	889,123	1.07	949,601	NA	949,601	NA

* A deemed value. Source: is found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

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

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. CY2020 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)
Consumer Electronics	Advanced Power Strip (Tier 1)	871,380	1.00	871,380	1.00	871,380
Hot Water	Showerhead (1.5 GPM) - Single Family	929,084	1.00	929,084	1.00	929,084
Hot Water	Showerhead (1.5 GPM) - Multi-Family	522,805	1.00	522,805	1.00	522,805
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	554,749	1.00	554,749	1.00	554,749
Lighting	LED Nightlight - Single Family	94,190	2.61	246,235	1.00	246,235
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	295,468	1.00	295,468	1.00	295,468
Lighting	LED Nightlight - Multi-Family	252,617	0.41	104,813	1.00	104,813
Hot Water	Shower Timer Install - Single Family	127,428	1.00	127,428	1.00	127,428
HVAC	Furnace Filter Alarm - Single Family	132,364	1.05	139,589	1.00	139,589
Hot Water	Shower Timer Install - Multi-Family	50,934	1.00	50,934	1.00	50,934
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	49,629	1.00	49,629	1.00	49,629
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	46,120	1.00	46,120	1.00	46,120
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	45,709	1.00	45,709	1.00	45,709
HVAC	Furnace Filter Alarm - Multi-Family	28,158	1.79	50,294	1.00	50,294
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	35,021	1.00	35,021	1.00	35,021
Hot Water	Water Heater Temperature Setback Electric - Single Family	10,444	1.00	10,444	1.00	10,444
Hot Water	Water Heater Temperature Setback Electric - Multi-Family	4,874	1.00	4,874	1.00	4,874
Carryover	CY2018 and CY2019 Carryover	NR	NA	1,999,176	0.91	1,817,650
	Total†‡	4,050,974	1.50	6,083,751	NA	5,902,225

* A deemed value. Source: is found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

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

‡ The total realization rate (1.50) includes carryover savings in the verified savings.

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)
Consumer Electronics	Advanced Power Strip (Tier 1)	NA	NA	NA	NA	1.00	NA
Hot Water	Showerhead (1.5 GPM) - Single Family	5,029,228	18,958	1.00	18,958	1.00	18,958
Hot Water	Showerhead (1.5 GPM) - Multi-Family	3,165,122	11,931	1.00	11,931	1.00	11,931
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	3,712,265	13,994	1.00	13,994	1.00	13,994
Lighting	LED Nightlight - Single Family	NA	NA	NA	NA	1.00	NA
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	2,047,153	7,717	1.00	7,717	1.00	7,717
Lighting	LED Nightlight - Multi-Family	NA	NA	NA	NA	1.00	NA
Hot Water	Shower Timer Install - Single Family	704,281	2,655	1.00	2,655	1.00	2,655
HVAC	Furnace Filter Alarm - Single Family	NA	NA	NA	NA	1.00	NA
Hot Water	Shower Timer Install - Multi-Family	283,545	1,069	1.00	1,069	1.00	1,069
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	375,803	1,417	1.00	1,417	1.00	1,417
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	374,224	1,411	1.00	1,411	1.00	1,411
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	369,198	1,392	1.00	1,392	1.00	1,392
HVAC	Furnace Filter Alarm - Multi-Family	NA	NA	NA	NA	1.00	NA
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	298,199	1,124	1.00	1,124	1.00	1,124
Hot Water	Water Heater Temperature Setback Electric - Single Family	NA	NA	NA	NA	1.00	NA
Hot Water	Water Heater Temperature Setback Electric - Multi-Family	NA	NA	NA	NA	1.00	NA
	Total	16,359,019	61,667	1.00	61,667	NA	61,667

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 found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

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

Low flow showerheads contributed the most verified gross gas savings (53%) for Nicor Gas. All kitchen aerators (29%) represented the second largest verified gross savings.

The gas realization rate for Nicor Gas is 1.00. Nicor Gas ex ante per unit savings values matched the evaluation team recommended values in the CY2019 EEE final evaluation report. Table 5-7 shows the savings and verified realization rates for the measures distributed to Nicor Gas customers.

Table 5-7. CY2020 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)
Hot Water	Showerhead (1.5 GPM) - Single Family	55,667	1.00	55,667	1.00	55,667
Hot Water	Showerhead (1.5 GPM) - Multi-Family	26,564	1.00	26,564	1.00	26,564
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	31,897	1.00	31,897	1.00	31,897
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	13,979	1.00	13,979	1.00	13,979
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	2,887	1.00	2,887	1.00	2,887
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	1,969	1.00	1,969	1.00	1,969
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	2,779	1.00	2,779	1.00	2,779
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	1,721	1.00	1,721	1.00	1,721
Hot Water	Water Heater Temperature SetBack Gas - Single Family	1,500	1.00	1,500	1.00	1,500
Hot Water	Water Heater Temperature SetBack Gas - Multi-Family	568	1.00	568	1.00	568
Hot Water	Shower Timer Install - Single Family	11,546	1.00	11,546	1.00	11,546
Hot Water	Shower Timer Install - Multi-Family	4,630	1.00	4,630	1.00	4,630
	Total†	155,708	1.00	155,708		155,708

* A deemed value. Source: is found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

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

Source: Nicor Gas tracking data and evaluation team analysis

5.3 Peoples Gas

Low flow showerheads contributed the most verified gross gas savings (52%) for Peoples Gas. All kitchen aerators (29%) represented the second largest verified gross savings.

The overall realization rate for Peoples Gas is 1.20. Based on the evaluation team's review of the tracking data, Peoples Gas used the verified kit saving value from CY2018 (15.47 therms) as the CY2020 ex ante savings value per kit. The evaluation team used the CY2019 final evaluation report's recommended values plus the additional savings for furnace filter alarms included in the CY2020 kits as the basis for the verified savings. To calculate the total savings, the evaluation team used the custom calculated input parameters from the CY2019 final evaluation, and the total kits distributed in CY2020. The team used the same process for all utilities.

The verified savings calculations resulted in a realization rate lower than 1.00 for low flow shower heads due to lower installation rates and slightly lower numbers of people per household values than the CY2018 verified savings. Similarly, the realization rates for the hot water temperature setbacks and shower timers were less than 1.00 due to lower water temperature reduction (ΔT) values and the number of people per household. The aerator measures' realization rates increased due to a change in the GPM_base algorithm input for the bathroom faucet and kitchen aerator measures in the Illinois Statewide Technical Reference Manual (TRM v8.0). 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 v8.0 savings algorithms for the water temperature setback measure. The implementation contractor received survey responses with 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 water temperature setback measure's custom input variables.

The implementation contractor misclassified 194 Peoples Gas kits as ComEd-Nicor Gas kits. The evaluation team added the 194 ComEd-Peoples Gas kits to the verified kit totals, further increasing the total verified savings for Peoples Gas.

Table 5-8. CY2020 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)
Hot Water	Showerhead (1.5 GPM) - Single Family	21,808	0.92	20,070	1.00	20,070
Hot Water	Showerhead (1.5 GPM) - Multi-Family	36,758	1.00	36,607	1.00	36,607
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	8,005	1.56	12,499	1.00	12,499
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	11,182	1.75	19,572	1.00	19,572
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	836	1.37	1,146	1.00	1,146
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	1,925	1.46	2,812	1.00	2,812
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	814	1.19	966	1.00	966
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	1,990	1.15	2,285	1.00	2,285
HVAC	Furnace Filter Alarm - Single Family	NR	NA	4,050	1.00	4,050
HVAC	Furnace Filter Alarm - Multi-Family	NR	NA	4,132	1.00	4,132
Hot Water	Water Heater Temperature SetBack Gas - Single Family	781	0.64	504	1.00	504
Hot Water	Water Heater Temperature SetBack Gas - Multi-Family	1,089	0.29	317	1.00	317
Hot Water	Shower Timer Install - Single Family	3,441	0.84	2,878	1.00	2,878
Hot Water	Shower Timer Install - Multi-Family	2,963	0.55	1,622	1.00	1,622
	Total†	91,593	1.20	109,459		109,459

* A deemed value. Source: is found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

NR = Not reported.

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

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

Source: Peoples Gas tracking data and evaluation team analysis.

5.4 North Shore Gas

Low flow showerheads contributed the most verified gross gas savings (55%) for North Shore Gas. All kitchen aerators (26%) represented the second largest verified gross savings.

The realization rate for North Shore Gas is 1.21. Based on a review of the tracking data, North Shore Gas used the verified kit saving value from CY2018 (15.98 therms), as the CY2020 ex ante savings value. The evaluation team used the CY2019 final evaluation report's recommended values plus the additional savings for furnace filter alarms included in the CY2020 kits as the basis for the verified savings. The team used the custom calculated input parameters from the CY2019 final evaluation and the total kits distributed in CY2020 to calculate the total savings. This is the same process used for all utilities.

The verified savings calculations resulted in less than 1.00 realization rates for the water temperature setbacks and MF shower timers due to lower installation rates compared to the CY2018 verified savings. The SF measures generally had higher installation rates and people per household compared to the CY2018 verified savings. The aerator measures' realization rates all increased except for the installation of both MF aerators. The deviation from 1.00 realization rates is due to a change to the GPM_base algorithm input for the bathroom faucet and kitchen aerator measures in the TRM v8.0. The verified savings are less than the ex ante savings for the installation of both MF aerators due to a lower installation rate. 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 verified savings calculations for the low flow showerheads vary from a 1.00 realization rate due to lower realization rates and higher custom calculated household values. The verified savings for the SF low flow showerhead are greater than the ex ante value while the verified savings value for the MF showerhead are lower than the ex ante savings.

The quantity of survey results specific to the North Shore Gas participants were not sufficient to calculate the custom input values to the TRM v8.0 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 water temperature setback measure's custom input variables.

Table 5-9. CY2020 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)
Hot Water	Showerhead (1.5 GPM) - Single Family	5,066	0.96	4,884	1.00	4,884
Hot Water	Showerhead (1.5 GPM) - Multi-Family	2,419	1.09	2,632	1.00	2,632
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	1,579	1.58	2,500	1.00	2,500
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	673	1.60	1,077	1.00	1,077
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	149	1.42	212	1.00	212
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	93	1.90	176	1.00	176
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	206	1.17	241	1.00	241
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	186	0.79	147	1.00	147
HVAC	Furnace Filter Alarm - Single Family	NR	NA	683	1.00	683
HVAC	Furnace Filter Alarm - Multi-Family	NR	NA	262	1.00	262
Hot Water	Water Heater Temperature SetBack Gas - Single Family	122	0.64	78	1.00	78
Hot Water	Water Heater Temperature SetBack Gas - Multi-Family	59	0.29	17	1.00	17
Hot Water	Shower Timer Install - Single Family	528	1.30	684	1.00	684
Hot Water	Shower Timer Install - Multi-Family	187	0.45	84	1.00	84
	Total†	11,268	1.21	13,676		13,676

* A deemed value. Source: is found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

NR = Not reported.

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

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

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

6. Impact Analysis Findings and Recommendations

6.1 Impact Parameter Estimates

Table 6-1 details all the custom and deemed inputs Guidehouse used for calculating the verified energy and demand savings for each measure and the source of these inputs. The evaluation team calculated savings for each measure based on the savings algorithms noted in the TRM v8.0 and the TRM v8.0 Errata for each respective measure. The custom inputs for all utilities were calculated using the Fall CY2018 and Spring CY2019 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	IL TRM v8.0 - 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	IL TRM v8.0 - Section 5.4.4
Bathroom Aerator	%DHW, Household, ISR, %SF, %MF, Hours	GPM_base, GPM_low, L_base, L_low, BFPH, EPG_electric, CF, NTG	IL TRM v8.0 - Section 5.4.4
Advanced Power Strip - Tier 1		Δ kWh, ISR, Hours, CF, NTG	IL TRM v8.0, Section 5.2.1
Furnace Filter Alarm	%SF, %MF	kW_motor, EFLH_heat, EFLH_cool, Electric, ISR, CF, % Fossil Heat, Gas_Heat_Consumption, EI - gas	IL TRM v8.0, Section 5.3.13
LED Nightlight	%SF, %MF, WattsEE	Wattbase, Hours, WHFe, WHFd, CF, Leakage, NTG	IL TRM v8.0, Section 5.5.11
Hot Water Temperature Setback	Tpre, Tpost, %DHW, %SF, %MF	U, A, Hours, RE_electric, CF	IL TRM v8.0 - Section 5.4.6
Shower Timer	%DHW, GPM, L_timer, Household, Usage, %SF, %MF, Hours	L_base, CF, SPCD, EPG_Electric	IL TRM v8.0 - Section 5.4.9

* TRM v8.0 is the State of Illinois Technical Reference Manual version 8.0 from <http://www.ilsag.info/technical-reference-manual.html>. The net-to-gross values can be found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

Source: Evaluation team analysis

6.2 CY2021 Carryover Savings Estimate for ComEd

The evaluation team calculated the savings from bulbs distributed through the program in CY2019 and CY2020 that are expected to be installed in CY2021. We calculated those savings using the TRM (TRM v7.0, TRM v8.0, and TRM v9.0) and data from the current report and the CY2019 Impact Evaluation report. The evaluation team calculated energy and demand savings from these CY2019 and CY2020 deferred install bulbs using the following parameters:

- Delta Watts: Verified savings estimate from the year of installation (source: TRM v9.0, CY2020 program data).
- Quantity: Number of bulbs from the year of distribution (source: Impact Evaluation reports).
- Hours of Use (HOU) and Peak Coincidence Factor (CF): Verified savings estimate from the year of installation (source: TRM v9.0).
- Energy and Demand Interactive Effects: Verified savings estimate from the year of installation (source: TRM v9.0.)
- Installation Rate: Verified savings estimate from the year of distribution (CY2019 and CY2020 program survey data). The evaluation team subtracted the custom installation rate (ISR) from the lifetime ISR found in the TRM (TRM v7.0 for CY2019 and TRM v8.0 for CY2020) and split the remaining installs between the second and third years using the same ratio found in the TRM (TRM v7.0 for CY2019 and TRM v8.0 for CY2020).
- Net-to-Gross: Evaluation research from the year of purchase (source: CY2018 and CY2019 Reports).

Table 6-2 shows that a total of 45,313 bulbs were distributed across CY2019 and CY2020 that are expected to be installed within ComEd's service territory in CY2021. The table provides both the gross and net energy and demand savings from these bulbs. The evaluation team estimates these total CY2021 net carryover savings to be 1,377,013 kWh and 76 summer peak demand kW.

Table 6-2. CY2021 Verified Savings Carryover Estimate

CY2021 Verified Savings Carryover Estimate	CY2019 Bulbs	CY2020 Bulbs	CY2021 Carryover
Carryover Bulbs Installed During CY2021	42,564	2,750	45,313
Average Delta Watts	33.5	6.5	31.9
Average Annual Hours of Use	1,089	4,380	1,288.7
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	0.000	0.120
Carryover Gross Energy Savings (kWh)	1,541,086	82,501	1,623,586
Carryover Gross Summer Peak Demand Savings (kW)	90	0	90
Net-to-Gross Ratio	0.84	1.00	0.85
Carryover Net Energy Savings (kWh)	1,294,512	82,501	1,377,013
Carryover Net Summer Peak Demand Savings (kW)	76	0	76
Effective Useful Life	10.0	8.0	9.9

Source: Evaluation team analysis and ComEd tracking data

6.3 Other Impact Findings and Recommendations

The evaluation team developed several recommendations based on findings from the CY2020 evaluation. These findings suggest ways to improve the measure-level realization rates. The tables at the beginning of each section below present the measure-level realization rates and program savings percentages to give context to the team's recommendations for measures where the realization rate is not 1.00.

6.3.1 ComEd

Table 6-3. Electric Measure-Level Savings and Realization Rates for ComEd

Research Category	Realization Rate	Percentage of Verified Net Savings
LED Nightlight - Single Family	2.12	8%
LED Nightlight - Multi-Family	0.40	3%

Source: ComEd tracking data and evaluation team analysis

Table 6-4. Gas Measure-Level Savings and Realization Rates for ComEd

Research Category	Realization Rate	Percentage of Verified Net Savings
Furnace Filter Alarm - Single Family	1.11	8%
Furnace Filter Alarm - Multi-Family	NA	2%

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

Source: ComEd tracking data and evaluation team analysis

Finding 1. ComEd claimed 155.11 kWh and 0.01804 kW for each ComEd EEE kit distributed in CY2020, which is consistent with the value the evaluation team recommended during the ex ante savings review.

Finding 2. The evaluation team made one update in the verified savings for the LED nightlight measure. The ex ante calculations for the LED nightlight inadvertently switched the percentage of homes that were single family versus multifamily. This increased the verified savings for single family and lowered them for multifamily homes, as shown in Table 6-3.

Finding 3. ComEd claimed 12.29 therms for each ComEd Only EEE kit distributed in CY2020. This ex ante kit savings value did not include the multifamily portion of the savings for the furnace filter alarm. The evaluation team added the savings for the multifamily portion of the furnace filter alarm measures to the verified kit-level savings. This adjustment increased the kit-level gas savings by 3%.

Recommendation 1. Guidehouse recommends that the program implementer include both single family and multifamily portions of savings when measures are installed in both types of homes.

Finding 4. The ex ante savings for LED nightlights included the natural gas heating penalty from efficient lighting. The evaluation team removed the natural gas heating penalty from the LED nightlights in the verified natural gas savings. This increased the kit-level natural gas savings by 4%.

Finding 5. ComEd's tracking data did not include electric heating penalties for lighting measure savings. Guidehouse is aware that ComEd is working to include this information in the tracking data for future program years.

Recommendation 2. The evaluation team recommends ComEd include electric heating penalties and not natural gas heating penalties, in ex ante savings calculations and tracking data. The LED nightlight is not included in Table 6-4 because the evaluation team did not include the gas heating penalty in the verified savings values. The gas heating penalty for the LED nightlights is accounted for in the TRC table, located in Appendix C of this report.

Finding 6. The tracking data provides the gallons of water saved but does not calculate the secondary electric energy (kWh) savings from water supply and wastewater treatment plants for measures claimed by ComEd. Guidehouse is aware that ComEd is working to include this information in the tracking data for future program years. This finding did not impact the energy savings as the secondary electric savings are included in the ex ante energy savings values.

6.3.2 Nicor Gas

Nicor Gas claimed 11.745 therms for each Nicor Gas EEE kit distributed in CY2020, which is consistent with the value (11.745 therms) the evaluation team recommended in the CY2019 Wave 1 memo. The evaluation team did not include a measure summary table because the realization rates for all of the measures in the Nicor Gas kits equal 1.00.

Finding 7. When reviewing the end-of-year program tracking data, the evaluation found a discrepancy in the kit quantities associated with the ComEd-Nicor Gas and ComEd-Peoples Gas kits. The evaluation team discussed this discrepancy with the relevant utilities to verify the correct kit quantities. As a result, the evaluation team learned that the implementation contractor mis-assigned 194 kits as ComEd-Nicor Gas kits when they should have been ComEd-Peoples Gas kits. Nicor Gas revised their tracking data to reflect the correct amount of ComEd-Nicor Gas kits (11,863) and the associated natural gas savings. The evaluation team used the correct kit quantity (11,863) to calculate the verified savings. As noted earlier in this finding, Nicor Gas adjusted the kit quantities and associated gas savings to reflect the correct amount kits and savings, which resulted in a realization rate of 1.00.

6.3.3 Peoples Gas

Table 6-5. Gas Measure-Level Savings and Realization Rates for PGL

Research Category	Realization Rate	Percentage of Verified Net Savings
Showerhead (1.5 GPM) - Multi-Family	0.96	33%
Showerhead (1.5 GPM) - Single Family	0.89	18%
Kitchen Aerator (1.5 GPM) - Multi-Family	1.69	18%
Kitchen Aerator (1.5 GPM) - Single Family	1.51	11%
Furnace Filter Alarm - Multi-Family	NA	4%
Furnace Filter Alarm - Single Family	NA	4%
Shower Timer Install - Single Family	0.81	3%
Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	1.41	3%
Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	1.11	2%
Shower Timer Install - Multi-Family	0.53	1%
Bathroom Aerator (1.0 GPM) Installed one - Single Family	1.33	1%
Bathroom Aerator (1.0 GPM) Installed Both - Single Family	1.15	1%
Water Heater Temperature Setback Electric - Single Family	0.62	0%
Water Heater Temperature Setback Electric - Multi-Family	0.28	0%

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

Source: Peoples Gas tracking data and evaluation team analysis

Finding 8. Peoples Gas claimed 15.47 therms for each Peoples Gas EEE kit distributed in CY2020, which is not consistent with the value (16.57 therms) the evaluation team recommended in the CY2019 Wave 1 memo. Peoples Gas claimed a kit-level savings value (15.47 therms) that matches the verified kit-level savings value listed in the CY2018 Impact Evaluation Report². Updating the ex ante savings value (15.47 therms) to align with the evaluation team's recommended savings value (16.57 therms) from the CY2019 Wave 1 memo results in a 7% increase to the verified kit-level savings.

Finding 9. A furnace filter alarm was included in the CY2020 EEE kit but was not included in the CY2019 EEE kit. Therefore, the evaluation team added the savings associated with the

² https://ilsag.s3.amazonaws.com/Joint_Utility_Elementary_Energy_Ed_CY2018_Impact_Evaluation_Report_2019-04-12_Final.pdf

furnace filter alarm (1.34 therms) to the verified kit-level savings for the EEE kits distributed in CY2020. This adjustment results in an 8% increase to the verified kit-level savings.

Table 6-5 summarizes the measure-level realization rates and the associated percentage of overall verified net savings that result from the adjustments described in Finding 8 and Finding 9.

Recommendation 3. The evaluation team understands that there may be an adjustment to the measures included in the CY2021 EEE kit. As a proxy, the team recommends that Peoples Gas claim the per-kit savings value listed in Table B-3 of this report for kits distributed in CY2021. Peoples Gas should only include the savings for measures included in the CY2021 kit. The evaluation will review program data while drafting the CY2021 Wave 1 memo in mid-2021 and will make recommended adjustments to the savings for CY2021 at that time.

Finding 10. When reviewing the end-of-year program tracking data, the evaluation found a discrepancy in the kit quantities associated with the ComEd-Nicor Gas and ComEd-Peoples Gas kits. The evaluation team discussed this discrepancy with the relevant utilities to verify the correct kit quantities. As a result, the evaluation team learned that the implementation contractor mis-assigned 194 kits as ComEd-Nicor Gas kits when they should have been ComEd-Peoples Gas kits. Nicor Gas revised their tracking data to reflect the correct amount of ComEd-Nicor Gas kits (11,863) and the associated natural gas savings. The evaluation team added the 194 mis-assigned ComEd-Peoples Gas kits to the verified kit quantity for Peoples Gas. This adjustment increased the number of ComEd-Peoples Gas kits from 5,919 to 6,113.

Recommendation 4. The implementation contractor should confirm the mapping of teachers (kit quantities) to the appropriate utility combination on an annual basis.

6.3.4 North Shore Gas

Table 6-6. Gas Measure-Level Savings and Realization Rates for NSG

Research Category	Realization Rate	Percentage of Verified Net Savings
Showerhead (1.5 GPM) - Single Family	0.96	36%
Showerhead (1.5 GPM) - Multi-Family	1.09	19%
Kitchen Aerator (1.5 GPM) - Single Family	1.58	18%
Kitchen Aerator (1.5 GPM) - Multi-Family	1.60	8%
Shower Timer Install - Single Family	1.30	5%
Furnace Filter Alarm - Single Family	NA	5%
Furnace Filter Alarm - Multi-Family	NA	2%
Bathroom Aerator (1.0 GPM) Installed Both - Single Family	1.17	2%
Bathroom Aerator (1.0 GPM) Installed one - Single Family	1.42	2%
Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	1.90	1%
Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	0.79	1%
Shower Timer Install - Multi-Family	0.45	1%
Water Heater Temperature Setback Electric - Single Family	0.64	1%
Water Heater Temperature Setback Electric - Multi-Family	0.29	0%

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

Source: North Shore Gas tracking data and evaluation team analysis

Finding 11. North Shore Gas claimed 15.98 therms for each North Shore Gas EEE kit distributed in CY2020 which is not consistent with the value (18.06 therms) the Guidehouse team recommended in the CY2019 Wave 1 memo. North Shore Gas claimed a kit-level savings value (15.98 therms) that matches the verified kit-level savings value listed in the CY2018 Impact Evaluation Report³. Updating the ex ante savings value (15.98 therms) to align with the evaluation team's recommended savings value (18.06 therms) from the CY2019 Wave 1 memo results in a 13% increase to the verified kit-level savings.

Finding 12. A furnace filter alarm was included in the CY2020 EEE kit but was not included in the CY2019 EEE kit. Therefore, the evaluation team added the savings associated with the furnace filter alarm (1.34 therms) to the verified kit-level savings for the EEE kits distributed in CY2020. This adjustment results in an 7% increase to the verified kit-level savings.

Table 6-6 summarizes the measure-level realization rates and the associated percentage of overall verified net savings that result from the adjustments described in Finding 11 and Finding 12.

Recommendation 5. There may be an adjustment to the measures included in the CY2021 EEE kit. As a proxy, North Shore Gas should claim the per-kit savings value listed in Table B-4 of this report for kits distributed in CY2021 North Shore Gas should only include the savings for measures included in the CY2021 kit. The evaluation team will review program data while drafting the CY2021 Wave 1 memo in mid-2021 and will make recommended adjustments to the savings for CY2021 at that time.

³ https://ilsag.s3.amazonaws.com/Joint_Utility_Elementary_Energy_Ed_CY2018_Impact_Evaluation_Report_2019-04-12_Final.pdf

Appendix A. Impact Analysis Methodology

The evaluation team determined verified gross savings for each program measure by:

- Reviewing the savings algorithm inputs in the ex ante measure workbook for agreement with the TRM v8.0 and TRM v8.0 Errata, where applicable.
- Validating the savings algorithm was applied correctly.
- Custom calculating algorithm input parameters with survey data, when available.
- Cross-checking per-unit savings values in the tracking data with verified values in the ex ante measure workbook or in the evaluation team's calculations if the workbook did not agree with the TRM v8.0.
- Multiplying the verified per-unit savings value by the quantity reported in the tracking data for each utility combination.

Guidehouse received final tracking data for the CY2020 impact evaluation from each of the utilities. The evaluation team relied on the following documents to verify the kit and measure level savings for all utilities.

- EDU_CY2020_EOY_Data_Rev2_01192021
- PG_NSJ EEE (Super Savers) 2020 Data
- Nicor EEE Evaluation Participation Report – 012821
- TRM v8.0 for deemed input parameters
- Completed student survey data from fall 2018 and spring 2019 semesters

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 reports the final input parameters and measure savings during the interim data review period that takes place during the summer. The evaluation used 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 should be applied prospectively to the upcoming year, as opposed to retroactively to the previous year.

Due to the COVID-19 pandemic, there was not any CY2020 spring participation in the program. Therefore, for CY2020, Guidehouse used the Fall CY2018 survey data, combined with the Spring CY2019 survey data, to calculate the necessary input parameters for each measure. The tables in the Appendix B 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 CY2020, to calculate the verified savings for CY2020. Also, the verified 2020 values will be used to deem the input parameters and measure savings for CY2021 prospectively.

Appendix B details the input parameters used by the evaluation team and the implementation contractor.

Appendix B. Impact Analysis Detail

The tables in Appendix B.1 show the verified gross per unit savings for each utility while the tables in Appendices B.2 through B.5 show a comparison between the inputs and assumptions the evaluation team and implementation contractor used for each utility in the ex ante and the ex post calculations for each measure.

B.1 Verified Measure Per Unit Savings Findings

B.1.1 ComEd

Table B-1. CY2020 Verified Measure Per Unit Savings Findings for ComEd

End Use Type	Measures	Verified kWh Per unit	Verified kW Per unit	Verified therms Per unit
Hot Water	Showerhead (1.5 GPM) - Single Family	28.718	0.00154	4.446
Hot Water	Showerhead (1.5 GPM) - Multi-Family	18.073	0.00096	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
Consumer Electronics	Advanced Power Strip (Tier 1)	41.200	0.00464	0.000
HVAC	Furnace Filter Alarm - Single Family	6.977	0.00268	1.033
HVAC	Furnace Filter Alarm - Multi-Family	3.032	0.00116	0.306
Lighting	LED Nightlight - Single Family	11.642	0.00000	0.000
Lighting	LED Nightlight - Multi-Family	4.956	0.00000	0.000
Hot Water	Water Heater Temperature Setback Electric - Single Family	0.343	0.00004	0.044
Hot Water	Water Heater Temperature Setback Electric - Multi-Family	0.264	0.00003	-0.010
Hot Water	Shower Timer Install - Single Family	4.022	0.00044	0.586
Hot Water	Shower Timer Install - Multi-Family	1.619	0.00018	0.231
	Total	153.840	0.01803	13.122

Source: ComEd tracking data and Evaluation team analysis

B.1.2 Nicor Gas

Table B-2. CY2020 Verified Measure Per Unit Savings Findings for Nicor Gas

End Use Type	Measures	Verified 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 - Single Family	0.113
Hot Water	Water Heater Temperature Setback Electric - Multi-Family	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 Evaluation team analysis

B.1.3 Peoples Gas

Table B-3. CY2020 Verified Measure Per Unit Savings Findings for Peoples Gas

End Use Type	Measures	Verified 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
HVAC	Furnace Filter Alarm - Single Family	0.662
HVAC	Furnace Filter Alarm - Multi-Family	0.676
Hot Water	Water Heater Temperature Setback Electric - Single Family	0.082
Hot Water	Water Heater Temperature Setback Electric - Multi-Family	0.052
Hot Water	Shower Timer Install - Single Family	0.471
Hot Water	Shower Timer Install - Multi-Family	0.265
	Total	17.906

Source: Peoples Gas tracking data and Evaluation team analysis

B.1.4 North Shore Gas

Table B-4. CY2020 Verified Measure Per Unit Savings Findings for North Shore Gas

End Use Type	Measures	Verified 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
HVAC	Furnace Filter Alarm - Single Family	0.968
HVAC	Furnace Filter Alarm - Multi-Family	0.371
Hot Water	Water Heater Temperature Setback Electric - Single Family	0.111
Hot Water	Water Heater Temperature Setback Electric -Multi-Family	0.024
Hot Water	Shower Timer Install - Single Family	0.970
Hot Water	Shower Timer Install - Multi-Family	0.119
	Total	19.399

Source: North Shore Gas tracking data and Evaluation team analysis

B.2 ComEd Input and Assumption Comparison

Table B-5. Low Flow Showerhead – Custom and Deemed Values Comparison

Guidehouse 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 Single Family	Survey - HCU2	Custom	-
4.84	4.84	Household Multi-Family	Survey - HCU2	Custom	-
0.60	0.60	SPCD	IL TRM 5.4.5	Deemed	-
1.79	1.79	SPH Single Family	IL TRM 5.4.5	Deemed	-
1.30	1.30	SPH Multi-Family	IL TRM 5.4.5	Deemed	-
0.12	0.12	EPG_electric	IL TRM 5.4.5	Deemed	-
0.43	0.43	ISR Single Family	Survey - HA1	Custom	-
0.45	0.45	ISR Multi-Family	Survey - HA1	Custom	-
0.70	0.70	%Single Family	Survey - HCU1	Custom	-
0.30	0.30	%Multi-Family	Survey - HCU1	Custom	-
501.79	501.79	Hours - Single Family	IL TRM 5.4.5	Custom	-
505.42	505.42	Hours - Multi-Family	IL TRM 5.4.5	Custom	-
0.03	0.03	CF	IL TRM 5.4.5	Deemed	-
3,769.59	3,769.59	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 Single Family	IL TRM 5.4.5	Deemed	-
0.01	0.01	EPG_gas Multi-Family	IL TRM 5.4.5	Deemed	-

Source: Evaluation team analysis

Table B-6. Kitchen Aerator – Custom and Deemed Values Comparison

Guidehouse 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 Single Family	Survey - HCU2	Custom	-
4.84	4.84	Household Multi-Family	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 Single Family	Survey - HA2	Custom	-
0.39	0.39	ISR Multi-Family	Survey - HA2	Custom	-
0.70	0.70	%Single Family	Survey - HCU1	Custom	-
0.30	0.30	%Multi-Family	Survey - HCU1	Custom	-
192.32	192.32	Hours - Single Family	IL TRM 5.4.4	Custom	-
193.71	193.71	House - Multi-Family	IL TRM 5.4.4	Custom	-
0.02	0.02	CF	IL TRM 5.4.4	Deemed	-
3,769.59	3,769.59	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 Single Family	IL TRM 5.4.5	Deemed	-
0.0048	0.0048	EPG_gas Multi-Family	IL TRM 5.4.5	Deemed	-

Source: Evaluation team analysis

Table B-7. Bathroom Aerator – Customer and Deemed Values Comparison

Guidehouse 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 Single Family	Survey - HCU2	Custom	-
4.84	4.84	Household Multi-Family	Survey - HCU2	Custom	-
0.90	0.90	DF	IL TRM 5.4.4	Deemed	-
2.83	2.83	BFPH - Single Family	IL TRM 5.4.4	Deemed	-
1.50	1.50	BFPH - Multi-Family	IL TRM 5.4.4	Deemed	-
0.08	0.08	EPG_electric	IL TRM 5.4.4	Deemed	-
0.24	0.24	ISR Single Family - 1	Survey - HA3	Custom	-
0.29	0.29	ISR Multi-Family - 1	Survey - HA3	Custom	-
0.70	0.70	ISR Single Family - 2	Survey - HA3	Custom	-
0.12	0.12	ISR Multi-Family - 2	Survey - HA3	Custom	-
0.70	0.70	%Single Family	Survey - HCU1	Custom	-
0.30	0.30	%Multi-Family	Survey - HCU1	Custom	-
27.19	27.19	Hours - Single Family	IL TRM 5.4.4	Custom	-
51.67	51.67	House - Multi-Family	IL TRM 5.4.4	Custom	-
0.02	0.02	CF	IL TRM 5.4.4	Deemed	-
3,769.59	3,769.59	E_water total	IL TRM 5.4.5	Custom	-
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	-
0.0034	0.0034	EPG_gas Single Family	IL TRM 5.4.5	Deemed	-
0.0040	0.0040	EPG_gas Multi-Family	IL TRM 5.4.5	Deemed	-

Source: Evaluation team analysis

Table B-8. Advanced Power Strip (Tier 1) – Custom and Deemed Values Comparison

Guidehouse Value	ComEd Value	Variable	Source	Deemed/ Custom	Discrepancy?
103.00	NA	kWh	IL TRM 5.2.1	Actual	Yes
0.40	NA	ISR	IL TRM 5.2.1	Deemed	Yes
7,129.00	NA	Hours	IL TRM 5.2.1	Deemed	Yes
0.80	NA	CF	IL TRM 5.2.1	Deemed	Yes

Source: Evaluation team analysis

Table B-9. LED Nightlight – Custom and Deemed Values Comparison

Guidehouse Value	ComEd Value	Variable	Source	Deemed/ Custom	Discrepancy?
7.00	7.00	WattsBase	IL TRM 5.5.11	Deemed	-
0.50	0.50	WattsEE	Specifications	Actual	-
4,380.00	4,380.00	Hours	IL TRM 5.5.1	Deemed	-
1.06	1.06	WHFe - Single Family	IL TRM 5.5.1	Deemed	-
1.04	1.04	WHFe - Multi-Family	IL TRM 5.5.1	Deemed	-
0.00	0.00	Leakage	IL TRM 5.5.11	Actual	-
0.60	0.60	ISR - Single Family 1	Custom - CY2019 Wave 1 Memo	Custom	-
0.60	0.60	ISR - Multi-Family 1	Custom - CY2019 Wave 1 Memo	Custom	-
0.70	0.30	%Single Family	Custom - CY2019 Wave 1 Memo	Custom	Yes
0.30	0.70	%Multi-Family	Custom - CY2019 Wave 1 Memo	Custom	Yes
1.11	1.11	WHFd - Single Family	IL TRM 5.5.11	Deemed	-
1.07	1.07	WHFd - Multi-Family	IL TRM 5.5.11	Deemed	-
0.00	0.00	CF	IL TRM 5.5.11	Deemed	-

Source: Evaluation team analysis

Table B-10. Furnace Filter Alarm – Custom and Deemed Values Comparison

Guidehouse Value	ComEd Value	Variable	Source	Deemed/ Custom	Discrepancy?
1,406.00	1,406.00	EFLH_heat	IL TRM 5.3.18	Deemed	-
364.00	364.00	EFLH_cool	IL TRM 5.3.18	Deemed	-
0.10	0.10	EI -electric	IL TRM 5.3.18	Deemed	-
0.15	0.15	ISR	IL TRM 5.3.18	Deemed	-
0.68	0.68	CF	IL TRM 5.3.18	Deemed	-
0.94	0.94	% Fossil Heat	IL TRM 5.3.18	Deemed	-
955.00	955.00	Gas_Heat_Consumption	IL TRM 5.3.18	Deemed	-
0.70	0.70	%Single Family	Survey - HCU1	Custom	-
0.30	0.30	%Multi-Family	Survey - HCU1	Custom	-
0.01	0.01	EI - gas	IL TRM 5.3.18	Deemed	-

Source: Evaluation team analysis

Table B-11. Water Heater Temperature Setback – Custom and Deemed Values Comparison

Guidehouse 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) Single Family	Survey - HA13and14	Custom	-
3.23	3.23	(Tpre-Tpost) Multi-Family	Survey - HA13and14	Custom	-
8,766.00	8,766.00	Hours	IL TRM 5.4.6	Deemed	-
3,412.00	3,412.00	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 Single Family	Survey - HA12	Custom	-
0.25	0.25	ISR Multi-Family	Survey - HA12	Custom	-
0.20	0.20	%ElectricDHW	Survey - HCU4	Custom	-
0.75	0.75	%GasDHW	Survey - HCU4	Custom	-
0.70	0.70	%Single Family	Survey - HCU1	Custom	-
0.30	0.30	%Multi-Family	Survey - HCU1	Custom	-
100,000.00	100,000.00	Conversion from Btu to therms	IL TRM 5.4.6	Deemed	-
0.78	0.78	RE_gas (Recovery efficiency of gas water heater) - Single Family	IL TRM 5.4.6	Deemed	-
0.67	0.67	RE_gas (Recovery efficiency of gas water heater) - Multi-Family	IL TRM 5.4.6	Deemed	-

Source: Evaluation team analysis

Table B-12. Shower Timer – Custom and Deemed Values Comparison

Guidehouse 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_Multi-Family	Survey - HA1	Custom	-
1.98	1.98	GPM_Single Family	Survey - HA1	Custom	-
7.80	7.80	L_base	IL TRM 5.4.9	Deemed	-
7.45	7.45	L_timer_Multi-Family	Survey - HA9, HA10	Custom	-
2.84	2.84	Household_Multi-Family	Survey - HA8	Custom	-
0.51	0.51	UsageFactor_Multi-Family	Survey - HA7	Custom	-
7.42	7.42	L_timer_Single Family	Survey - HA9, HA10	Custom	-
2.83	2.83	Household_Single Family	Survey - HA8	Custom	-
0.51	0.51	UsageFactor_Single Family	Survey - HA7	Custom	-
0.70	0.70	%Single Family	Survey - HCU1	Custom	-
0.30	0.30	%Multi-Family	Survey - HCU1	Custom	-
248.21	248.21	Hours_Single Family	Survey - HA1, HA8	Custom	-
246.45	246.45	Hours_Multi-Family	Survey - HA1, HA8	Custom	-
0.03	0.03	CF	IL TRM 5.4.9	Deemed	-
365.25	365.25	Days/yr	IL TRM 5.4.9	Deemed	-
0.60	0.60	SPCD	IL TRM 5.4.9	Deemed	-
0.12	0.12	EPG_Electric	IL TRM 5.4.9	Deemed	-
0.0050	0.0050	EPG_gas Single Family	IL TRM 5.4.9	Deemed	-
0.0058	0.0058	EPG_gas Multi-Family	IL TRM 5.4.9	Deemed	-
3,769.59	3,769.59	E_water total	IL TRM 5.4.5	Custom	-

Source: Evaluation team analysis

B.3 Nicor Gas Input and Assumption Comparison

Table B-13. Low Flow Showerhead – Custom and Deemed Values Comparison

Guidehouse 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 Single Family	Survey - HCU2	Custom	-
4.67	4.67	Household Multi-Family	Survey - HCU2	Custom	-
0.60	0.60	SPCD	IL TRM 5.4.5	Deemed	-
1.79	1.79	SPH Single Family	IL TRM 5.4.5	Deemed	-
1.30	1.30	SPH Multi-Family	IL TRM 5.4.5	Deemed	-
0.0050	0.0050	EPG_Gas_Single Family	IL TRM 5.4.5	Deemed	-
0.0058	0.0058	EPG_Gas_Multi-Family	IL TRM 5.4.5	Deemed	-
0.38	0.38	ISR Single Family	Survey - HA1	Custom	-
0.40	0.40	ISR Multi-Family	Survey - HA1	Custom	-
0.78	0.78	%Single Family	Survey - HCU1	Custom	-
0.22	0.22	%Multi-Family	Survey - HCU1	Custom	-

Source: Evaluation team analysis

Table B-14. Kitchen Aerator – Custom and Deemed Values Comparison

Guidehouse 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 Single Family	Survey - HCU2	Custom	-
4.67	4.67	Household Multi-Family	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_Single Family	IL TRM 5.4.4	Deemed	-
0.005	0.005	EPG_Gas_Multi-Family	IL TRM 5.4.4	Deemed	-
0.25	0.25	ISR Single Family	Survey - HA2	Custom	-
0.33	0.33	ISR Multi-Family	Survey - HA2	Custom	-
0.78	0.78	%Single Family	Survey - HCU1	Custom	-
0.22	0.22	%Multi-Family	Survey - HCU1	Custom	-

Source: Evaluation team analysis

Table B-15. Bathroom Aerator – Custom and Deemed Values Comparison

Guidehouse Value	Nicor Gas Value	Variable	Source	Deemed/ Custom Discrepancy?	
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	-
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	-
4.73	4.73	Household Single Family	Survey - HCU2	Custom	-
4.67	4.67	Household Multi-Family	Survey - HCU2	Custom	-
0.90	0.90	DF	IL TRM 5.4.4	Deemed	-
2.83	2.83	BFPH_Single Family	IL TRM 5.4.5	Deemed	-
1.50	1.50	BFPH_Multi-Family	IL TRM 5.4.4	Deemed	-
0.0034	0.0034	EPG_Gas_Single Family	IL TRM 5.4.4	Deemed	-
0.0040	0.0040	EPG_Gas_Multi-Family	IL TRM 5.4.4	Deemed	-
0.21	0.21	ISR Single Family	Survey - HA2	Custom	-
0.23	0.23	ISR Multi-Family	Survey - HA2	Custom	-
0.10	0.10	ISR Single Family - 2	Survey - HA2	Custom	-
0.10	0.10	ISR Multi-Family - 2	Survey - HA2	Custom	-
0.78	0.78	%Single Family	Survey - HCU1	Custom	-
0.22	0.22	%Multi-Family	Survey - HCU1	Custom	-

Source: Evaluation team analysis

Table B-16. Water Heater Temperature Setback – Custom and Deemed Values Comparison

Guidehouse 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) Single Family	Survey - HA13and14	Custom	-
4.65	4.65	(Tpre-Tpost) Multi-Family	Survey - HA13and15	Custom	-
8,766.00	8,766.00	Hours	IL TRM 5.4.6	Deemed	-
3,412.00	3,412.00	Conversion from Btu to kWh	IL TRM 5.4.6	Deemed	-
0.78	0.78	RE_gas_Single Family	IL TRM 5.4.6	Deemed	-
0.67	0.67	RE_gas_Multi-Family	IL TRM 5.4.6	Deemed	-
0.13	0.13	ISR Single Family	Survey - HA12	Custom	-
0.21	0.21	ISR Multi-Family	Survey - HA12	Custom	-
0.78	0.78	%Single Family	Survey - HCU1	Custom	-
0.22	0.22	%Multi-Family	Survey - HCU1	Custom	-
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	-

Source: Evaluation team analysis

Table B-17. Shower Timer – Custom and Deemed Values Comparison

Guidehouse Value	Nicor Gas Value	Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	-
2.03	2.03	GPM_Single Family	Survey - HA1	Custom	-
2.01	2.01	GPM_Multi-Family	Survey - HA1	Custom	-
7.80	7.80	L_base	IL TRM 5.4.9	Deemed	-
7.26	7.26	L_timer_Single Family	Survey - HA9, HA10	Custom	-
2.55	2.55	Household_Single Family	Survey - HA8	Custom	-
0.49	0.49	UsageFactor_Single Family	Survey - HA7	Custom	-
7.20	7.20	L_timer_Multi-Family	Survey - HA9, HA10	Custom	-
2.79	2.79	Household_Multi-Family	Survey - HA8	Custom	-
0.49	0.49	UsageFactor_Multi-Family	Survey - HA7	Custom	-
0.78	0.78	%Single Family	Survey - HCU3	Custom	-
0.22	0.22	%Multi-Family	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_Single Family	IL TRM 5.4.9	Deemed	-
0.01	0.01	EPG_Gas_Multi-Family	IL TRM 5.4.9	Deemed	-

Source: Evaluation team analysis

B.4 Peoples Gas Input and Assumption Comparison

Table B-18. Low Flow Showerhead – Custom and Deemed Values Comparison

Guidehouse 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 Single Family	Survey - HCU2	Custom	Yes
4.95	4.99 Household Multi-Family	Survey - HCU2	Custom	Yes
0.60	0.60 SPCD	IL TRM 5.4.5	Deemed	-
1.79	1.79 SPH Single Family	IL TRM 5.4.5	Deemed	-
1.30	1.30 S PH Multi-Family	IL TRM 5.4.5	Deemed	-
0.00501	0.00501 EPG_Gas_Single Family	IL TRM 5.4.5	Deemed	-
0.00583	0.00583 EPG_Gas_Multi-Family	IL TRM 5.4.5	Deemed	-
0.44	0.46 ISR Single Family	Survey - HA1	Custom	Yes
0.49	0.53 ISR Multi-Family	Survey - HA1	Custom	Yes
0.49	0.52 %Single Family	Survey - HCU1	Custom	Yes
0.50	0.48 %Multi-Family	Survey - HCU1	Custom	Yes

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

Source: Evaluation team analysis

Table B-19. Kitchen Aerator – Custom and Deemed Values Comparison

Guidehouse 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 Single Family	Survey - HCU2	Custom	Yes
4.95	4.99 Household Multi-Family	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_Single Family	IL TRM 5.4.4	Deemed	-
0.00484	0.00484 EPG_Gas_Multi-Family	IL TRM 5.4.4	Deemed	-
0.32	0.30 ISR Single Family	Survey - HA2	Custom	Yes
0.42	0.39 ISR Multi-Family	Survey - HA2	Custom	Yes
0.49	0.52 %Single Family	Survey - HCU1	Custom	Yes
0.50	0.48 %Multi-Family	Survey - HCU1	Custom	Yes

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

Source: Evaluation team analysis

Table B-20. Bathroom Aerator – Custom and Deemed Values Comparison

Guidehouse 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 Single Family	Survey - HCU2	Custom	Yes
4.95	4.99 Household Multi-Family	Survey - HCU2	Custom	Yes
0.90	0.90 DF	IL TRM 5.4.4	Deemed	-
2.83	2.83 BFPH_Single Family	IL TRM 5.4.4	Deemed	-
1.50	1.50 BFPH_Multi-Family	IL TRM 5.4.4	Deemed	-
0.00341	0.00341 EPG_Gas_Single Family	IL TRM 5.4.4	Deemed	-
0.00397	0.00397 EPG_Gas_Multi-Family	IL TRM 5.4.4	Deemed	-
0.27	0.25 ISR Single Family	Survey - HA2	Custom	Yes
0.30	0.29 ISR Multi-Family	Survey - HA2	Custom	Yes
0.12	0.12 ISR Single Family - 2	Survey - HA2	Custom	Yes*
0.12	0.15 ISR Multi-Family - 2	Survey - HA2	Custom	Yes
0.49	0.52 %Single Family	Survey - HCU1	Custom	Yes
0.50	0.48 %Multi-Family	Survey - HCU1	Custom	Yes

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

Source: Evaluation team analysis

Table B-21. Water Heater Temperature Setback – Custom and Deemed Values Comparison

Guidehouse Value	PGL 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	-
4.81	5.95 (Tpre-Tpost) Single Family	Survey - HA13and14	Custom	Yes
2.16	5.69 (Tpre-Tpost) Multi-Family	Survey - HA13and15	Custom	Yes
8,766.00	8,766.00 Hours	IL TRM 5.4.6	Deemed	-
3412	3412 Conversion from Btu to kWh	IL TRM 5.4.6	Deemed	-
0.78	0.78 RE_gas_Single Family	IL TRM 5.4.6	Deemed	-
0.67	0.67 RE_gas_Multi-Family	IL TRM 5.4.6	Deemed	-
0.20	0.24 ISR Single Family	Survey - HA12	Custom	Yes
0.24	0.33 ISR Multi-Family	Survey - HA12	Custom	Yes
0.49	0.52 %Single Family	Survey - HCU1	Custom	Yes
0.50	0.48 %Multi-Family	Survey - HCU1	Custom	Yes
0.75	0.75 %FossilDHW	Survey - HCU4	Custom	Yes*

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

Source: Evaluation team analysis

Table B-22. Shower Timer – Custom and Deemed Values Comparison

Guidehouse Value	PGL Value	Variable	Source	Deemed/ Custom Discrepancy?	
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	Yes*
1.98	1.96	GPM_Single Family	Survey - HA1	Custom	Yes
1.93	1.90	GPM_Multi-Family	Survey - HA1	Custom	Yes
7.80	7.80	L_base	IL TRM 5.4.9	Deemed	-
7.42	7.37	L_timer_Single Family	Survey - HA9, HA10	Custom	Yes
2.96	3.07	Household_Single Family	Survey - HA8	Custom	Yes
0.52	0.52	UsageFactor_Single Family	Survey - HA7	Custom	Yes*
7.61	7.45	L_timer_Multi-Family	Survey - HA9, HA10	Custom	Yes
2.90	3.13	Household_Multi-Family	Survey - HA8	Custom	Yes
0.52	0.53	UsageFactor_Multi-Family	Survey - HA7	Custom	Yes
0.49	0.52	%Single Family	Survey - HCU3	Custom	Yes
0.50	0.48	%Multi-Family	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_Single Family	IL TRM 5.4.9	Deemed	-
0.0058	0.0058	EPG_Gas_Multi-Family	IL TRM 5.4.9	Deemed	-

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

Source: Evaluation team analysis

Table B-23. Furnace Filter Alarm – Custom and Deemed Values Comparison

Guidehouse Value	PGL Value	Variable	Source	Deemed/ Custom Discrepancy?	
1,406.00	NR	EFLH_heat	IL TRM 5.3.18	Deemed	Yes
364.00	NR	EFLH_cool	IL TRM 5.3.18	Deemed	Yes
0.10	NR	EI -electric	IL TRM 5.3.18	Deemed	Yes
0.15	NR	ISR	IL TRM 5.3.18	Deemed	Yes
0.68	NR	CF	IL TRM 5.3.18	Deemed	Yes
0.94	NR	% Fossil Heat	IL TRM 5.3.18	Deemed	Yes
955.00	NR	Gas_Heat_Consumption	IL TRM 5.3.18	Deemed	Yes
0.49	NR	%Single Family	Survey - HCU1	Custom	Yes
0.50	NR	%Multi-Family	Survey - HCU1	Custom	Yes
0.01	NR	EI - gas	IL TRM 5.3.18	Deemed	Yes

Source: Evaluation team analysis

B.5 North Shore Gas Input and Assumption Comparison

Table B-24. Low Flow Showerhead – Custom and Deemed Values Comparison

Guidehouse Value	NSG 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	-
4.87	4.71	Household Single Family	Survey - HCU2	Custom	Yes
4.78	4.58	Household Multi-Family	Survey - HCU2	Custom	Yes
0.60	0.60	SPCD	IL TRM 5.4.5	Deemed	-
1.79	1.79	SPH Single Family	IL TRM 5.4.5	Deemed	-
1.30	1.30	S PH Multi-Family	IL TRM 5.4.5	Deemed	-
0.00501	0.00501	EPG_Gas_Single Family	IL TRM 5.4.5	Deemed	-
0.00583	0.00583	EPG_Gas_Multi-Family	IL TRM 5.4.5	Deemed	-
0.65	0.67	ISR Single Family	Survey - HA1	Custom	Yes
0.58	0.59	ISR Multi-Family	Survey - HA1	Custom	Yes
0.72	0.74	%Single Family	Survey - HCU1	Custom	Yes
0.28	0.26	%Multi-Family	Survey - HCU1	Custom	Yes

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

Source: Evaluation team analysis

Table B-25. Kitchen Aerator – Custom and Deemed Values Comparison

Guidehouse Value	NSG 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	-
4.50	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	-
4.87	4.71	Household Single Family	Survey - HCU2	Custom	Yes
4.78	4.58	Household Multi-Family	Survey - HCU2	Custom	Yes
0.75	0.75	DF	IL TRM 5.4.4	Deemed	-
1.00	1.00	KFPH	IL TRM 5.4.4	Deemed	-
0.00415	0.00415	EPG_Gas_Single Family	IL TRM 5.4.4	Deemed	-
0.00484	0.00484	EPG_Gas_Multi-Family	IL TRM 5.4.4	Deemed	-
0.38	0.37	ISR Single Family	Survey - HA2	Custom	Yes
0.38	0.40	ISR Multi-Family	Survey - HA2	Custom	Yes
0.72	0.74	%Single Family	Survey - HCU1	Custom	Yes
0.28	0.26	%Multi-Family	Survey - HCU1	Custom	Yes

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

Source: Evaluation team analysis

Table B-26. Bathroom Aerator – Custom and Deemed Values Comparison

Guidehouse Value	NSG 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	-
4.87	4.71	Household Single Family	Survey - HCU2	Custom	Yes
4.78	4.58	Household Multi-Family	Survey - HCU2	Custom	Yes
0.90	0.90	DF	IL TRM 5.4.4	Deemed	-
2.83	2.83	BFPH_Single Family	IL TRM 5.4.4	Deemed	-
1.50	1.50	BFPH_Multi-Family	IL TRM 5.4.4	Deemed	-
0.003	0.003	EPG_Gas_Single Family	IL TRM 5.4.4	Deemed	-
0.004	0.004	EPG_Gas_Multi-Family	IL TRM 5.4.4	Deemed	-
0.31	0.28	ISR Single Family	Survey - HA2	Custom	Yes
0.31	0.24	ISR Multi-Family	Survey - HA2	Custom	Yes
0.17	0.20	ISR Single Family - 2	Survey - HA2	Custom	Yes
0.13	0.24	ISR Multi-Family - 2	Survey - HA2	Custom	Yes
0.72	0.74	%Single Family	Survey - HCU1	Custom	Yes
0.28	0.26	%Multi-Family	Survey - HCU1	Custom	Yes

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

Source: Evaluation team analysis

Table B-27. Water Heater Temperature Setback – Custom and Deemed Values Comparison

Guidehouse Value	NSG 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	-
4.81	5.95	(Tpre-Tpost) Single Family	Survey - HA13and14	Custom	Yes
2.16	5.69	(Tpre-Tpost) Multi-Family	Survey - HA13and15	Custom	Yes
8,766.00	8,766.00	Hours	IL TRM 5.4.6	Deemed	-
3,412.00	3,412.00	Conversion from Btu to kWh	IL TRM 5.4.6	Deemed	-
0.78	0.78	RE_gas_Single Family	IL TRM 5.4.6	Deemed	-
0.67	0.67	RE_gas_Multi-Family	IL TRM 5.4.6	Deemed	-
0.18	0.22	ISR Single Family	Survey - HA12	Custom	Yes
0.20	0.28	ISR Multi-Family	Survey - HA12	Custom	Yes
0.72	0.74	%Single Family	Survey - HCU1	Custom	Yes
0.28	0.26	%Multi-Family	Survey - HCU1	Custom	Yes
0.75	0.75	%FossilDHW	Survey - HCU4	Custom	Yes*

Source: Evaluation team analysis

Table B-28. Shower Timer – Custom and Deemed Values Comparison

Guidehouse Value	NSG Value Variable	Source	Deemed/ Custom	Discrepancy?
0.75	0.75 %FossilDHW	Survey - HCU4	Custom	Yes*
1.80	1.78 GPM_Single Family	Survey - HA1	Custom	Yes
1.86	1.85 GPM_Multi-Family	Survey - HA1	Custom	Yes
7.80	7.80 L_base	IL TRM 5.4.9	Deemed	-
7.19	7.37 L_timer_Single Family	Survey - HA9, HA10	Custom	Yes
2.93	3.07 Household_Single Family	Survey - HA8	Custom	Yes
0.51	0.52 UsageFactor_Single Family	Survey - HA7	Custom	Yes
7.65	7.45 L_timer_Multi-Family	Survey - HA9, HA10	Custom	Yes
2.72	3.13 Household_Multi-Family	Survey - HA8	Custom	Yes
0.61	0.53 UsageFactor_Multi-Family	Survey - HA7	Custom	Yes
0.72	0.74 %Single Family	Survey - HCU3	Custom	Yes
0.28	0.26 %Multi-Family	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	-
0.0050	0.0050 EPG_Gas_Single Family	IL TRM 5.4.9	Deemed	-
0.0058	0.0058 EPG_Gas_Multi-Family	IL TRM 5.4.9	Deemed	-

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

Source: Evaluation team analysis

Table B-29. Furnace Filter Alarm – Custom and Deemed Values Comparison

Guidehouse Value	NSG Value Variable	Source	Deemed/ Custom	Discrepancy?
1,406.00	NR EFLH_heat	IL TRM 5.3.18	Deemed	Yes
364.00	NR EFLH_cool	IL TRM 5.3.18	Deemed	Yes
0.10	NR EI -electric	IL TRM 5.3.18	Deemed	Yes
0.15	NR ISR	IL TRM 5.3.18	Deemed	Yes
0.68	NR CF	IL TRM 5.3.18	Deemed	Yes
0.94	NR % Fossil Heat	IL TRM 5.3.18	Deemed	Yes
955.00	NR Gas_Heat_Consumption	IL TRM 5.3.18	Deemed	Yes
0.72	NR %Single Family	Survey - HCU1	Custom	Yes
0.28	NR %Multi-Family	Survey - HCU1	Custom	Yes
0.01	NR EI - gas	IL TRM 5.3.18	Deemed	Yes

Source: Evaluation team analysis

Appendix C. Total Resource Cost Detail

Table C-1 shows the 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 C-1. Total Resource Cost Savings Summary

End Use Type	Research Category	Units	Quantity	EUL (years)*	ER Flag†	Gross Electric Savings (kWh)	Gross Peak Demand Reduction (kW)	Gross Gas Savings (Therms)	Gross Secondary Water Reduction (kWh)	Gross Heating Penalty (kWh)‡	Gross Heating Penalty (Therms)	NTG (kWh)	NTG (kW)	NTG (Therms)	Net Electric Energy Savings (kWh)	Net Peak Demand Reduction (kW)	Net Gas Savings (Therms)	Net Secondary Savings due to Water Reduction (kWh)	Net Heating Penalty (kWh)	Net Heating Penalty (Therms)
Consumer Electronics	Advanced Power Strip (Tier 1)	Each	21,150	7.0	No	871,380	98.14	0	0	0	0	1.00	1.00	1.00	871,380	98.14	0	0	0	0
Hot Water	Showerhead (1.5 GPM) - Single Family	Each	21,150	10.0	No	588,420	32.60	10,976	18,958	0	0	1.00	1.00	1.00	588,420	32.60	10,976	18,958	0	0
Hot Water	Showerhead (1.5 GPM) - Multi-Family	Each	21,150	10.0	No	370,319	20.37	4,795	11,931	0	0	1.00	1.00	1.00	370,319	20.37	4,795	11,931	0	0
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	Each	21,150	10.0	No	359,719	41.15	6,177	13,994	0	0	1.00	1.00	1.00	359,719	41.15	6,177	13,994	0	0
Lighting	LED Nightlight - Single Family	Each	21,150	8.0	No	246,235	0.00	0	0	-20,720	-4,056	1.00	1.00	1.00	246,235	0.00	0	0	-20,720	-4,056
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	Each	21,150	10.0	No	198,369	22.53	3,050	7,717	0	0	1.00	1.00	1.00	198,369	22.53	3,050	7,717	0	0
Lighting	LED Nightlight - Multi-Family	Each	21,150	8.0	No	104,813	0.00	0	0	-9,004	-1,760	1.00	1.00	1.00	104,813	0.00	0	0	-9,004	-1,760
Hot Water	Shower Timer Install - Single Family	Each	21,150	2.0	No	82,401	9.23	1,446	2,655	0	0	1.00	1.00	1.00	82,401	9.23	1,446	2,655	0	0
HVAC	Furnace Filter Alarm - Single Family	Each	9,287	3.0	No	64,799	24.89	2,552	0	0	0	1.00	1.00	1.00	64,799	24.89	2,552	0	0	0
Hot Water	Shower Timer Install - Multi-Family	Each	21,150	2.0	No	33,175	3.74	569	1,069	0	0	1.00	1.00	1.00	33,175	3.74	569	1,069	0	0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	Each	21,150	10.0	No	29,876	24.17	626	1,417	0	0	1.00	1.00	1.00	29,876	24.17	626	1,417	0	0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	Each	21,150	10.0	No	29,751	24.07	510	1,411	0	0	1.00	1.00	1.00	29,751	24.07	510	1,411	0	0
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	Each	21,150	10.0	No	29,351	12.50	511	1,392	0	0	1.00	1.00	1.00	29,351	12.50	511	1,392	0	0
HVAC	Furnace Filter Alarm - Multi-Family	Each	9,287	3.0	No	28,158	10.82	755	0	0	0	1.00	1.00	1.00	28,158	10.82	755	0	0	0
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	Each	21,150	10.0	No	23,707	10.09	348	1,124	0	0	1.00	1.00	1.00	23,707	10.09	348	1,124	0	0
Hot Water	Water Heater Temperature Setback Electric - Single Family	Each	21,150	2.0	No	7,255	0.83	109	0	0	0	1.00	1.00	1.00	7,255	0.83	109	0	0	0
Hot Water	Water Heater Temperature Setback Electric - Multi-Family	Each	21,150	2.0	No	5,580	0.64	-24	0	0	0	1.00	1.00	1.00	5,580	0.64	-24	0	0	0
Carryover	CY2018 and CY2019 Carryover†			10.0	No	1,999,176	263.85	NA	0	0	0	0.91	0.91	0.91	1,817,650	239.90	0	0	0	0
	Total			9.0		5,072,484	600	32,399	61,667	-29,724	-5,816	NA	NA	NA	4,890,958	576	32,399	61,667	-29,724	-5,816

Note: To avoid double counting, the verified gross kWh and net kWh used in the TRC analysis exclude 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 kWh savings account for electric heating penalties, where applicable. The electric heating penalties columns show the magnitude of adjustments applied to the program savings. Gas heating penalties represent the program therms heating penalties. The therms penalties are not required to be applied to the program savings.

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

Source: ComEd tracking data and evaluation team analysis

Table C-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‡	Verified Net Savings (Therms)
Hot Water	Showerhead (1.5 GPM) - Single Family	Each	13,257	10.0	No	55,667	55,667	1.00	55,667
Hot Water	Showerhead (1.5 GPM) - Multi-Family	Each	13,257	10.0	No	26,564	26,564	1.00	26,564
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	Each	13,257	10.0	No	31,897	31,897	1.00	31,897
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	Each	13,257	10.0	No	13,979	13,979	1.00	13,979
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	Each	13,257	10.0	No	2,887	2,887	1.00	2,887
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	Each	13,257	10.0	No	1,969	1,969	1.00	1,969
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	Each	13,257	10.0	No	2,779	2,779	1.00	2,779
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	Each	13,257	10.0	No	1,721	1,721	1.00	1,721
Hot Water	Water Heater Temperature SetBack Gas - Single Family	Each	13,257	2.0	No	1,500	1,500	1.00	1,500
Hot Water	Water Heater Temperature SetBack Gas - Multi-Family	Each	13,257	2.0	No	568	568	1.00	568
Hot Water	Shower Timer Install - Single Family	Each	13,257	2.0	No	11,546	11,546	1.00	11,546
Hot Water	Shower Timer Install - Multi-Family	Each	13,257	2.0	No	4,630	4,630	1.00	4,630
				9.1		155,708	155,708		155,708

* 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.

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

Source: Evaluation team analysis of tracking data

Table C-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‡	Verified Net Savings (Therms)
Hot Water	Showerhead (1.5 GPM) - Single Family	Each	6,113	10.0	No	21,808	20,070	1.00	20,070
Hot Water	Showerhead (1.5 GPM) - Multi-Family	Each	6,113	10.0	No	36,758	36,607	1.00	36,607
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	Each	6,113	10.0	No	8,005	12,499	1.00	12,499
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	Each	6,113	10.0	No	11,182	19,572	1.00	19,572
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	Each	6,113	10.0	No	836	1,146	1.00	1,146
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	Each	6,113	10.0	No	1,925	2,812	1.00	2,812
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	Each	6,113	10.0	No	814	966	1.00	966
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	Each	6,113	10.0	No	1,990	2,285	1.00	2,285
HVAC	Furnace Filter Alarm - Single Family	Each	6,113	3.0	No	NR	4,050	1.00	4,050
HVAC	Furnace Filter Alarm - Multi-Family	Each	6,113	3.0	No	NR	4,132	1.00	4,132
Hot Water	Water Heater Temperature SetBack Gas - Single Family	Each	6,113	2.0	No	781	504	1.00	504
Hot Water	Water Heater Temperature SetBack Gas - Multi-Family	Each	6,113	2.0	No	1,089	317	1.00	317
Hot Water	Shower Timer Install - Single Family	Each	6,113	2.0	No	3,441	2,878	1.00	2,878
Hot Water	Shower Timer Install - Multi-Family	Each	6,113	2.0	No	2,963	1,622	1.00	1,622
				9.1		91,593	109,459		109,459

* 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.

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

Source: Evaluation team analysis of tracking data

Table C-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‡	Verified Net Savings (Therms)
Hot Water	Showerhead (1.5 GPM) - Single Family	Each	705	10.0	No	5,066	4,884	1.00	4,884
Hot Water	Showerhead (1.5 GPM) - Multi-Family	Each	705	10.0	No	2,419	2,632	1.00	2,632
Hot Water	Kitchen Aerator (1.5 GPM) - Single Family	Each	705	10.0	No	1,579	2,500	1.00	2,500
Hot Water	Kitchen Aerator (1.5 GPM) - Multi-Family	Each	705	10.0	No	673	1,077	1.00	1,077
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Single Family	Each	705	10.0	No	149	212	1.00	212
Hot Water	Bathroom Aerator (1.0 GPM) Installed one - Multi-Family	Each	705	10.0	No	93	176	1.00	176
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Single Family	Each	705	10.0	No	206	241	1.00	241
Hot Water	Bathroom Aerator (1.0 GPM) Installed Both - Multi-Family	Each	705	10.0	No	186	147	1.00	147
HVAC	Furnace Filter Alarm - Single Family	Each	705	3.0	No	NR	683	1.00	683
HVAC	Furnace Filter Alarm - Multi-Family	Each	705	3.0	No	NR	262	1.00	262
Hot Water	Water Heater Temperature SetBack Gas - Single Family	Each	705	2.0	No	122	78	1.00	78
Hot Water	Water Heater Temperature SetBack Gas - Multi-Family	Each	705	2.0	No	59	17	1.00	17
Hot Water	Shower Timer Install - Single Family	Each	705	2.0	No	528	684	1.00	684
Hot Water	Shower Timer Install - Multi-Family	Each	705	2.0	No	187	84	1.00	84
				9.0		11,268	13,676		13,676

* 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.

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

Source: Evaluation team analysis of tracking data