

# ComEd Small Business Kits Impact Evaluation Report

Energy Efficiency/Demand Response Plan:  
Program Year 2021 (CY2021)  
(1/1/2021-12/31/2021)

Prepared for:

ComEd

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## Table of Contents

<b>1. Introduction .....</b>	<b>1</b>
<b>2. Program Description .....</b>	<b>2</b>
<b>3. Program Savings Detail .....</b>	<b>4</b>
<b>4. Cumulative Persisting Annual Savings .....</b>	<b>5</b>
<b>5. Program Savings by Measure .....</b>	<b>13</b>
<b>6. Impact Analysis Findings and Recommendations .....</b>	<b>20</b>
6.1 Installation Rates .....	20
6.2 Hot Water and Facility Heating Fuel Splits .....	21
6.3 Parameter Adjustments .....	22
6.4 Tracking Data .....	23
<b>Appendix A. Impact Analysis Methodology .....</b>	<b>A-1</b>
<b>Appendix B. Impact Findings Detailed Results .....</b>	<b>B-1</b>
B.1 CY2021 Carryover Savings Estimates .....	B-1
B.2 CY2022 Carryover Savings Estimates .....	B-2
B.3 Detailed Parameter Comparison .....	B-3
<b>Appendix C. Total Resource Cost Detail .....</b>	<b>C-1</b>

## List of Tables and Figures

Figure 2-1. Share of Measures Distributed by Type .....	3
Figure 4-1. Cumulative Persisting Annual Savings .....	12
Figure 5-1. Verified Net Savings by End Use Type – Electric .....	14
Table 2-1. Number of Participants and Projects .....	2
Table 2-2. Number of Measures by Type .....	3
Table 3-1. Total Annual Incremental Electric Savings .....	4
Table 4-1. Cumulative Persisting Annual Savings – Electric .....	6
Table 4-2. Cumulative Persisting Annual Savings – Gas .....	8
Table 4-3. Cumulative Persisting Annual Savings – Total .....	10
Table 5-1. Number of Measures by Type .....	14
Table 5-2. Energy Savings by Measure – Electric .....	15
Table 5-3. Summer Peak Demand Savings by Measure .....	16
Table 5-4. Secondary Energy Savings from Water Reduction by Measure – Electric .....	17
Table 5-5. Energy Savings by Measure – Gas .....	18
Table 5-6. Energy Savings by Measure – Total .....	19
Table 6-1. End Use-Level Savings and Realization Rates .....	20
Table 6-2. Kit Type Savings and Realization Rate .....	20
Table 6-3. ISR Comparison CY2021 Verified vs CY2021 Ex Ante .....	21

Table A-1. Savings Parameters .....	A-1
Table B-1. CY2021 Carryover Savings Estimate .....	B-2
Table B-2. CY2022 Carryover Savings Estimate .....	B-3
Table B-3. 8W BR30 Custom and Deemed Values Comparison .....	B-4
Table B-4. 14W PAR30 Custom and Deemed Values Comparison .....	B-5
Table B-5. 5W Candelabra Custom and Deemed Values Comparison .....	B-6
Table B-6. Bathroom Aerator Custom and Deemed Values Comparison .....	B-7
Table B-7. Kitchen Aerator Custom and Deemed Values Comparison .....	B-9
Table B-8. Pre-Rinse Spray Valve Custom and Deemed Values Comparison .....	B-10
Table B-9. Low Flow Showerhead Custom and Deemed Values Comparison .....	B-11
Table B-10. Smart Socket Custom and Deemed Values Comparison .....	B-12
Table C-1. Total Resource Cost Savings Summary .....	C-1

## 1. Introduction

This report presents the results of the impact evaluation of the CY2021 Small Business Kits 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) analysis inputs. CY2021 covers January 1, 2021 through December 31, 2021.

## 2. Program Description

The ComEd Small Business Kits Program aims to cost-effectively capture electric savings in small commercial facilities by targeting small businesses, public offices, restaurants, and fire stations (the office kit was removed from the 2020 program and the fire station kit was added). Facilities eligible for the general-private kit included but were not limited to retail stores, warehouses, convenience stores, and low-rise offices. General-public kit recipients included park districts, libraries, learning institutions, and local government offices. Restaurant kit recipients included sit-down and fast-food restaurants. Only local fire stations were eligible to receive a fire station kit. This is an opt-in program where customers must request an energy efficiency kit that includes self-install measures.

To participate in the program, the ComEd customer must have a peak electric load of 100 kW or less and take delivery from ComEd regardless of their choice of electric supplier. The customer cannot have participated in the current ComEd Small Business Program.

Franklin Energy was responsible for implementing the program and delivered kits to small business customers by direct mail. Customers can request a kit via telephone call, utility website, or email. Most of the kit orders were received by outbound calling. The kits contain products selected for the specific business types and detailed installation instructions. A Franklin Energy representative followed up with a random sample of customers within 8 weeks of energy kit receipt to verify that the customer received the kit, confirm what measures were installed and what measures the customer plans to install, and answer any questions about the measures or program. ComEd staff followed up with a random sample of customers via email to determine customer satisfaction with the products and program.

Table 2-1 shows the program had 7,244 participants and distributed 8,324 kits in CY2021. Guidehouse determined the number of participants by a count of unique business names that received kits. While some businesses received multiple kits, Guidehouse confirmed all kits were sent to an address serviced by a unique electric account.

**Table 2-1. Number of Participants and Projects**

Participation	Fire Station	General Kit – Private	General Kit – Public	Restaurant	Total
Total Customers	87	5,468	357	1,332	7,244
Total Kits	102	6,349	428	1,445	8,324

*Source: ComEd tracking data and evaluation team analysis*

The program offers a variety of measures including lighting (BR30, PAR30, and candelabra lamps), hot water (bathroom and kitchen aerators, pre-rinse spray valves, and low flow showerheads), and consumer electronics (smart sockets). As Table 2-2 and Figure 2-1 show, 74,916 measures were distributed in CY2021.

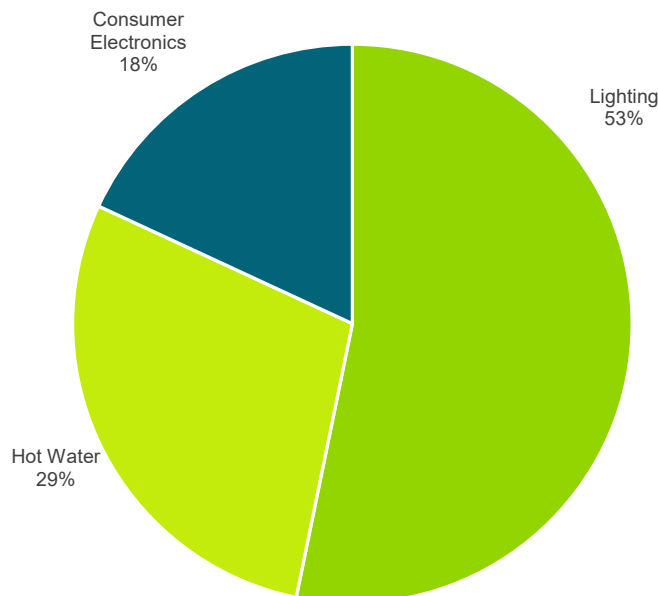
**Table 2-2. Number of Measures by Type**

End Use Type	Research Category	Quantity	Unit
Hot Water	Pre-rinse Spray Valve - Restaurant	1,445	each
Lighting	BR30 LED 8 W - General Kit - Private	19,047	lamp
Lighting	PAR30 LED 14 W - Restaurant	2,890	lamp
Lighting	PAR30 LED 14 W - General Kit - Private	12,698	lamp
Hot Water	Kitchen Aerator - Low Flow - Restaurant	2,890	each
Lighting	Candelabra 5W - Restaurant	2,890	lamp
Hot Water	Bath Aerator - Low Flow - Restaurant	2,890	each
Consumer Electronics	Smart Socket - General Kit - Private	12,698	each
Hot Water	Bath Aerator - Low Flow - General Kit - Private	12,698	each
Lighting	BR30 LED 8 W - General Kit - Public	1,284	lamp
Lighting	PAR30 LED 14 W - General Kit - Public	856	lamp
Hot Water	Showerhead - Low Flow - Fire Station	204	each
Lighting	PAR30 LED 14 W - Fire Station	204	lamp
Hot Water	Pre-rinse Spray Valve - Fire Station	102	each
Hot Water	Bath Aerator - Low Flow - General Kit - Public	856	each
Consumer Electronics	Smart Socket - General Kit - Public	856	each
Hot Water	Bath Aerator - Low Flow - Fire Station	204	each
Hot Water	Kitchen Aerator - Low Flow - Fire Station	204	each
<b>Total</b>		<b>74,916</b>	

Note: Measures sorted by verified net savings.

Source: ComEd tracking data and evaluation team analysis

**Figure 2-1. Share of Measures Distributed by Type**



Source: ComEd tracking data and evaluation team analysis

### 3. Program Savings Detail

Table 3-1 summarizes the incremental energy and demand savings the Small Business Kits Program achieved in CY2021. The gas savings are only those that ComEd may be able to claim, which excludes savings the gas utilities claim, either via joint or non-joint programs.<sup>1</sup>

**Table 3-1. Total Annual Incremental Electric Savings**

Savings Category	Units	Ex Ante Gross Savings*	Program Gross Realization Rate	Verified Gross Savings*	Program Net-to-Gross Ratio (NTG)	CY2019 Net Carryover Savings	CY2020 Net Carryover Savings	Verified Net Savings†
Electric Energy Savings - Direct	kWh	7,515,681	0.62	4,691,293	0.97	195,237	1,207,524	5,953,315
Electric Energy Savings - Converted from Gas‡	kWh	2,077,576	2.78	5,782,830	0.97	N/A	N/A	5,609,345
Total Electric Energy Savings	kWh	9,593,257	1.09	10,474,123	0.97	195,237	1,207,524	11,562,660
Summer Peak§ Demand Savings	kW	1,478	0.50	735	0.97	158	306	1,176

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

\* Ex ante and verified gross savings exclude gross carryover savings from CY2019 and CY2020.

† The “Verified Net Savings” in row one (Electric Energy Savings – Direct) include primary kWh savings as a result of measure implementation. It also includes carryover savings from CY2019 and CY2020, secondary kWh savings from waste water treatment, and electric heating penalties..

‡ Gas savings are 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 will determine which gas savings will be converted to kWh and counted toward ComEd’s electric savings goal while producing the portfolio-wide Summary Report. According to Section 8-103B(b-25) of the Illinois Public Utilities Act, “In no event shall more than 10% of each year’s applicable annual incremental goal as defined in paragraph (7) of subsection (g) of this Section be met through savings of fuels other than electricity.”

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

Source: ComEd tracking data and evaluation team analysis

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



## 4. Cumulative Persisting Annual Savings

Table 4-1 to Table 4-3 and Figure 4-1 show the measure-specific and total verified gross savings for the Small Business Kits Program and the cumulative persisting annual savings (CPAS) for the measures installed in CY2021. The electric CPAS across all measures installed in 2021 is shown in Table 4-1. The CY2021 gas contribution to CPAS (converted to equivalent electricity) is shown in Table 4-2. The combined savings are shown in Table 4-3. The historic rows in each table are the CPAS contribution back to CY2018. The Program Total Electric CPAS and the Program Total Gas CPAS rows are the sum of the CY2021 contribution and the historic contribution. Figure 4-1 shows the savings across the effective useful life (EUL) of the measures.

The ex ante savings did not include an estimate for carryover savings from light bulbs that were distributed in CY2019 and CY2020 but were installed in CY2021. The Guidehouse team included carryover for CY2019 and CY2020 in CY2021 in Table 4-1 through Table 4-3.

**Table 4-1. Cumulative Persisting Annual Savings – Electric**

End Use Type	Research Category	EUL	CY2021 Verified Gross Savings (kWh)	NTG*	Lifetime Net Savings (kWh)†	Verified Net kWh Savings								
						2018	2019	2020	2021	2022	2023	2024	2025	2026
Hot Water	Pre-rinse Spray Valve - Restaurant	5.0	1,341,234	0.97	6,504,985				1,300,997	1,300,997	1,300,997	1,300,997	1,300,997	
Lighting	BR30 LED 8 W - General Kit - Private	8.5	1,110,041	0.97	7,279,493				1,076,740	1,076,740	1,076,740	1,076,740	666,024	666,024
Lighting	PAR30 LED 14 W - Restaurant	5.2	702,932	0.97	3,244,347				681,844	681,844	681,844	681,844	421,759	95,213
Lighting	PAR30 LED 14 W - General Kit - Private	8.5	668,120	0.97	4,381,436				648,076	648,076	648,076	648,076	400,872	400,872
Hot Water	Kitchen Aerator - Low Flow - Restaurant	10.0	241,861	0.97	2,346,054				234,605	234,605	234,605	234,605	234,605	234,605
Lighting	Candelabra 5W - Restaurant	3.6	221,543	0.97	763,637				214,896	214,896	214,896		118,948	
Hot Water	Bath Aerator - Low Flow - Restaurant	10.0	179,395	0.97	1,740,134				174,013	174,013	174,013	174,013	174,013	174,013
Consumer Electronics	Smart Socket - General Kit - Private	7.0	69,507	0.97	471,953				67,422	67,422	67,422	67,422	67,422	67,422
Hot Water	Bath Aerator - Low Flow - General Kit - Private	10.0	66,198	0.97	642,123				64,212	64,212	64,212	64,212	64,212	64,212
Lighting	BR30 LED 8 W - General Kit - Public	8.1	37,514	0.97	237,748				36,389	36,389	36,389	36,389	22,509	22,509
Lighting	PAR30 LED 14 W - General Kit - Public	8.1	19,963	0.97	126,515				19,364	19,364	19,364	19,364	11,978	11,978
Hot Water	Showerhead - Low Flow - Fire Station	10.0	12,964	0.97	125,752				12,575	12,575	12,575	12,575	12,575	12,575
Lighting	PAR30 LED 14 W - Fire Station	8.1	7,021	0.97	44,493				6,810	6,810	6,810	6,810	4,212	4,212
Hot Water	Pre-rinse Spray Valve - Fire Station	5.0	6,685	0.97	32,422				6,484	6,484	6,484	6,484	6,484	6,484
Hot Water	Bath Aerator - Low Flow - General Kit - Public	10.0	2,475	0.97	24,012				2,401	2,401	2,401	2,401	2,401	2,401
Consumer Electronics	Smart Socket - General Kit - Public	7.0	2,343	0.97	15,908				2,273	2,273	2,273	2,273	2,273	2,273
Hot Water	Bath Aerator - Low Flow - Fire Station	10.0	851	0.97	8,256				826	826	826	826	826	826
Hot Water	Kitchen Aerator - Low Flow - Fire Station	10.0	646	0.97	6,267				627	627	627	627	627	627
Carryover	CY2019 & CY2020 Carryover	8.0	1,457,084	0.96	7,925,590				1,402,761	1,402,761	1,402,761	1,370,827	549,359	522,807
<b>CY2021 Program Total Electric Contribution to CPAS</b>			<b>6,148,377</b>		<b>35,921,124</b>				<b>5,953,315</b>	<b>5,953,315</b>	<b>5,953,315</b>	<b>5,825,433</b>	<b>3,943,148</b>	<b>2,282,569</b>
<b>Historic Program Total Electric Contribution to CPAS‡</b>						<b>2,049,602</b>	<b>8,426,683</b>	<b>14,574,603</b>	<b>13,140,141</b>	<b>13,140,141</b>	<b>12,830,146</b>	<b>6,431,016</b>	<b>5,752,529</b>	<b>5,605,304</b>
<b>Program Total Electric CPAS</b>						<b>2,049,602</b>	<b>8,426,683</b>	<b>14,574,603</b>	<b>19,093,456</b>	<b>19,093,456</b>	<b>18,783,461</b>	<b>12,256,449</b>	<b>9,695,677</b>	<b>7,887,873</b>
<b>CY2021 Program Incremental Expiring Electric Savings§</b>										-	-	127,883	1,882,284	1,660,579
<b>Historic Program Incremental Expiring Electric Savings</b>									1,434,462	-	309,995	6,399,130	678,487	147,225
<b>Program Total Incremental Expiring Electric Savings</b>									1,434,462	-	309,995	6,527,013	2,560,771	1,807,804

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Hot Water	Pre-rinse Spray Valve - Restaurant												
Lighting	BR30 LED 8 W - General Kit - Private	666,024	666,024	308,437									
Lighting	PAR30 LED 14 W - Restaurant												
Lighting	PAR30 LED 14 W - General Kit - Private	400,872	400,872	185,644									
Hot Water	Kitchen Aerator - Low Flow - Restaurant	234,605	234,605	234,605	234,605								
Lighting	Candelabra 5W - Restaurant												
Hot Water	Bath Aerator - Low Flow - Restaurant	174,013	174,013	174,013	174,013								
Consumer Electronics	Smart Socket - General Kit - Private	67,422											
Hot Water	Bath Aerator - Low Flow - General Kit - Private	64,212	64,212	64,212	64,212								
Lighting	BR30 LED 8 W - General Kit - Public	22,509	22,509	2,158									
Lighting	PAR30 LED 14 W - General Kit - Public	11,978	11,978	1,148									
Hot Water	Showerhead - Low Flow - Fire Station	12,575	12,575	12,575	12,575								
Lighting	PAR30 LED 14 W - Fire Station	4,212	4,212	404									
Hot Water	Pre-rinse Spray Valve - Fire Station												
Hot Water	Bath Aerator - Low Flow - General Kit - Public	2,401	2,401	2,401	2,401								
Consumer Electronics	Smart Socket - General Kit - Public	2,273											
Hot Water	Bath Aerator - Low Flow - Fire Station	826	826	826	826								
Hot Water	Kitchen Aerator - Low Flow - Fire Station	627	627	627	627								
Carryover	CY2019 & CY2020 Carryover	515,394	511,942	232,129	4,406	2,611	2,611	2,611	2,611				
<b>CY2021 Program Total Electric Contribution to CPAS</b>		<b>2,179,943</b>	<b>2,106,797</b>	<b>1,219,179</b>	<b>493,665</b>	<b>2,611</b>	<b>2,611</b>	<b>2,611</b>	<b>2,611</b>	-	-	-	-
<b>Historic Program Total Electric Contribution to CPAS†</b>		<b>5,259,536</b>	<b>3,355,228</b>	<b>2,207,277</b>	<b>1,840,212</b>	<b>1,822,225</b>	<b>1,812,981</b>	<b>1,339,637</b>	-	-	-	-	-
<b>Program Total Electric CPAS</b>		<b>7,439,479</b>	<b>5,462,025</b>	<b>3,426,456</b>	<b>2,333,877</b>	<b>1,824,836</b>	<b>1,815,592</b>	<b>1,342,248</b>	<b>2,611</b>	-	-	-	-
<b>CY2021 Program Incremental Expiring Electric Savings‡</b>		<b>102,626</b>	<b>73,146</b>	<b>887,618</b>	<b>725,513</b>	<b>491,054</b>	-	-	-	<b>2,611</b>	-	-	-
<b>Historic Program Incremental Expiring Electric Savings§</b>		<b>345,769</b>	<b>1,904,308</b>	<b>1,147,950</b>	<b>367,066</b>	<b>17,987</b>	<b>9,244</b>	<b>473,344</b>	<b>1,339,637</b>	-	-	-	-
<b>Program Total Incremental Expiring Electric Savings</b>		<b>448,395</b>	<b>1,977,453</b>	<b>2,035,569</b>	<b>1,092,579</b>	<b>509,041</b>	<b>9,244</b>	<b>473,344</b>	<b>1,339,637</b>	<b>2,611</b>	-	-	-

Note: The green highlighted cell shows program total first-year electric savings. The gray cells are blank, indicating values irrelevant to the CY2021 contribution to CPAS.

\* A deemed value. Source: Illinois Stakeholder Advisory Group (SAG) website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

† 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

**Table 4-2. Cumulative Persisting Annual Savings – Gas**

End Use Type	Research Category	EUL	CY2021 Verified Gross Savings (Therms)	Lifetime Net Savings (Therms)†	Verified Net Therms Savings												
					2018	2019	2020	2021	2022	2023	2024	2025	2026				
Hot Water	Pre-rinse Spray Valve - Restaurant	5.0	128,044	0.97	621,013				124,203	124,203	124,203	124,203	124,203				
Lighting	BR30 LED 8 W - General Kit - Private	8.5	-	0.97	-				-	-	-	-	-	-			
Lighting	PAR30 LED 14 W - Restaurant	5.2	-	0.97	-				-	-	-	-	-	-			
Lighting	PAR30 LED 14 W - General Kit - Private	8.5	-	0.97	-				-	-	-	-	-	-			
Hot Water	Kitchen Aerator - Low Flow - Restaurant	10.0	26,149	0.97	253,648				25,365	25,365	25,365	25,365	25,365	25,365			
Lighting	Candelabra 5W - Restaurant	3.6	-	0.97	-				-	-	-	-	-	-			
Hot Water	Bath Aerator - Low Flow - Restaurant	10.0	18,904	0.97	183,370				18,337	18,337	18,337	18,337	18,337	18,337			
Consumer Electronics	Smart Socket - General Kit - Private	7.0	-	0.97	-				-	-	-	-	-	-			
Hot Water	Bath Aerator - Low Flow - General Kit - Private	10.0	10,199	0.97	98,935				9,894	9,894	9,894	9,894	9,894	9,894			
Lighting	BR30 LED 8 W - General Kit - Public	8.1	-	0.97	-				-	-	-	-	-	-			
Lighting	PAR30 LED 14 W - General Kit - Public	8.1	-	0.97	-				-	-	-	-	-	-			
Hot Water	Showerhead - Low Flow - Fire Station	10.0	4,185	0.97	40,596				4,060	4,060	4,060	4,060	4,060	4,060			
Lighting	PAR30 LED 14 W - Fire Station	8.1	-	0.97	-				-	-	-	-	-	-			
Hot Water	Pre-rinse Spray Valve - Fire Station	5.0	9,038	0.97	43,836				8,767	8,767	8,767	8,767	8,767	8,767			
Hot Water	Bath Aerator - Low Flow - General Kit - Public	10.0	336	0.97	3,255				326	326	326	326	326	326			
Consumer Electronics	Smart Socket - General Kit - Public	7.0	-	0.97	-				-	-	-	-	-	-			
Hot Water	Bath Aerator - Low Flow - Fire Station	10.0	244	0.97	2,370				237	237	237	237	237	237			
Hot Water	Kitchen Aerator - Low Flow - Fire Station	10.0	199	0.97	1,926				193	193	193	193	193	193			
Carryover	CY2019 & CY2020 Carryover	8.0	-	0.96	-				-	-	-	-	-	-			
<b>CY2021 Program Total Gas Contribution to CPAS (Therms)</b>			<b>197,299</b>	<b>1,248,950</b>					<b>191,380</b>	<b>191,380</b>	<b>191,380</b>	<b>191,380</b>	<b>191,380</b>	<b>58,410</b>			
<b>CY2021 Program Total Gas Contribution to CPAS (kWh Equivalent)‡</b>									<b>5,609,345</b>	<b>5,609,345</b>	<b>5,609,345</b>	<b>5,609,345</b>	<b>5,609,345</b>	<b>1,711,997</b>			
<b>Historic Program Total Gas Contribution to CPAS (kWh Equivalent)§</b>									<b>1,042,527</b>	<b>4,943,190</b>	<b>9,262,330</b>	<b>9,262,330</b>	<b>8,714,399</b>	<b>7,037,763</b>	<b>4,645,278</b>	<b>4,645,278</b>	
<b>Program Total Gas CPAS (kWh Equivalent)</b>									<b>1,042,527</b>	<b>4,943,190</b>	<b>9,262,330</b>	<b>14,871,675</b>	<b>14,871,675</b>	<b>14,323,744</b>	<b>12,647,108</b>	<b>10,254,623</b>	<b>6,357,275</b>
<b>CY2021 Program Incremental Expiring Gas Savings (Therms)</b>															<b>132,970</b>		
<b>CY2021 Program Incremental Expiring Gas Savings (kWh Equivalent)  </b>															<b>3,897,348</b>		
<b>Historic Program Incremental Expiring Gas Savings (kWh Equivalent)</b>											<b>547,931</b>	<b>1,676,636</b>	<b>2,392,485</b>				
<b>Program Total Incremental Expiring Gas Savings (kWh Equivalent)</b>											<b>547,931</b>	<b>1,676,636</b>	<b>2,392,485</b>	<b>3,897,348</b>			

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Hot Water	Pre-rinse Spray Valve - Restaurant												
Lighting	BR30 LED 8 W - General Kit - Private	-	-	-									
Lighting	PAR30 LED 14 W - Restaurant												
Lighting	PAR30 LED 14 W - General Kit - Private	-	-	-									
Hot Water	Kitchen Aerator - Low Flow - Restaurant	25,365	25,365	25,365	25,365								
Lighting	Candelabra 5W - Restaurant												
Hot Water	Bath Aerator - Low Flow - Restaurant	18,337	18,337	18,337	18,337								
Consumer Electronics	Smart Socket - General Kit - Private	-											
Hot Water	Bath Aerator - Low Flow - General Kit - Private	9,894	9,894	9,894	9,894								
Lighting	BR30 LED 8 W - General Kit - Public	-	-	-									
Lighting	PAR30 LED 14 W - General Kit - Public	-	-	-									
Hot Water	Showerhead - Low Flow - Fire Station	4,060	4,060	4,060	4,060								
Lighting	PAR30 LED 14 W - Fire Station	-	-	-									
Hot Water	Pre-rinse Spray Valve - Fire Station												
Hot Water	Bath Aerator - Low Flow - General Kit - Public	326	326	326	326								
Consumer Electronics	Smart Socket - General Kit - Public	-											
Hot Water	Bath Aerator - Low Flow - Fire Station	237	237	237	237								
Hot Water	Kitchen Aerator - Low Flow - Fire Station	193	193	193	193								
Carryover	CY2019 & CY2020 Carryover	-	-	-	-	-	-	-	-	-	-	-	-
<b>CY2021 Program Total Gas Contribution to CPAS (Therms)</b>		<b>58,410</b>	<b>58,410</b>	<b>58,410</b>	<b>58,410</b>	-	-	-	-	-	-	-	-
<b>CY2021 Program Total Gas Contribution to CPAS (kWh Equivalent)†</b>		<b>1,711,997</b>	<b>1,711,997</b>	<b>1,711,997</b>	<b>1,711,997</b>	-	-	-	-	-	-	-	-
<b>Historic Program Total Gas Contribution to CPAS (kWh Equivalent)§</b>		<b>4,150,682</b>	<b>1,926,655</b>	<b>1,926,655</b>	-	-	-	-	-	-	-	-	-
<b>Program Total Gas CPAS (kWh Equivalent)</b>		<b>5,862,679</b>	<b>3,638,652</b>	<b>3,638,652</b>	<b>1,711,997</b>	-	-	-	-	-	-	-	-
<b>CY2021 Program Incremental Expiring Gas Savings (Therms)</b>		-	-	-	-	<b>58,410</b>	-	-	-	-	-	-	-
<b>CY2021 Program Incremental Expiring Gas Savings (kWh Equivalent)  </b>		-	-	-	-	<b>1,711,997</b>	-	-	-	-	-	-	-
<b>Historic Program Incremental Expiring Gas Savings (kWh Equivalent)</b>		<b>494,596</b>	<b>2,224,027</b>	-	<b>1,926,655</b>	-	-	-	-	-	-	-	-
<b>Program Total Incremental Expiring Gas Savings (kWh Equivalent)</b>		<b>494,596</b>	<b>2,224,027</b>	-	<b>1,926,655</b>	<b>1,711,997</b>	-	-	-	-	-	-	-

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 CY2021.

\* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

† 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<sub>n-1</sub> - CPAS Y<sub>n</sub>.

Source: Evaluation team analysis

**Table 4-3. Cumulative Persisting Annual Savings – Total**

End Use Type	Research Category	EUL	CY2021 Verified		Verified Net kWh Savings (Including Those Converted from Gas Savings)										
			Gross Savings (kWh)	NTG* Savings (kWh)†	2018	2019	2020	2021	2022	2023	2024	2025	2026		
Hot Water	Pre-rinse Spray Valve - Restaurant	5.0	5,094,203	0.97	24,706,883				4,941,377	4,941,377	4,941,377	4,941,377	4,941,377		
Lighting	BR30 LED 8 W - General Kit - Private	8.5	1,110,041	0.97	7,279,493				1,076,740	1,076,740	1,076,740	1,076,740	666,024	666,024	
Lighting	PAR30 LED 14 W - Restaurant	5.2	702,932	0.97	3,244,347				681,844	681,844	681,844	681,844	421,759	95,213	
Lighting	PAR30 LED 14 W - General Kit - Private	8.5	668,120	0.97	4,381,436				648,076	648,076	648,076	648,076	400,872	400,872	
Hot Water	Kitchen Aerator - Low Flow - Restaurant	10.0	1,008,297	0.97	9,780,484				978,048	978,048	978,048	978,048	978,048	978,048	
Lighting	Candelabra 5W - Restaurant	3.6	221,543	0.97	763,637				214,896	214,896	214,896	118,948			
Hot Water	Bath Aerator - Low Flow - Restaurant	10.0	733,475	0.97	7,114,710				711,471	711,471	711,471	711,471	711,471	711,471	
Consumer Electronics	Smart Socket - General Kit - Private	7.0	69,507	0.97	471,953				67,422	67,422	67,422	67,422	67,422	67,422	
Hot Water	Bath Aerator - Low Flow - General Kit - Private	10.0	365,145	0.97	3,541,909				354,191	354,191	354,191	354,191	354,191	354,191	
Lighting	BR30 LED 8 W - General Kit - Public	8.1	37,514	0.97	237,748				36,389	36,389	36,389	36,389	22,509	22,509	
Lighting	PAR30 LED 14 W - General Kit - Public	8.1	19,963	0.97	126,515				19,364	19,364	19,364	19,364	11,978	11,978	
Hot Water	Showerhead - Low Flow - Fire Station	10.0	135,630	0.97	1,315,613				131,561	131,561	131,561	131,561	131,561	131,561	
Lighting	PAR30 LED 14 W - Fire Station	8.1	7,021	0.97	44,493				6,810	6,810	6,810	6,810	4,212	4,212	
Hot Water	Pre-rinse Spray Valve - Fire Station	5.0	271,600	0.97	1,317,262				263,452	263,452	263,452	263,452	263,452		
Hot Water	Bath Aerator - Low Flow - General Kit - Public	10.0	12,312	0.97	119,428				11,943	11,943	11,943	11,943	11,943	11,943	
Consumer Electronics	Smart Socket - General Kit - Public	7.0	2,343	0.97	15,908				2,273	2,273	2,273	2,273	2,273	2,273	
Hot Water	Bath Aerator - Low Flow - Fire Station	10.0	8,011	0.97	77,711				7,771	7,771	7,771	7,771	7,771	7,771	
Hot Water	Kitchen Aerator - Low Flow - Fire Station	10.0	6,466	0.97	62,718				6,272	6,272	6,272	6,272	6,272	6,272	
Carryover	CY2019 & CY2020 Carryover	8.0	1,457,084	0.96	7,925,590				1,402,761	1,402,761	1,402,761	1,370,827	549,359	522,807	
<b>CY2021 Program Total Contribution to CPAS</b>			<b>11,931,207</b>		<b>72,527,837</b>				<b>11,562,660</b>	<b>11,562,660</b>	<b>11,562,660</b>	<b>11,434,778</b>	<b>9,552,494</b>	<b>3,994,567</b>	
<b>Historic Program Total Contribution to CPAS‡</b>						<b>3,092,129</b>	<b>13,369,873</b>	<b>23,836,933</b>	<b>22,402,471</b>	<b>22,402,471</b>	<b>21,544,545</b>	<b>13,468,779</b>	<b>10,397,807</b>	<b>10,250,582</b>	
<b>Program Total CPAS</b>						<b>3,092,129</b>	<b>13,369,873</b>	<b>23,836,933</b>	<b>33,965,132</b>	<b>33,965,132</b>	<b>33,107,206</b>	<b>24,903,557</b>	<b>19,950,301</b>	<b>14,245,149</b>	
<b>CY2021 Program Incremental Expiring Savings§</b>															
<b>Historic Program Incremental Expiring Savings</b>									<b>1,434,462</b>		<b>857,926</b>	<b>8,075,766</b>	<b>3,070,972</b>	<b>147,225</b>	
<b>Program Total Incremental Expiring Savings</b>									<b>1,434,462</b>		<b>857,926</b>	<b>8,203,649</b>	<b>4,953,257</b>	<b>5,705,152</b>	

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Hot Water	Pre-rinse Spray Valve - Restaurant												
Lighting	BR30 LED 8 W - General Kit - Private	666,024	666,024	308,437									
Lighting	PAR30 LED 14 W - Restaurant												
Lighting	PAR30 LED 14 W - General Kit - Private	400,872	400,872	185,644									
Hot Water	Kitchen Aerator - Low Flow - Restaurant	978,048	978,048	978,048	978,048								
Lighting	Candelabra 5W - Restaurant												
Hot Water	Bath Aerator - Low Flow - Restaurant	711,471	711,471	711,471	711,471								
Consumer Electronics	Smart Socket - General Kit - Private	67,422											
Hot Water	Bath Aerator - Low Flow - General Kit - Private	354,191	354,191	354,191	354,191								
Lighting	BR30 LED 8 W - General Kit - Public	22,509	22,509	2,158									
Lighting	PAR30 LED 14 W - General Kit - Public	11,978	11,978	1,148									
Hot Water	Showerhead - Low Flow - Fire Station	131,561	131,561	131,561	131,561								
Lighting	PAR30 LED 14 W - Fire Station	4,212	4,212	404									
Hot Water	Pre-rinse Spray Valve - Fire Station												
Hot Water	Bath Aerator - Low Flow - General Kit - Public	11,943	11,943	11,943	11,943								
Consumer Electronics	Smart Socket - General Kit - Public	2,273											
Hot Water	Bath Aerator - Low Flow - Fire Station	7,771	7,771	7,771	7,771								
Hot Water	Kitchen Aerator - Low Flow - Fire Station	6,272	6,272	6,272	6,272								
Carryover	CY2019 & CY2020 Carryover	515,394	511,942	232,129	4,406	2,611	2,611	2,611	2,611				
<b>CY2021 Program Total Contribution to CPAS</b>		<b>3,891,941</b>	<b>3,818,795</b>	<b>2,931,176</b>	<b>2,205,663</b>	<b>2,611</b>	<b>2,611</b>	<b>2,611</b>	<b>2,611</b>	-	-	-	-
<b>Historic Program Total Contribution to CPAS†</b>		<b>9,410,217</b>	<b>5,281,883</b>	<b>4,133,932</b>	<b>1,840,212</b>	<b>1,822,225</b>	<b>1,812,981</b>	<b>1,339,637</b>	-	-	-	-	-
<b>Program Total CPAS</b>		<b>13,302,158</b>	<b>9,100,678</b>	<b>7,065,109</b>	<b>4,045,875</b>	<b>1,824,836</b>	<b>1,815,592</b>	<b>1,342,248</b>	<b>2,611</b>	-	-	-	-
<b>CY2021 Program Incremental Expiring Savings§</b>		<b>102,626</b>	<b>73,146</b>	<b>887,618</b>	<b>725,513</b>	<b>2,203,052</b>	-	-	-	<b>2,611</b>	-	-	-
<b>Historic Program Incremental Expiring Savings</b>		<b>840,365</b>	<b>4,128,335</b>	<b>1,147,950</b>	<b>2,293,721</b>	<b>17,987</b>	<b>9,244</b>	<b>473,344</b>	<b>1,339,637</b>	-	-	-	-
<b>Program Total Incremental Expiring Savings</b>		<b>942,991</b>	<b>4,201,480</b>	<b>2,035,569</b>	<b>3,019,234</b>	<b>2,221,039</b>	<b>9,244</b>	<b>473,344</b>	<b>1,339,637</b>	<b>2,611</b>	-	-	-

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 CY2021.

\* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntq-recommendations-for-2021>.

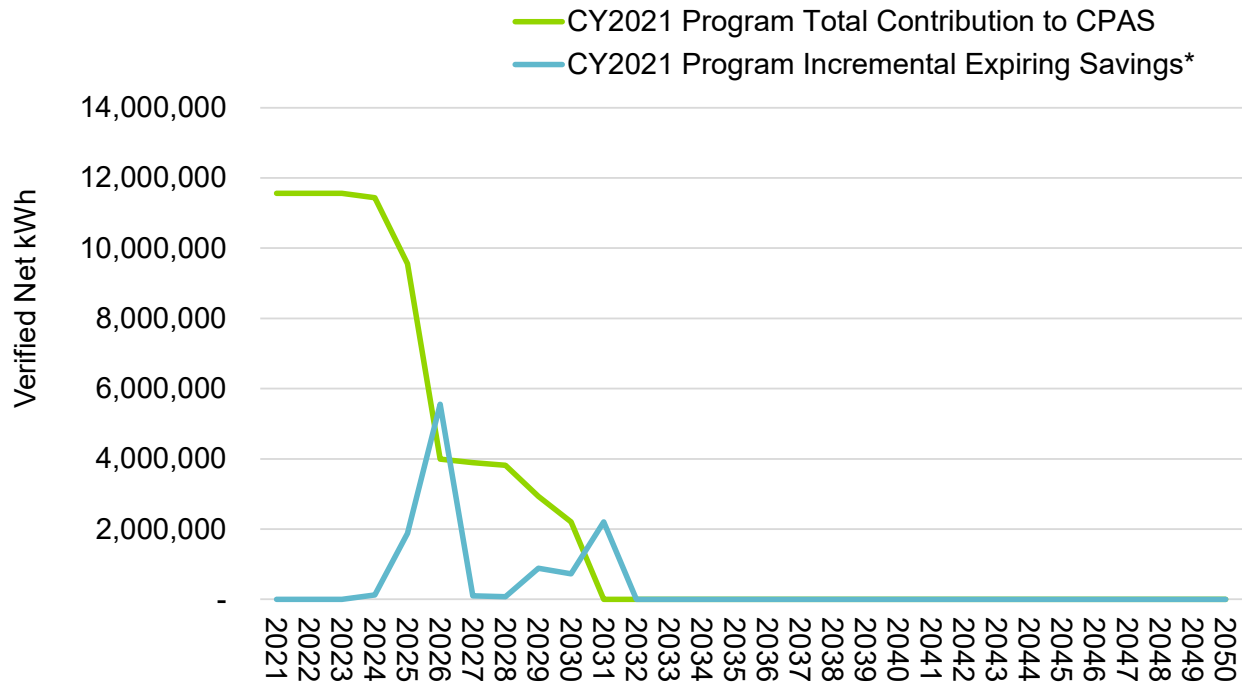
† Lifetime savings are the sum of CPAS savings through the EUL.

‡ 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

Table 5-1 shows the program includes 18 measures. Figure 5-1 shows the LED lighting measures in aggregate (BR30, PAR30, and candelabra) are the largest source of savings for the Small Business Kits Program. The restaurant pre-rinse spray valve contributed the most electric savings of any individual measure (see Table 5-2).

The evaluation team calculated custom in-service rates (ISRs), domestic hot water fuel splits, and facility heating fuel splits using participant telephone survey data provided by ComEd. All other input parameters for the savings algorithms were from the appropriate commercial and industrial (C&I) section of the Illinois Statewide Technical Reference Manual v9.0 (IL-TRM)<sup>2</sup> and IL-TRM Errata. The program implementation contractor conducted the telephone survey with a random sample of program participants, and the evaluation team reviewed the final summary results along with the survey questions. The team calculated custom ISR values from the survey responses. The ex ante calculations used CY2018 evaluation results. The evaluated ISR values and percentage of customers who use electric water heating were lower than the ex ante values for most measures. Appendix B details the comparison of the evaluated and ex ante input parameters.

The discrepancies between the verified and ex ante savings in the following tables are largely due to the evaluation team using custom ISR values, domestic hot water heating fuel splits, and facility heat fuel splits. Including secondary electric savings from water measures and carryover lighting savings increased the verified savings. The team applied the lighting baseline shift for the BR30, PAR30, and candelabra lamps starting in 2025. Gross and net verified electric savings for the bathroom aerator, kitchen aerator, and pre-rinse spray valve measures include the secondary kWh savings derived from water supply and wastewater treatment savings where the ex ante electric savings for these measures did not include secondary kWh savings.

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<sup>2</sup> In this report, unless stated otherwise, IL-TRM refers to version 9.0 (v9.0).

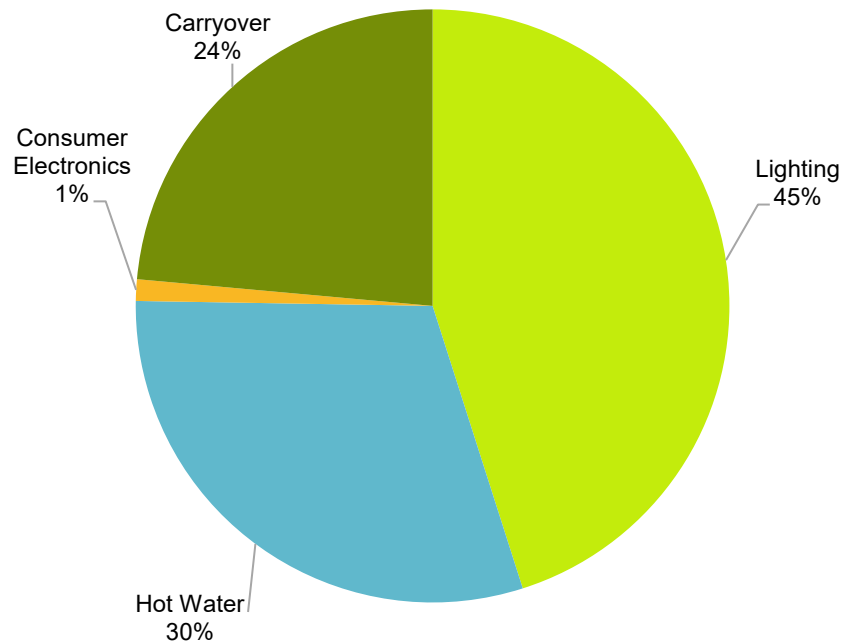
**Table 5-1. Number of Measures by Type**

End Use Type	Research Category	Quantity	Unit
Hot Water	Pre-rinse Spray Valve - Restaurant	1,445	each
Lighting	BR30 LED 8 W - General Kit - Private	19,047	lamp
Lighting	PAR30 LED 14 W - Restaurant	2,890	lamp
Lighting	PAR30 LED 14 W - General Kit - Private	12,698	lamp
Hot Water	Kitchen Aerator - Low Flow - Restaurant	2,890	each
Lighting	Candelabra 5W - Restaurant	2,890	lamp
Hot Water	Bath Aerator - Low Flow - Restaurant	2,890	each
Consumer Electronics	Smart Socket - General Kit - Private	12,698	each
Hot Water	Bath Aerator - Low Flow - General Kit - Private	12,698	each
Lighting	BR30 LED 8 W - General Kit - Public	1,284	lamp
Lighting	PAR30 LED 14 W - General Kit - Public	856	lamp
Hot Water	Showerhead - Low Flow - Fire Station	204	each
Lighting	PAR30 LED 14 W - Fire Station	204	lamp
Hot Water	Pre-rinse Spray Valve - Fire Station	102	each
Hot Water	Bath Aerator - Low Flow - General Kit - Public	856	each
Consumer Electronics	Smart Socket - General Kit - Public	856	each
Hot Water	Bath Aerator - Low Flow - Fire Station	204	each
Hot Water	Kitchen Aerator - Low Flow - Fire Station	204	each
<b>Total</b>		<b>74,916</b>	

Note: This is the same table as Table 2-2. Measures sorted by verified net savings.

Source: ComEd tracking data and evaluation team analysis

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



Source: ComEd tracking data and evaluation team analysis

Table 5-2 and Table 5-3 show measure-level energy and demand savings.

**Table 5-2. Energy Savings by Measure – Electric**

End Use Type	Research Category	Ex Ante Gross Savings (kWh)	Verified Gross Realization Rate	Verified Gross Savings (kWh)	NTG*	Verified Net Savings (kWh)	EUL (years)
Hot Water	Pre-rinse Spray Valve - Restaurant	984,945	1.36	1,341,234	0.97	1,300,997	5.0
Lighting	BR30 LED 8 W - General Kit - Private	2,478,764	0.45	1,110,041	0.97	1,076,740	8.5
Lighting	PAR30 LED 14 W - Restaurant	601,155	1.17	702,932	0.97	681,844	5.2
Lighting	PAR30 LED 14 W - General Kit - Private	1,978,294	0.34	668,120	0.97	648,076	8.5
Hot Water	Kitchen Aerator - Low Flow - Restaurant	180,183	1.34	241,861	0.97	234,605	10.0
Lighting	Candelabra 5W - Restaurant	318,794	0.69	221,543	0.97	214,896	3.6
Hot Water	Bath Aerator - Low Flow - Restaurant	147,822	1.21	179,395	0.97	174,013	10.0
Consumer Electronics	Smart Socket - General Kit - Private	131,401	0.53	69,507	0.97	67,422	7.0
Hot Water	Bath Aerator - Low Flow - General Kit - Private	231,874	0.29	66,198	0.97	64,212	10.0
Lighting	BR30 LED 8 W - General Kit - Public	164,079	0.23	37,514	0.97	36,389	8.1
Lighting	PAR30 LED 14 W - General Kit - Public	117,062	0.17	19,963	0.97	19,364	8.1
Hot Water	Showerhead - Low Flow - Fire Station	65,573	0.20	12,964	0.97	12,575	10.0
Lighting	PAR30 LED 14 W - Fire Station	26,884	0.26	7,021	0.97	6,810	8.1
Hot Water	Pre-rinse Spray Valve - Fire Station	55,620	0.12	6,685	0.97	6,484	5.0
Hot Water	Bath Aerator - Low Flow - General Kit - Public	15,631	0.16	2,475	0.97	2,401	10.0
Consumer Electronics	Smart Socket - General Kit - Public	8,858	0.26	2,343	0.97	2,273	7.0
Hot Water	Bath Aerator - Low Flow - Fire Station	3,725	0.23	851	0.97	826	10.0
Hot Water	Kitchen Aerator - Low Flow - Fire Station	5,017	0.13	646	0.97	627	10.0
Carryover	CY2019 & CY2020 Carryover	N/R	N/A	1,457,084	0.96	1,402,761	8.0
<b>Total‡§</b>		<b>7,515,681</b>	<b>0.82</b>	<b>6,148,377</b>		<b>5,953,315</b>	

Note: The savings in this table include 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.

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

N/R = not reported by ComEd.

\* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

‡ The sum of measure-level ex ante gross savings differs slightly due to rounding. Guidehouse will use the measure-level ex ante gross total, 7,515,683 kWh, in the CY2021 Summary Report.

§ The realization rate includes verified gross savings from carryover. Table 3-1 shows the gross electric savings realization rate excluding carryover is 0.62.

Source: ComEd tracking data and evaluation team analysis

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

End Use Type	Research Category	Ex Ante Gross Peak Demand Reduction (kW)	Verified Gross Realization Rate	Verified Gross Peak Demand Reduction (kW)	NTG*	Verified Net Peak Demand Reduction (kW)
Hot Water	Pre-rinse Spray Valve - Restaurant	0.00	N/A	0.00	0.97	0.00
Lighting	BR30 LED 8 W - General Kit - Private	627.42	0.47	293.48	0.97	284.68
Lighting	PAR30 LED 14 W - Restaurant	124.15	1.21	149.65	0.97	145.17
Lighting	PAR30 LED 14 W - General Kit - Private	500.74	0.35	176.64	0.97	171.35
Hot Water	Kitchen Aerator - Low Flow - Restaurant	19.04	1.22	23.25	0.97	22.55
Lighting	Candelabra 5W - Restaurant	65.84	0.72	47.17	0.97	45.75
Hot Water	Bath Aerator - Low Flow - Restaurant	15.62	1.08	16.81	0.97	16.31
Consumer Electronics	Smart Socket - General Kit - Private	0.00	N/A	0.00	0.97	0.00
Hot Water	Bath Aerator - Low Flow - General Kit - Private	58.75	0.24	14.01	0.97	13.59
Lighting	BR30 LED 8 W - General Kit - Public	30.70	0.24	7.26	0.97	7.04
Lighting	PAR30 LED 14 W - General Kit - Public	21.90	0.18	3.86	0.97	3.75
Hot Water	Showerhead - Low Flow - Fire Station	1.57	0.15	0.23	0.97	0.22
Lighting	PAR30 LED 14 W - Fire Station	5.64	0.27	1.52	0.97	1.47
Hot Water	Pre-rinse Spray Valve - Fire Station	0.00	N/A	0.00	0.97	0.00
Hot Water	Bath Aerator - Low Flow - General Kit - Public	3.96	0.13	0.52	0.97	0.50
Consumer Electronics	Smart Socket - General Kit - Public	0.00	N/A	0.00	0.97	0.00
Hot Water	Bath Aerator - Low Flow - Fire Station	0.94	0.15	0.14	0.97	0.14
Hot Water	Kitchen Aerator - Low Flow - Fire Station	1.27	0.09	0.11	0.97	0.11
Carryover	CY2019 & CY2020 Carryover	N/R	N/A	487.01	0.95	463.83
<b>Total†§</b>		<b>1,477.56</b>	<b>0.83</b>	<b>1,221.68</b>		<b>1,176.46</b>

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

N/R = not reported by ComEd.

\* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

† The sum of measure-level ex ante gross savings differs slightly due to rounding. Guidehouse will use the measure-level ex ante gross total, 1,477.56 kW, in the CY2021 Summary Report.

§ The realization rate includes verified gross savings from carryover. Table 3-1 shows the gross demand savings realization rate excluding carryover is 0.50.

Source: ComEd tracking data and evaluation team analysis

The Small Business Kits Program includes measures that save water. That reduction in water produces secondary kWh savings from water supply and wastewater treatment. Table 5-4 shows the secondary measure-level savings from water reduction. The savings in this table are included in the electricity savings in the previous tables in this section.

**Table 5-4. 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 <sub>water</sub> )	Verified Gross Savings (kWh)	NTG*	Verified Net Savings (kWh)
Hot Water	Pre-rinse Spray Valve - Restaurant	17,650,386	N/R	N/A	92,597	0.97	89,819
Lighting	BR30 LED 8 W - General Kit - Private	0	N/R	N/A	0	0.97	0
Lighting	PAR30 LED 14 W - Restaurant	0	N/R	N/A	0	0.97	0
Lighting	PAR30 LED 14 W - General Kit - Private	0	N/R	N/A	0	0.97	0
Hot Water	Kitchen Aerator - Low Flow - Restaurant	5,810,849	N/R	N/A	28,478	0.97	27,623
Lighting	Candelabra 5W - Restaurant	0	N/R	N/A	0	0.97	0
Hot Water	Bath Aerator - Low Flow - Restaurant	5,810,620	N/R	N/A	25,099	0.97	24,346
Consumer Electronics	Smart Socket - General Kit - Private	0	N/R	N/A	0	0.97	0
Hot Water	Bath Aerator - Low Flow - General Kit - Private	8,838,356	N/R	N/A	12,548	0.97	12,172
Lighting	BR30 LED 8 W - General Kit - Public	0	N/R	N/A	0	0.97	0
Lighting	PAR30 LED 14 W - General Kit - Public	0	N/R	N/A	0	0.97	0
Hot Water	Showerhead - Low Flow - Fire Station	1,751,403	N/R	N/A	3,655	0.97	3,546
Lighting	PAR30 LED 14 W - Fire Station	0	N/R	N/A	0	0.97	0
Hot Water	Pre-rinse Spray Valve - Fire Station	996,728	N/R	N/A	1,394	0.97	1,352
Hot Water	Bath Aerator - Low Flow - General Kit - Public	595,813	N/R	N/A	488	0.97	473
Consumer Electronics	Smart Socket - General Kit - Public	0	N/R	N/A	0	0.97	0
Hot Water	Bath Aerator - Low Flow - Fire Station	141,993	N/R	N/A	312	0.97	302
Hot Water	Kitchen Aerator - Low Flow - Fire Station	161,806	N/R	N/A	208	0.97	202
Carryover	CY2019 & CY2020 Carryover	N/R	N/A	N/A	0	0.96	0
<b>Total‡</b>		<b>41,757,954</b>	<b>0</b>	<b>N/A</b>	<b>164,779</b>		<b>159,835</b>

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

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

N/R = not reported by ComEd.

\* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

‡ The sum of measure-level ex ante gross savings differs slightly due to rounding. Guidehouse will use the measure-level ex ante gross total, 41,757,954 gallons, in the CY2021 Summary Report.

Source: ComEd tracking data and evaluation team analysis

The Small Business Kits Program includes measures that save gas. Table 5-5 shows measure-level gas savings converted to kWh.

**Table 5-5. Energy Savings by Measure – Gas**

End Use Type	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate	Verified Gross Savings (Therms)	NTG*	Verified Net Savings (Therms)	EUL (years)
Hot Water	Pre-rinse Spray Valve - Restaurant	87,481	1.46	128,044	0.97	124,203	5.0
Lighting	BR30 LED 8 W - General Kit - Private	-43,520	0.00	0	0.97	0	8.5
Lighting	PAR30 LED 14 W - Restaurant	-5,010	0.00	0	0.97	0	5.2
Lighting	PAR30 LED 14 W - General Kit - Private	-34,733	0.00	0	0.97	0	8.5
Hot Water	Kitchen Aerator - Low Flow - Restaurant	19,125	1.37	26,149	0.97	25,365	10.0
Lighting	Candelabra 5W - Restaurant	-2,657	0.00	0	0.97	0	3.6
Hot Water	Bath Aerator - Low Flow - Restaurant	15,686	1.21	18,904	0.97	18,337	10.0
Consumer Electronics	Smart Socket - General Kit - Private	0	N/A	0	0.97	0	7.0
Hot Water	Bath Aerator - Low Flow - General Kit - Private	22,807	0.45	10,199	0.97	9,894	10.0
Lighting	BR30 LED 8 W - General Kit - Public	-1,492	0.00	0	0.97	0	8.1
Lighting	PAR30 LED 14 W - General Kit - Public	-1,064	0.00	0	0.97	0	8.1
Hot Water	Showerhead - Low Flow - Fire Station	6,908	0.61	4,185	0.97	4,060	10.0
Lighting	PAR30 LED 14 W - Fire Station	-25	0.00	0	0.97	0	8.1
Hot Water	Pre-rinse Spray Valve - Fire Station	4,940	1.83	9,038	0.97	8,767	5.0
Hot Water	Bath Aerator - Low Flow - General Kit - Public	1,537	0.22	336	0.97	326	10.0
Consumer Electronics	Smart Socket - General Kit - Public	0	N/A	0	0.97	0	7.0
Hot Water	Bath Aerator - Low Flow - Fire Station	366	0.67	244	0.97	237	10.0
Hot Water	Kitchen Aerator - Low Flow - Fire Station	533	0.37	199	0.97	193	10.0
Carryover	CY2019 & CY2020 Carryover	N/R	N/A	0	0.96	0	8.0
<b>Total Therms†</b>		<b>70,883</b>	<b>2.78</b>	<b>197,299</b>		<b>191,380</b>	
<b>Total kWh Converted From Therms†</b>		<b>2,077,576</b>	<b>2.78</b>	<b>5,782,830</b>		<b>5,609,345</b>	

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

N/R = not reported by ComEd.

\* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

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

‡ The sum of measure-level ex ante gross savings differs slightly due to rounding. Guidehouse will use the measure-level ex ante gross total, 70,883 therms, in the CY2021 Summary Report.

Source: ComEd tracking data and evaluation team analysis

Table 5-6 is combined savings from Table 5-2 and Table 5-5.

**Table 5-6. Energy Savings by Measure – Total**

End Use Type	Research Category	Ex Ante Gross Savings (kWh)	Verified Gross Realization Rate	Verified Gross Savings (kWh)	NTG*	Verified Net Savings (kWh)
Hot Water	Pre-rinse Spray Valve - Restaurant	3,549,028	1.44	5,094,203	0.97	4,941,377
Lighting	BR30 LED 8 W - General Kit - Private	1,203,185	0.92	1,110,041	0.97	1,076,740
Lighting	PAR30 LED 14 W - Restaurant	454,323	1.55	702,932	0.97	681,844
Lighting	PAR30 LED 14 W - General Kit - Private	960,258	0.70	668,120	0.97	648,076
Hot Water	Kitchen Aerator - Low Flow - Restaurant	740,727	1.36	1,008,297	0.97	978,048
Lighting	Candelabra 5W - Restaurant	240,929	0.92	221,543	0.97	214,896
Hot Water	Bath Aerator - Low Flow - Restaurant	607,589	1.21	733,475	0.97	711,471
Consumer Electronics	Smart Socket - General Kit - Private	131,401	0.53	69,507	0.97	67,422
Hot Water	Bath Aerator - Low Flow - General Kit - Private	900,359	0.41	365,145	0.97	354,191
Lighting	BR30 LED 8 W - General Kit - Public	120,360	0.31	37,514	0.97	36,389
Lighting	PAR30 LED 14 W - General Kit - Public	85,871	0.23	19,963	0.97	19,364
Hot Water	Showerhead - Low Flow - Fire Station	268,032	0.51	135,630	0.97	131,561
Lighting	PAR30 LED 14 W - Fire Station	26,140	0.27	7,021	0.97	6,810
Hot Water	Pre-rinse Spray Valve - Fire Station	200,416	1.36	271,600	0.97	263,452
Hot Water	Bath Aerator - Low Flow - General Kit - Public	60,695	0.20	12,312	0.97	11,943
Consumer Electronics	Smart Socket - General Kit - Public	8,858	0.26	2,343	0.97	2,273
Hot Water	Bath Aerator - Low Flow - Fire Station	14,465	0.55	8,011	0.97	7,771
Hot Water	Kitchen Aerator - Low Flow - Fire Station	20,626	0.31	6,466	0.97	6,272
Carryover	CY2019 & CY2020 Carryover	N/R	N/A	1,457,084	0.96	1,402,761
<b>Total†§</b>		<b>9,593,257</b>	<b>1.24</b>	<b>11,931,207</b>		<b>11,562,660</b>

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

N/R = not reported by ComEd.

\* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

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

§ The realization rate includes verified gross savings from carryover. Table 3-1 shows the gross total electric savings realization rate excluding carryover is 1.09.

Source: ComEd tracking data and evaluation team analysis

## 6. Impact Analysis Findings and Recommendations

The team developed several recommendations based on findings from the CY2021 evaluation. The issue that had the largest effect on adjusting ex ante gross savings was the difference between ex ante ISR values and the verified ISR values calculated by the evaluation team.

Table 6-1 presents the end use-level electric realization rates and program savings percentages. Table 6-2 presents the kit type realization rates and program savings percentages. The savings percentage from carryover is included separately in both tables. Carryover does not contribute to the lighting end use-level and kit type realization rates. These tables give context to the evaluation team’s recommendations.

**Table 6-1. End Use-Level Savings and Realization Rates**

End Use Type	Realization Rate	Percentage of Verified Gross Savings
Lighting	0.49	45%
Hot Water	1.10	30%
Consumer Electronics	0.51	1%
Carryover	N/A	24%

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

Source: ComEd survey data and evaluation team analysis

**Table 6-2. Kit Type Savings and Realization Rate**

Kit Type/Carryover	Realization Rate	Percentage of Verified Gross Savings
Restaurant	1.20	44%
General - Private	0.40	31%
General - Public	0.20	1%
Fire Station	0.18	0.5%
Carryover	N/A	24%

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

Source: ComEd survey data and evaluation team analysis

### 6.1 Installation Rates

**Finding 1.** The evaluation team’s analysis of the program’s participant survey data determined that CY2021 verified ISRs were lower compared to ex ante ISRs for 14 of the 18 measures; the candelabra lamps in the restaurant kit and all measures in the fire station, general-private, and general-public kits<sup>3</sup>. Table 6-3 presents the ex ante ISR, verified ISR, and the percent change for each measure and kit type combination. The ex ante values used conservative ISR

<sup>3</sup> Fire station kits include two PAR 30 LEDs, two kitchen and bathroom aerators, one pre-rinse spray valve and two low-flow showerheads. General-public and private kits include three BR30 LEDs, two PAR30 LEDs, two bathroom aerators and two smart sockets. Restaurant kits include two PAR30 LEDs, two candelabras, two kitchen and bathroom aerators and one pre-rinse spray valve.



estimates from the CY2018 evaluation, but the CY2021 verified ISRs were 45% lower than ex ante values, on average. Excluding the restaurant measures, all verified ISRs based on the full year of CY2021 survey data are lower than they were in the CY2021 Wave 1 (mid-year) analysis. There were not any restaurant survey participants after Wave 1 so the restaurant measure ISRs remained unchanged from Wave 1. The combined realization rate of the 14 measures with lower ISRs was 0.40, and they accounted for 36% of the verified gross savings.

**Finding 2.** The evaluation team’s analysis of the participant survey data determined that CY2021 verified ISRs were higher compared to ex ante ISRs for all restaurant measures except the candelabra lamps. The combined realization rate of these four measures (PAR30 LED, kitchen and bathroom aerators and a pre-rinse spray valve) was 1.29, and they accounted for 40% of the verified gross savings.

**Finding 3.** To actively use the smart sockets, customers needed to install the socket and download the mobile phone application offered in the general-public and private kits. The evaluation team calculated the ISR for smart sockets to be the percentage of survey respondents who answered yes to downloading the application and installing the smart socket. This resulted in a verified ISR of 0.10 for general-private smart sockets and 0.05 for general-public smart sockets while the ex ante calculations used an ISR value of 0.28 for both. The combined realization rate of smart socket measures in general-private and general-public kits was 0.51, and they accounted for 1.2% of the verified gross savings.

**Recommendation 1.** Use IL-TRM v10.0 in 2022 for C&I kit measure ISR values as defaults for faucet aerators, LED lamps, pre-rinse spray valves, and smart sockets to add consistency to the per-kit savings year-over-year.

**Table 6-3. ISR Comparison CY2021 Verified vs CY2021 Ex Ante**

Measure	CY2021 Ex Ante ISR Values*				CY2021 Verified ISR Values				ISR Difference (CY2021 Verified vs CY2021 Ex Ante)			
	Fire Station Kit	General Kit - Private	General Kit - Public	Restaurant Kit	Fire Station Kit	General Kit - Private	General Kit - Public	Restaurant Kit	Fire Station Kit	General Kit - Private	General Kit - Public	Restaurant Kit
8W BR30	N/A	0.59	0.66	N/A	N/A	0.27	0.15	N/A	N/A	-55%	-77%	N/A
14W PAR30	0.66	0.66	0.66	0.66	0.17	0.23	0.11	0.77	-74%	-66%	-83%	17%
5W Candelabra	N/A	N/A	N/A	0.61	N/A	N/A	N/A	0.42	N/A	N/A	N/A	-31%
Bath Aerator - Low Flow	0.43	0.43	0.43	0.49	0.21	0.16	0.08	0.57	-52%	-63%	-82%	15%
Kitchen Aerator - Low Flow	0.49	N/A	N/A	0.49	0.14	N/A	N/A	0.64	-72%	N/A	N/A	31%
Pre-rinse Spray Valve	0.45	N/A	N/A	0.45	0.14	N/A	N/A	0.63	-69%	N/A	N/A	40%
Showerhead - Low Flow	0.49	N/A	N/A	N/A	0.22	N/A	N/A	N/A	-54%	N/A	N/A	N/A
Smart Socket	N/A	0.28	0.28	N/A	N/A	0.10	0.05	N/A	N/A	-63%	-82%	N/A

Note: Green shading denotes measures with verified ISR values greater than ex ante, while red shading denotes measures with verified ISR values lower than ex ante.

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

\* CY2021 ex ante ISR values come from CY2018 impact report.

Source: ComEd tracking, customer survey data, and evaluation team analysis

## 6.2 Hot Water and Facility Heating Fuel Splits

**Finding 4.** The ex ante calculations used the custom fuel split for domestic hot water fuels calculated during the CY2018 evaluation for water reduction measures while the verified savings used the CY2021 survey data to update the fuel split percentages. The IL-TRM does not contain hot water fuel splits specific to small business kits. Customers who knew their fuel type were allocated to electric and natural gas accordingly. Customers who responded they “didn’t know” or had “unknown” fuel types were allocated to electric or natural gas following the fuel split found in the IL-TRM (16% electric and 84% natural gas). The evaluation team’s analysis of the survey data found the following electric water heating percentage for each kit:

10% for fire station, 21% for general-private, 23% for general-public, and 29% for restaurant. These were lower than the ex ante percentage electric for all kit types, which were 32% for fire station, 33% for general-private, 33% for general-public, and 32% for restaurant. The lower prevalence of electric water heating reduced the verified electric savings from hot water measures for all kit types. This was counteracted by the high ISRs for restaurant kit measures, resulting in a combined electric realization rate of 1.10 for hot water-reducing measures. Hot water-reducing measures accounted for 30% of the verified gross savings.

The higher prevalence of natural gas water heating resulted in increased verified natural gas savings from distributed hot water-reducing measures. The total gas savings realization rate for hot water measures was 1.24 as a result of the increased prevalence of natural gas fuel type and the high evaluated ISRs for restaurant hot water measures. Hot water measures accounted for 100% of the verified gross gas savings.

**Finding 5.** During January 2022, the program worked with Guidehouse to develop a default value for small business kit domestic hot water fuel splits. Guidehouse based the recommended default on historical survey data, and the program has already incorporated it into the 2022 kit calculations. This will bring additional consistency to the kit savings year-over-year.

**Finding 6.** The verified savings for lighting measures account for the heating penalty from electric heating interactive effects. This approach is consistent with the IL-TRM instructions. The heating fuel type was collected through the participant survey for general-private, general-public, and fire house building types. The evaluation team's analysis showed that the percentage of facilities heated with electricity by kit type was 4.3% of general-private participants, 2.2% for general-public, and 3.4% for fire station participants. The restaurant survey did not ask about space heating fuel type, so the team assumed all buildings were heated with natural gas per the IL-TRM. The combine realization rate for lighting measures was 0.49, and they accounted for 45% of verified gross savings.

**Recommendation 2.** Include questions about space heating fuel for all kit types in future participant installation surveys.

## 6.3 Parameter Adjustments

**Finding 7.** The ex ante calculations for general-public lighting measures used a mixture of deemed values from the IL-TRM for the "Emergency Services" and "Office – Low Rise" building/space types. Of the 428 public customers, only one customer name included "Police" and only one included "Fire"; most appeared to be offices. The verified savings use "Office – Low Rise" deemed values. These changes had a small positive impact on verified savings but were not a significant driver of the realization rates of 0.23 (BR30) and 0.17 (PAR30). These measures accounted for a combined 0.9% of verified gross savings.

**Recommendation 3.** Use the "Office – Low Rise" building type in the applicable version of the IL-TRM for any kits targeting public sector buildings unless they specifically target emergency service buildings.

**Finding 8.** Guidehouse calculated the wattage controlled by smart sockets at 9.3 W based on the participant survey responses, slightly higher than 8.0 W used in the ex ante calculator. There was not a default wattage controlled assumption for smart sockets in the IL-TRM. Section 4.8.22 of IL-TRM v10.0 (for CY2022) recommends a default value of 9.4 W for controlled

wattage of smart sockets, which is close to the evaluation team's calculated value. This change had a small positive impact on the realization rate and was not a significant driver of the realization rates of 0.53 (general-private) and 0.26 (general-public). These measures accounted for 1.2% of the verified gross savings.

**Recommendation 4.** Use 9.4 W as the controlled wattage of smart socket measures going forward per Section 4.8.22 of IL-TRM v10.0.

**Finding 9.** Guidehouse used a value of 0.7 W for the efficient watts of the smart socket, consistent with the power draw of the smart socket unit included in the kits. This is less than the 2.0 W used in the ex ante calculations. This change had a positive impact on the realization rates but is not a significant driver of the realization rates of 0.53 (general-private) and 0.26 (general-public). These measures accounted for 1.2% of the verified gross savings.

**Recommendation 5.** The program should update the ex ante calculations to use the actual standby wattage of the smart socket included in the kits.

## 6.4 Tracking Data

**Finding 10.** The realization rate for natural gas was 2.78, primarily because the evaluation team did not include gas heating penalties associated with lighting measures and the ex ante savings did. Gas heating penalties are included in the program TRC analysis but should not be included in the ex ante gross savings. Including the natural gas penalty from lighting measures reduced the ex ante natural gas savings by 56%.

**Recommendation 6.** Track natural gas heating penalties separately from ex ante natural gas measure savings.

**Finding 11.** The tracking data includes estimates of peak demand kilowatts (kW) savings. The peak demand values per kit were consistent with the net savings from the program's ex ante calculations instead of the gross savings. Using the net savings reduced the ex ante peak demand savings by 3%.

**Recommendation 7.** Update the peak demand kW per-kit savings values in the tracking data to use gross kW from the ex ante calculations.

**Finding 12.** The tracking data provides the gallons of water saved. However, the ex ante values do not include the secondary electric energy (kWh) savings from water supply and wastewater treatment plants for measures claimed by ComEd.

**Recommendation 8.** Include the eligible secondary ex ante kWh savings from gallons of water reported in the tracking data using the IL-TRM guidelines and algorithm on the conversion of gallons of water to kWh. The program should continue tracking gallons of water saved from these measures.

ComEd informed the evaluation team that the IC will only be reporting gallons of water saved. It is the team's understanding that ComEd and the IC will work together to incorporate necessary calculations and include secondary kWh savings from water reduction in ex ante savings going forward.

## Appendix A. Impact Analysis Methodology

Table A-1 details all the custom and deemed inputs used for calculating the 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 IL-TRM. The team calculated the custom inputs using the telephone participant survey data supplied by the IC.

**Table A-1. Savings Parameters**

Measure	Custom Input Parameters	Deemed Input Parameters	Deemed* Input Data Source
BR30 8 W LEDs	WattsEE, ISR, %elec_heat, %gas_heat	Wattbase, Hours, WHFe, WHFd, CF, IFkWh, IFTherms, NTG <sup>†</sup>	IL-TRM v9.0 – Section 4.5.4
PAR30 14 W LEDs	WattsEE, ISR, %elec_heat, %gas_heat	Wattbase, Hours, WHFe, WHFd, CF, IFkWh, IFTherms, NTG <sup>†</sup>	IL-TRM v9.0 – Section 4.5.4
Candelabra 5W LEDs	WattsEE, ISR	Wattbase, Hours, WHFe, WHFd, CF, IFkWh, IFTherms, %elec_heat, %gas_heat, NTG <sup>†</sup>	IL-TRM v9.0 – Section 4.5.4
Bathroom Aerators	ISR, %Electric DHW, %FossilDHW, %CookCounty, %NotCook	Usage, GPM_base, GPM_low, EPG_electric, EPG_gas, CF, Hours, EWaterCook, EWaterNotCook, NTG <sup>†</sup>	IL-TRM v9.0 – Section 4.3.2
Kitchen Aerators	ISR, %Electric DHW, %FossilDHW, %CookCounty, %NotCook	Usage, GPM_base, GPM_low, EPG_electric, EPG_gas, CF, Hours, EWaterCook, EWaterNotCook, NTG <sup>†</sup>	IL-TRM v9.0 – Section 4.3.2
Pre-Rinse Spray Valves	ISR, %Electric DHW, %FossilDHW, %CookCounty, %NotCook	Tout, Tin, EFF_Elec, EFF_Gas, FLOee, FLObase, HOURSday, DAYSyear, EWaterCook, EWaterNotCook, NTG <sup>†</sup>	IL-TRM v9.0 – Section 4.2.11
Low Flow Showerhead	ISR, %Electric DHW, %FossilDHW, %CookCounty, %NotCook	GPM_base, GPM_low, L_base, L_low, EPG_electric, EPG_gas, NSPD, CF, Hours, EWaterCook, EWaterNotCook, NTG <sup>†</sup>	IL-TRM v9.0 – Section 4.3.3
Smart Sockets	ISR, W_base, W_eff	hrswkday, hrswkend, hrswkday-open, hrswkend-open, weeks/year, NTG <sup>†</sup>	IL-TRM v9.0 – Section 4.8.22

\* TRM is the Illinois Technical Reference Manual version 9.0 from <http://www.ilsag.info/technical-reference-manual.html>.

†The net-to-gross (NTG) values can be found on the Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021/>.

Source: ComEd survey data and evaluation team analysis

## Appendix B. Impact Findings Detailed Results

### B.1 CY2021 Carryover Savings Estimates

The evaluation team calculated the CY2021 carryover savings estimates using the IL-TRM (v7.0, v8.0, and v9.0) and the CY2019 and CY2020 Small Business Kits Impact Evaluation reports. The energy and demand savings from the CY2019 and CY2020 deferred install bulbs are calculated based on the following parameters:

- **Delta watts:** Verified savings estimate from the year of installation (source: IL-TRM v9.0).
- **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: IL-TRM v9.0).
- **Energy and demand interactive effects:** Verified savings estimate from the year of installation (source: IL-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 ISR from the lifetime ISR found in the IL-TRM (v7.0 for CY2019 and v8.0 for CY2020) and split the remaining installs between the second and third years using the same ratio found in the IL-TRM (v7.0 for CY2019 and v8.0 for CY2020).
- **NTG:** Evaluation research from the year of distribution (source: Impact Evaluation reports).

Table B-1 shows that Guidehouse estimates 6,729 bulbs that ComEd distributed during CY2019 and CY2020 were installed in ComEd's service territory in CY2021. The table provides the gross and net energy and demand savings from these carryover bulbs attributable to CY2021. The team estimates total CY2021 net carryover savings to be 1,402,761 kWh and 464 peak demand kW.

**Table B-1. CY2021 Carryover Savings Estimate**

CY2021 Verified Savings Carryover Estimate	CY2019 Bulbs	CY2020 Bulbs	CY2021 Carryover
Carryover Bulbs Installed During CY2021	1,212	5,517	6,729
Average Delta Watts	43.7	57.0	54.6
Average Annual Hours of Use	3,516	3,170	3,233
Energy Interactive Effects	1.18	1.27	1.26
Demand Interactive Effects	1.33	1.46	1.44
Summer Peak Load Coincidence Factor	0.72	0.70	0.70
Carryover Gross Energy Savings (kWh)	212,214	1,244,870	1,457,084
Carryover Gross Demand Savings (kW)	247	463	709
Carryover Gross Summer Peak Demand Savings (kW)	171	316	487
Net-to-Gross Ratio	0.92	0.97	0.96
Carryover Net Energy Savings (kWh)	195,237	1,207,524	1,402,761
Carryover Net Demand Savings (kW)	227	449	676
Carryover Net Summer Peak Demand Savings (kW)	158	306	464
Effective Useful Life	7.9	8.0	8.0

Source: ComEd tracking data and evaluation team analysis

## B.2 CY2022 Carryover Savings Estimates

The evaluation team calculated the CY2022 carryover savings estimates using the IL-TRM (v8.0, v9.0, and v10.0) and the CY2020 and CY2021 Small Business Kits Impact Evaluation reports. The energy and demand savings from the CY2020 and CY2021 deferred install bulbs are calculated based on the following parameters:

- **Delta watts:** Verified savings estimate from the year of installation (source: IL-TRM v10.0).
- **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: IL-TRM v10.0).
- **Energy and demand interactive effects:** Verified savings estimate from the year of installation (source: IL-TRM v10.0).
- **Installation rate:** Verified savings estimate from the year of distribution (CY2020 and CY2021 program survey data). The evaluation team subtracted the custom ISR from the lifetime ISR found in the IL-TRM (v8.0 for CY2020 and v9.0 for CY2021) and split the remaining installs between the second and third years using the same ratio found in the IL-TRM (v8.0 for CY2020 and v9.0 for CY2021).
- **NTG:** Evaluation research from the year of distribution (source: Impact Evaluation reports).

Table B-2 shows that Guidehouse estimates 18,368 bulbs that ComEd distributed during CY2020 and CY2021 will be installed in ComEd's service territory in CY2022. The table provides the gross and net energy and demand savings from these carryover bulbs attributable to CY2022. The team estimates total CY2022 net carryover savings to be 3,922,134 kWh and 984 peak demand kW.

**Table B-2. CY2022 Carryover Savings Estimate**

CY2022 Verified Savings Carryover Estimate	CY2020 Bulbs	CY2021 Bulbs	CY2022 Carryover
Carryover Bulbs Installed During CY2022	4,729	13,639	18,368
Average Delta Watts	57.0	57.3	57.3
Average Annual Hours of Use	3,170	3,077	3,101
Energy Interactive Effects	1.27	1.28	1.28
Demand Interactive Effects	1.46	1.48	1.47
Summer Peak Load Coincidence Factor	0.70	0.68	0.68
Carryover Gross Energy Savings (kWh)	1,059,562	2,983,875	4,043,437
Carryover Gross Demand Savings (kW)	352	1,162	1,514
Carryover Gross Summer Peak Demand Savings (kW)	241	773	1,015
Net-to-Gross Ratio	0.97	0.97	0.97
Carryover Net Energy Savings (kWh)	1,027,775	2,894,359	3,922,134
Carryover Net Demand Savings (kW)	342	1,127	1,468
Carryover Net Summer Peak Demand Savings (kW)	234	750	984
Effective Useful Life	7.9	8.0	7.9

Source: ComEd tracking data and evaluation team analysis

### B.3 Detailed Parameter Comparison

Table B-3 through Table B-10 show the comparison between the input assumptions used by the evaluation team and the program in the ex ante and verified calculations for each measure.

There were 19 survey responses from general-public kit recipients. Due to the low response rate, the team averaged (equal weight) the general-public and general-private participant responses to calculate ISRs for the general-public kit measures.

**Table B-3. 8W BR30 Custom and Deemed Values Comparison**

Value, Guidehouse	Value, Program Variable	Source	Deemed / Custom	Discrepancy
<b>8W BR30 LED General Public</b>				
65	65 Wattsbase	IL-TRM 4.5.4	Deemed	
8	8 WattsEE	Specifications	Actual	
0.15	0.66 ISR	Survey	Custom	Yes
3088	3088 Hours	IL-TRM 4.5.4	Deemed	
1.1	1.06 WHFe	IL-TRM 4.5.4	Deemed	Yes
1.26	1.09 WHFd	IL-TRM 4.5.4	Deemed	Yes
0.52	0.65 CF	IL-TRM 4.5.4	Deemed	Yes
0.166	N/A IFkWh	IL-TRM 4.5.4	Deemed	Yes
0.01	0.001 IFtherms	IL-TRM 4.5.4	Deemed	Yes
0.02	N/A %elec_heat	Survey	Custom	Yes
0.97	N/A %gas_heat	Survey	Custom	Yes
<b>8W BR30 LED General Private</b>				
65	65 Wattsbase	IL-TRM 4.5.4	Deemed	
8	8 WattsEE	Specifications	Actual	
0.27	0.59 ISR	Survey	Custom	Yes
2954	2954 Hours	IL-TRM 4.5.4	Deemed	
1.31	1.31 WHFe	IL-TRM 4.5.4	Deemed	
1.53	1.53 WHFd	IL-TRM 4.5.4	Deemed	
0.66	0.66 CF	IL-TRM 4.5.4	Deemed	
0.393	N/A IFkWh	IL-TRM 4.5.4	Deemed	Yes
0.023	0.023 IFtherms	IL-TRM 4.5.4	Deemed	
0.04	N/A %elec_heat	Survey	Custom	Yes
0.95	N/A %gas_heat	Survey	Custom	Yes

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

Source: ComEd tracking, customer survey data and evaluation team analysis



**Table B-4. 14W PAR30 Custom and Deemed Values Comparison**

Value, Guidehouse	Value, Program Variable	Source	Deemed / Custom	Discrepancy
<b>14W PAR30 LED Fire Station</b>				
75	75 Wattsbase	IL-TRM 4.5.4	Deemed	
14	14 WattsEE	Specifications	Actual	
0.17	0.66 ISR	Survey	Custom	Yes
3088	3088 Hours	IL-TRM 4.5.4	Deemed	
1.06	1.06 WHFe	IL-TRM 4.5.4	Deemed	
1.09	1.09 WHFd	IL-TRM 4.5.4	Deemed	
0.65	0.65 CF	IL-TRM 4.5.4	Deemed	
0.010	N/A IFkWh	IL-TRM 4.5.4	Deemed	Yes
0.001	0.001 IFTherms	IL-TRM 4.5.4	Deemed	
0.03	N/A %elec_heat	Survey	Custom	Yes
0.93	N/A %gas_heat	Survey	Custom	Yes
<b>14W PAR30 LED Restaurant</b>				
75	75 Wattsbase	IL-TRM 4.5.4	Deemed	
14	14 WattsEE	Specifications	Actual	
0.77	0.66 ISR	Survey	Custom	Yes
4784	4784 Hours	IL-TRM 4.5.4	Deemed	
1.08	1.08 WHFe	IL-TRM 4.5.4	Deemed	
1.1	1.1 WHFd	IL-TRM 4.5.4	Deemed	
1	1 CF	IL-TRM 4.5.4	Deemed	
0.149	N/A IFkWh	IL-TRM 4.5.4	Deemed	Yes
0.009	0.009 IFTherms	IL-TRM 4.5.4	Deemed	
0.00	N/A %elec_heat	IL-TRM 4.5.4	Deemed	Yes
1.00	N/A %gas_heat	IL-TRM 4.5.4	Deemed	Yes
<b>14W PAR30 LED General Public</b>				
75	75 Wattsbase	IL-TRM 4.5.4	Deemed	
14	14 WattsEE	Specifications	Actual	
0.11	0.66 ISR	Survey	Custom	Yes
3088	3088 Hours	IL-TRM 4.5.4	Deemed	
1.1	1.06 WHFe	IL-TRM 4.5.4	Deemed	Yes
1.26	1.09 WHFd	IL-TRM 4.5.4	Deemed	Yes
0.52	0.65 CF	IL-TRM 4.5.4	Deemed	Yes
0.166	N/A IFkWh	IL-TRM 4.5.4	Deemed	Yes
0.01	0.001 IFTherms	IL-TRM 4.5.4	Deemed	Yes
0.02	N/A %elec_heat	Survey	Custom	Yes
0.97	N/A %gas_heat	Survey	Custom	Yes
<b>14W PAR30 LED General Private</b>				
75	75 Wattsbase	IL-TRM 4.5.4	Deemed	
14	14 WattsEE	Specifications	Actual	
0.23	0.66 ISR	Survey	Custom	Yes
2954	2954 Hours	IL-TRM 4.5.4	Deemed	
1.31	1.31 WHFe	IL-TRM 4.5.4	Deemed	
1.53	1.53 WHFd	IL-TRM 4.5.4	Deemed	
0.66	0.66 CF	IL-TRM 4.5.4	Deemed	
0.393	N/A IFkWh	IL-TRM 4.5.4	Deemed	Yes
0.023	0.023 IFTherms	IL-TRM 4.5.4	Deemed	
0.04	N/A %elec_heat	Survey	Custom	Yes
0.95	N/A %gas_heat	Survey	Custom	Yes

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

Source: ComEd tracking, customer survey data and evaluation team analysis

**Table B-5. 5W Candelabra Custom and Deemed Values Comparison**

Value, Guidehouse	Value, Program Variable	Source	Deemed / Custom	Discrepancy
40	40 Wattsbase	IL-TRM 4.5.4	Deemed	
5	5 WattsEE	Specifications	Actual	
0.42	0.61 ISR	Survey	Custom	Yes
4784	4784 Hours	IL-TRM 4.5.4	Deemed	
1.08	1.08 WHFe	IL-TRM 4.5.4	Deemed	
1.1	1.1 WHFd	IL-TRM 4.5.4	Deemed	
1	1 CF	IL-TRM 4.5.4	Deemed	
0.149	N/A IFkWh	IL-TRM 4.5.4	Deemed	Yes
0.009	0.009 IFTerms	IL-TRM 4.5.4	Deemed	
0.00	N/A %elec_heat	IL-TRM 4.5.4	Deemed	Yes
1.00	N/A %gas_heat	IL-TRM 4.5.4	Deemed	Yes

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

Source: ComEd tracking, customer survey data and evaluation team analysis

**Table B-6. Bathroom Aerator Custom and Deemed Values Comparison**

Value, Guidehouse	Value, Program Variable	Source	Deemed / Custom	Discrepancy
<b>Bathroom Faucet Aerator Fire Station</b>				
0.10	0.33 %Electric DHW	Survey	Custom	Yes
0.90	0.65 %FossilDHW	Survey	Custom	Yes
1.39	1.39 GPM_base	IL-TRM 4.3.2	Deemed	
0.94	0.94 GPM_low	IL-TRM 4.3.2	Deemed	
5000	5000 Usage	IL-TRM 4.3.2	Deemed	
0.0795	0.0795 EPG_electric	IL-TRM 4.3.2	Deemed	
0.00397	0.00397 EPG_gas	IL-TRM 4.3.2	Deemed	
0.21	0.43 ISR	Survey	Custom	Yes
0.0128	0.0128 CF	IL-TRM 4.3.2	Deemed	
49	49 Hours	IL-TRM 4.3.2	Deemed	
0.22	N/A %CookCounty	Survey	Custom	Yes
0.78	N/A %NotCook	Survey	Custom	Yes
2937	N/A EWaterCook	IL-TRM 4.3.2	Deemed	Yes
5010	N/A EWaterNotCook	IL-TRM 4.3.2	Deemed	Yes
<b>Bathroom Faucet Aerator Restaurant</b>				
0.29	0.32 %Electric DHW	Survey	Custom	Yes
0.71	0.68 %FossilDHW	Survey	Custom	Yes
1.39	1.39 GPM_base	IL-TRM 4.3.2	Deemed	
0.94	0.94 GPM_low	IL-TRM 4.3.2	Deemed	
12675	12675 Usage	IL-TRM 4.3.2	Deemed	
0.0795	0.0795 EPG_electric	IL-TRM 4.3.2	Deemed	
0.00397	0.00397 EPG_gas	IL-TRM 4.3.2	Deemed	
0.57	0.49 ISR	Survey	Custom	Yes
0.0134	0.0134 CF	IL-TRM 4.3.2	Deemed	
123	123 Hours	IL-TRM 4.3.2	Deemed	
0.61	N/A %CookCounty	Survey	Custom	Yes
0.39	N/A %NotCook	Survey	Custom	Yes
2937	N/A EWaterCook	IL-TRM 4.3.2	Deemed	Yes
5010	N/A EWaterNotCook	IL-TRM 4.3.2	Deemed	Yes

Value, Guidehouse	Value, Program Variable	Source	Deemed / Custom	Discrepancy
<b>Bathroom Faucet Aerator General Public</b>				
0.23	0.33 %Electric DHW	Survey	Custom	Yes
0.77	0.65 %FossilDHW	Survey	Custom	Yes
1.39	1.39 GPM_base	IL-TRM 4.3.2	Deemed	
0.94	0.94 GPM_low	IL-TRM 4.3.2	Deemed	
5000	5000 Usage	IL-TRM 4.3.2	Deemed	
0.0795	0.0795 EPG_electric	IL-TRM 4.3.2	Deemed	
0.00397	0.00397 EPG_gas	IL-TRM 4.3.2	Deemed	
0.08	0.43 ISR	Survey	Custom	Yes
0.0128	0.0128 CF	IL-TRM 4.3.2	Deemed	
49	49 Hours	IL-TRM 4.3.2	Deemed	
0.27	N/A %CookCounty	Survey	Custom	Yes
0.73	N/A %NotCook	Survey	Custom	Yes
2937	N/A EWaterCook	IL-TRM 4.3.2	Deemed	Yes
5010	N/A EWaterNotCook	IL-TRM 4.3.2	Deemed	Yes
<b>Bathroom Faucet Aerator General Private</b>				
0.21	0.33 %Electric DHW	Survey	Custom	Yes
0.79	0.65 %FossilDHW	Survey	Custom	Yes
1.39	1.39 GPM_base	IL-TRM 4.3.2	Deemed	
0.94	0.94 GPM_low	IL-TRM 4.3.2	Deemed	
5000	5000 Usage	IL-TRM 4.3.2	Deemed	
0.0795	0.0795 EPG_electric	IL-TRM 4.3.2	Deemed	
0.00397	0.00397 EPG_gas	IL-TRM 4.3.2	Deemed	
0.16	0.43 ISR	Survey	Custom	Yes
0.0128	0.0128 CF	IL-TRM 4.3.2	Deemed	
49	49 Hours	IL-TRM 4.3.2	Deemed	
0.56	N/A %CookCounty	Survey	Custom	Yes
0.44	N/A %NotCook	Survey	Custom	Yes
2937	N/A EWaterCook	IL-TRM 4.3.2	Deemed	Yes
5010	N/A EWaterNotCook	IL-TRM 4.3.2	Deemed	Yes

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

Source: ComEd tracking, customer survey data and evaluation team analysis

**Table B-7. Kitchen Aerator Custom and Deemed Values Comparison**

Value, Guidehouse	Value, Program Variable	Source	Deemed / Custom	Discrepancy
<b>Kitchen Faucet Aerator Fire Station</b>				
0.10	0.32 %Electric DHW	Survey	Custom	Yes
0.90	0.68 %FossilDHW	Survey	Custom	Yes
1.39	1.39 GPM_base	IL-TRM 4.3.2	Deemed	
0.94	0.94 GPM_low	IL-TRM 4.3.2	Deemed	
5000	5000 Usage	IL-TRM 4.3.2	Deemed	
0.0969	0.0969 EPG_electric	IL-TRM 4.3.2	Deemed	
0.00484	0.00484 EPG_gas	IL-TRM 4.3.2	Deemed	
0.14	0.49 ISR	Survey	Custom	Yes
0.0128	0.0128 CF	IL-TRM 4.3.2	Deemed	
49	49 Hours	IL-TRM 4.3.2	Deemed	
0.22	N/A %CookCounty	Survey	Custom	Yes
0.78	N/A %NotCook	Survey	Custom	Yes
2937	N/A EWaterCook	IL-TRM 4.3.2	Deemed	Yes
5010	N/A EWaterNotCook	IL-TRM 4.3.2	Deemed	Yes
<b>Kitchen Faucet Aerator Restaurant</b>				
0.29	0.32 %Electric DHW	Survey	Custom	Yes
0.71	0.68 %FossilDHW	Survey	Custom	Yes
1.39	1.39 GPM_base	IL-TRM 4.3.2	Deemed	
0.94	0.94 GPM_low	IL-TRM 4.3.2	Deemed	
12675	12675 Usage	IL-TRM 4.3.2	Deemed	
0.0969	0.0969 EPG_electric	IL-TRM 4.3.2	Deemed	
0.00484	0.00484 EPG_gas	IL-TRM 4.3.2	Deemed	
0.64	0.49 ISR	Survey	Custom	Yes
0.0134	0.0134 CF	IL-TRM 4.3.2	Deemed	
123	123 Hours	IL-TRM 4.3.2	Deemed	
0.61	N/A %CookCounty	Survey	Custom	Yes
0.39	N/A %NotCook	Survey	Custom	Yes
2937	N/A EWaterCook	IL-TRM 4.3.2	Deemed	Yes
5010	N/A EWaterNotCook	IL-TRM 4.3.2	Deemed	Yes

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

Source: ComEd tracking, customer survey data and evaluation team analysis

**Table B-8. Pre-Rinse Spray Valve Custom and Deemed Values Comparison**

Value, Guidehouse	Value, Program Variable	Source	Deemed / Custom	Discrepancy
<b>Pre-Rinse Spray Valve Fire Station</b>				
0.10	0.32 %Electric DHW	Survey	Custom	Yes
0.90	0.68 %FossilDHW	Survey	Custom	Yes
124.1	124.1 Tout	IL-TRM 4.2.11	Deemed	
54.1	54.1 Tin	IL-TRM 4.2.11	Deemed	
0.98	0.98 EFF_Elec	IL-TRM 4.2.11	Deemed	
0.8	0.8 EFF_Gas	IL-TRM 4.2.11	Deemed	
2.14	2.14 FLObase	IL-TRM 4.2.11	Deemed	
0.98	0.98 FLOee	IL-TRM 4.2.11	Deemed	
1	1 HOURSday	IL-TRM 4.2.11	Deemed	
312	312 DAYYear	IL-TRM 4.2.11	Deemed	
0.14	0.45 ISR	Survey	Custom	Yes
0.22	N/A %CookCounty	Survey	Custom	Yes
0.78	N/A %NotCook	Survey	Custom	Yes
2937	N/A EWaterCook	IL-TRM 4.2.11	Deemed	Yes
5010	N/A EWaterNotCook	IL-TRM 4.2.11	Deemed	Yes
<b>Pre-Rinse Spray Valve Restaurant</b>				
0.29	0.32 %Electric DHW	Survey	Custom	Yes
0.71	0.68 %FossilDHW	Survey	Custom	Yes
124.1	124.1 Tout	IL-TRM 4.2.11	Deemed	
54.1	54.1 Tin	IL-TRM 4.2.11	Deemed	
0.98	0.97 EFF_Elec	IL-TRM 4.2.11	Deemed	Yes
0.8	0.8 EFF_Gas	IL-TRM 4.2.11	Deemed	
2.14	2.14 FLObase	IL-TRM 4.2.11	Deemed	
0.98	0.98 FLOee	IL-TRM 4.2.11	Deemed	
1.25	1.25 HOURSday	IL-TRM 4.2.11	Deemed	
312	312 DAYYear	IL-TRM 4.2.11	Deemed	
0.63	0.45 ISR	Survey	Custom	Yes
0.61	N/A %CookCounty	Survey	Custom	Yes
0.39	N/A %NotCook	Survey	Custom	Yes
2937	N/A EWaterCook	IL-TRM 4.2.11	Deemed	Yes
5010	N/A EWaterNotCook	IL-TRM 4.2.11	Deemed	Yes

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

Source: ComEd tracking, customer survey data and evaluation team analysis

**Table B-9. Low Flow Showerhead Custom and Deemed Values Comparison**

Value, Guidehouse	Value, Program Variable	Source	Deemed / Custom	Discrepancy
0.10	0.32 %ElectricDHW	Survey	Custom	Yes
0.90	0.68 %FossilDHW	Survey	Custom	Yes
2.67	2.67 GPM_base	IL-TRM 4.3.3	Deemed	
8.2	8.2 L_base	IL-TRM 4.3.3	Deemed	
1.5	1.5 GPM_low	IL-TRM 4.3.3	Deemed	
8.2	8.2 L_low	IL-TRM 4.3.3	Deemed	
5	5 NSPD	IL-TRM 4.3.3	Deemed	
0.117	0.117 EPG_electric	IL-TRM 4.3.3	Deemed	
0.01	0.0058 EPG_gas	IL-TRM 4.3.3	Deemed	
0.22	0.49 ISR	Survey	Custom	Yes
0.0278	0.0278 CF	IL-TRM 4.3.3	Deemed	
0.22	N/A %CookCounty	Survey	Custom	Yes
0.78	N/A %NotCook	Survey	Custom	Yes
2937	N/A EWaterCook	IL-TRM 4.3.3	Deemed	Yes
5010	N/A EWaterNotCook	IL-TRM 4.3.3	Deemed	Yes

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

Source: ComEd tracking, customer survey data and evaluation team analysis

**Table B-10. Smart Socket Custom and Deemed Values Comparison**

Value, Guidehouse	Value, Program Variable	Source	Deemed / Custom	Discrepancy
<b>Smart Socket General Public</b>				
9.3	8 W_base	Survey	Custom	Yes
0.7	2 W_eff	Specifications	Actual	Yes
106	106 hrswkday	IL-TRM 4.8.22	Deemed	
62	62 hrswkend	IL-TRM 4.8.22	Deemed	
50	50 hrswkday-open	IL-TRM 4.8.22	Deemed	
0	0 hrswkend-open	IL-TRM 4.8.22	Deemed	
52.2	52.2 weeks/year	IL-TRM 4.8.22	Deemed	
0.05	0.28 ISR	Survey	Custom	Yes
<b>Smart Socket General Private</b>				
9.3	8 W_base	Survey	Custom	Yes
0.7	2 W_eff	Specifications	Actual	Yes
106	106 hrswkday	IL-TRM 4.8.22	Deemed	
62	62 hrswkend	IL-TRM 4.8.22	Deemed	
50	50 hrswkday-open	IL-TRM 4.8.22	Deemed	
0	0 hrswkend-open	IL-TRM 4.8.22	Deemed	
52.2	52.2 weeks/year	IL-TRM 4.8.22	Deemed	
0.10	0.28 ISR	Survey	Custom	Yes

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

Source: ComEd tracking, customer survey data and 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. This table does not include additional required cost data (e.g., measure costs, program-level incentives, and non-incentive costs). ComEd will provide this data 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 Savings due to Water Reduction (kWh)	Gross Heating Penalty (kWh)	Gross Heating Penalty (Therms)	NTG (kWh)	NTG (kW)	NTG (Therms)	Net Electric 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)
Hot Water	Pre-rinse Spray Valve - Restaurant	Each	1,445	5.0	No	1,248,637	0.00	128,044	92,597	0	0	0.97	0.97	0.97	1,211,178	0.00	124,203	89,819	0	0
Lighting	BR30 LED 8 W - General Kit - Private	Lamp	19,047	8.5	No	1,110,041	293.48	0	0	-14,647	-18,757	0.97	0.97	0.97	1,076,740	284.68	0	0	-14,208	-18,194
Lighting	PAR30 LED 14 W - Restaurant	Each	2,890	5.2	No	702,932	149.65	0	0	0	-5,858	0.97	0.97	0.97	681,844	145.17	0	0	0	-5,682
Lighting	PAR30 LED 14 W - General Kit - Private	Lamp	12,698	8.5	No	668,120	176.64	0	0	-8,816	-11,289	0.97	0.97	0.97	648,076	171.35	0	0	-8,551	-10,951
Hot Water	Kitchen Aerator - Low Flow - Restaurant	Each	2,890	10.0	No	213,383	23.25	26,149	28,478	0	0	0.97	0.97	0.97	206,982	22.55	25,365	27,623	0	0
Lighting	Candelabra 5W - Restaurant	Each	2,890	3.6	No	221,543	47.17	0	0	0	-1,846	0.97	0.97	0.97	214,896	45.75	0	0	0	-1,791
Hot Water	Bath Aerator - Low Flow - Restaurant	Each	2,890	10.0	No	154,296	16.81	18,904	25,099	0	0	0.97	0.97	0.97	149,667	16.31	18,337	24,346	0	0
Consumer Electronics	Smart Socket - General Kit - Private	Each	12,698	7.0	No	69,507	0.00	0	0	0	0	0.97	0.97	0.97	67,422	0.00	0	0	0	0
Hot Water	Bath Aerator - Low Flow - General Kit - Private	Each	12,698	10.0	No	53,650	14.01	10,199	12,548	0	0	0.97	0.97	0.97	52,040	13.59	9,894	12,172	0	0
Lighting	BR30 LED 8 W - General Kit - Public	Lamp	1,284	8.1	No	37,514	7.26	0	0	-123	-334	0.97	0.97	0.97	36,389	7.04	0	0	-119	-324
Lighting	PAR30 LED 14 W - General Kit - Public	Lamp	856	8.1	No	19,963	3.86	0	0	-65	-178	0.97	0.97	0.97	19,364	3.75	0	0	-63	-172
Hot Water	Showerhead - Low Flow - Fire Station	Each	204	10.0	No	9,309	0.23	4,185	3,655	0	0	0.97	0.97	0.97	9,029	0.22	4,060	3,546	0	0
Lighting	PAR30 LED 14 W - Fire Station	Lamp	204	8.1	No	7,021	1.52	0	0	-2	-6	0.97	0.97	0.97	6,810	1.47	0	0	-2	-6
Hot Water	Pre-rinse Spray Valve - Fire Station	Each	102	5.0	No	5,291	0.00	9,038	1,394	0	0	0.97	0.97	0.97	5,132	0.00	8,767	1,352	0	0
Hot Water	Bath Aerator - Low Flow - General Kit - Public	Each	856	10.0	No	1,988	0.52	336	488	0	0	0.97	0.97	0.97	1,928	0.50	326	473	0	0
Consumer Electronics	Smart Socket - General Kit - Public	Each	856	7.0	No	2,343	0.00	0	0	0	0	0.97	0.97	0.97	2,273	0.00	0	0	0	0
Hot Water	Bath Aerator - Low Flow - Fire Station	Each	204	10.0	No	539	0.14	244	312	0	0	0.97	0.97	0.97	523	0.14	237	302	0	0
Hot Water	Kitchen Aerator - Low Flow - Fire Station	Each	204	10.0	No	438	0.11	199	208	0	0	0.97	0.97	0.97	425	0.11	193	202	0	0
Carryover	CY2019 & CY2020 Carryover	Lamp	6,729	8.0	No	1,457,084	487.01	0	0	0	-21,917	0.96	0.95	0.96	1,402,761	463.83	0	0	0	-21,100
<b>Total</b>				<b>7.2</b>		<b>5,983,598</b>	<b>1,222</b>	<b>197,299</b>	<b>164,779</b>	<b>-23,654</b>	<b>-60,184</b>				<b>5,793,480</b>	<b>1,176</b>	<b>191,380</b>	<b>159,835</b>	<b>-22,944</b>	<b>-58,219</b>

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.  
 \* 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 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.

Source: ComEd tracking data and evaluation team analysis