



ComEd Manufactured Housing Retrofits Impact Evaluation Report

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

Prepared for:

ComEd

FINAL

April 13, 2021

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1. Introduction

This report presents results from the CY2020 impact evaluation of ComEd's Income Eligible Manufactured Housing Retrofit (MHR) 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. The MHR Program sunsetted in October of 2020.

2. Program Description

ComEd launched the MHR Program in CY2019 to target underserved communities. The implementer offered an assessment of the home's mechanical system, building envelope, and ductwork, as well as direct installation of energy efficient measures. Installed measures included lighting retrofits, thermostats, air and duct sealing, low flow showerheads and aerators, pipe insulation, belly insulation, electronically commutated furnace blower motors, advanced power strips, refrigerators, and refrigerator recycling.

The MHR Program achieved electric and natural gas savings that are solely claimed by ComEd. In CY2020, the program included 119 projects and served 117 unique homes.¹ The program installed 3,253 measures as Table 2-1 shows. LED lighting contributed about one-third of the electric savings as Figure 2-1 indicates.

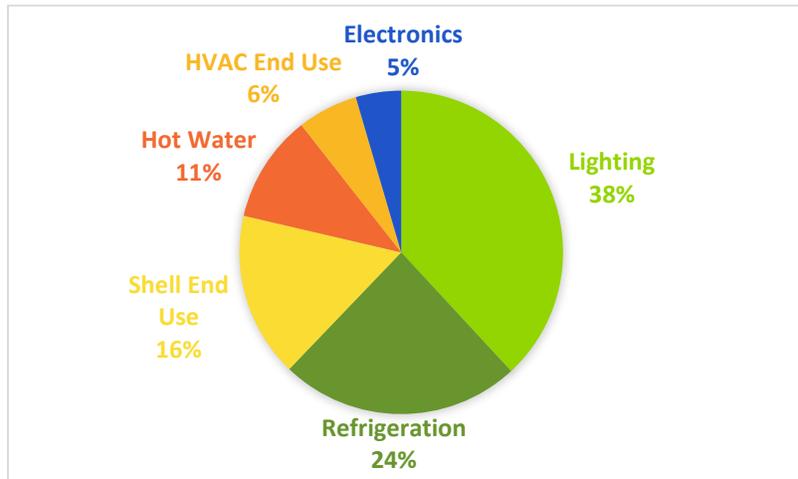
Table 2-1. CY2020 Volumetric Findings Detail

Participation	Total
Participants	117
Projects	119
Total Installed Measures	3,253

Source: ComEd tracking data and evaluation team analysis

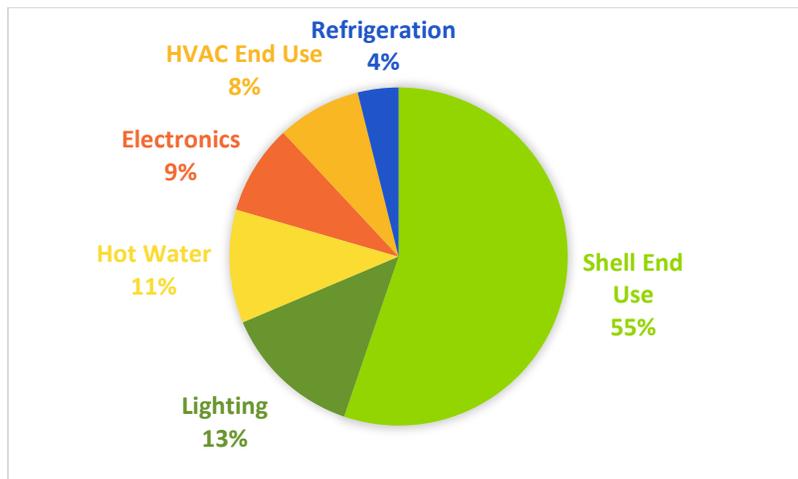
¹ Two account numbers each included two projects, resulting in four projects at two sites, and two more projects than homes served.

Figure 2-1. Share of Tracked Electrical Energy Savings (kWh) by Measure Type



Source: ComEd tracking data and evaluation team analysis

Figure 2-2. Share of Tracked Measure Quantity² 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 MHR Program achieved in CY2020. The program electric savings have a realization rate of 1.00 and gas savings have a realization rate of 1.00. Overall, the program has a CY2020 gross realization rate of 1.00. 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. The total verified net energy savings were 138,855 kWh.

² The “Measure Quantity” reflects quantities of measures where each measure counts as one. The “Shell End Use” group includes all air sealing, window, and insulation measures.

Table 3-1. CY2020 Total Annual Incremental Electric Savings

Savings Category	Energy Savings (kWh)	Summer Peak* Demand Savings (kW)
Electricity		
Ex Ante Gross Savings	68,223	9
Program Gross Realization Rate	1.00	0.95
Verified Gross Savings	68,101	9
Program Net-to-Gross Ratio (NTG)	1.00	1.00
Verified Net Savings	68,101	9
Converted from Gas[†]		
Ex Ante Gross Savings	70,952	NA
Program Gross Realization Rate	1.00	NA
Verified Gross Savings	70,754	NA
Program Net-to-Gross Ratio (NTG)	1.00	NA
Verified Net Savings	70,754	NA
Total Electric Plus Gas		
Ex Ante Gross Savings	139,175	9
Program Gross Realization Rate	1.00	0.95
Verified Gross Savings	138,855	9
Program Net-to-Gross Ratio (NTG)	1.00	1.00
Verified Net Savings	138,855	9

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."

Source: ComEd tracking data and evaluation 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 MHR 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 68,101 kWh (Table 4-1). The CY2020 gas contribution to CPAS (converted to equivalent electricity) is 70,754 kWh (Table 4-2). Adding the gas and electric contributions produces 138,855 kWh of total CY2020 contribution to CPAS (Table 4-3). The historic rows in each table are the CPAS contribution back to CY2019. The Program Total Electric CPAS and the 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	EUL	CY2020 Verified Gross Savings (kWh)	NTG*	Lifetime Net Savings (kWh) ¹	Verified Net kWh Savings									
						2018	2019	2020	2021	2022	2023	2024	2025	2026	
Lighting	LED - 10 W	10.0	16,480	1.00	115,362			16,480	16,480	16,480	16,480	16,480	16,480	16,480	
Refrigeration	Refrigerator + Recycling	17.0	16,231	1.00	111,515			16,231	16,231	16,231	16,231	16,231	16,231	1,285	
Shell	Duct Insulation & Sealing	20.0	8,460	1.00	168,304			8,460	8,460	8,460	8,460	8,460	8,460	8,460	
Hot Water	Showerhead - Handheld - 1.5 GPM	10.0	3,643	1.00	36,428			3,643	3,643	3,643	3,643	3,643	3,643	3,643	
Lighting	LED - 12 W	10.0	3,063	1.00	21,439			3,063	3,063	3,063	3,063	3,063	3,063	3,063	
Electronics	Advanced Power Strip	7.0	3,090	1.00	21,630			3,090	3,090	3,090	3,090	3,090	3,090	3,090	
Lighting	LED - 4 W Candelabra	10.0	2,872	1.00	24,670			2,872	2,872	2,872	2,872	2,872	2,872	2,872	
HVAC	Programmable Thermostat	8.0	2,474	1.00	19,789			2,474	2,474	2,474	2,474	2,474	2,474	2,474	
Hot Water	Showerhead 1.5 GPM	10.0	2,398	1.00	23,981			2,398	2,398	2,398	2,398	2,398	2,398	2,398	
Lighting	LED - 8 W Globe G25 Bulb	10.0	1,823	1.00	15,659			1,823	1,823	1,823	1,823	1,823	1,823	1,823	
Envelope	Air Sealing	20.0	1,791	1.00	35,516			1,791	1,791	1,791	1,791	1,791	1,791	1,791	
HVAC	Advanced Thermostat	11.0	1,668	1.00	18,348			1,668	1,668	1,668	1,668	1,668	1,668	1,668	
Hot Water	Kitchen Aerator	10.0	1,326	1.00	13,263			1,326	1,326	1,326	1,326	1,326	1,326	1,326	
Envelope	Belly Insulation	20.0	767	1.00	15,174			767	767	767	767	767	767	767	
Lighting	LED - 12 W Dimmable	8.0	748	1.00	5,666			748	748	748	748	748	748	748	
Lighting	LED - 15 W Flood Light PAR 30	10.0	711	1.00	6,406			711	711	711	711	711	711	711	
Hot Water	Bath Aerator	10.0	388	1.00	3,882			388	388	388	388	388	388	388	
Hot Water	Pipe Wrap Insulation	15.0	167	1.00	2,511			167	167	167	167	167	167	167	
CY2020 Program Total Electric Contribution to CPAS			68,101		659,543			68,101	68,101	68,101	68,101	68,101	68,101	53,155	
Historic Program Total Electric Contribution to CPAS ¹						-	330,700	330,700	255,041	255,041	255,041	220,370	206,472	182,139	
Program Total Electric CPAS						-	330,700	398,801	323,142	323,142	323,142	288,471	274,573	235,294	
CY2020 Program Incremental Expiring Electric Savings ⁸								-	-	-	-	-	-	14,946	
Historic Program Incremental Expiring Electric Savings ¹⁵								-	75,659	-	-	34,671	13,898	24,333	
Program Total Incremental Expiring Electric Savings ⁹								-	75,659	-	-	34,671	13,898	39,279	

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Lighting	LED - 10 W	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	Refrigerator + Recycling	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	-	-	-	-
Shell	Duct Insulation & Sealing	8,460	8,460	8,460	8,370	8,370	8,370	8,370	8,370	8,370	8,370	8,370	8,370	8,370	-
Hot Water	Showerhead - Handheld - 1.5 GPM	3,643	3,643	3,643	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 12 W	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electronics	Advanced Power Strip	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 4 W Candelabra	1,522	1,522	1,522	-	-	-	-	-	-	-	-	-	-	-
HVAC	Programmable Thermostat	2,474	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	Showerhead 1.5 GPM	2,398	2,398	2,398	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 8 W Globe G25 Bulb	966	966	966	-	-	-	-	-	-	-	-	-	-	-
Envelope	Air Sealing	1,791	1,791	1,791	1,761	1,761	1,761	1,761	1,761	1,761	1,761	1,761	1,761	1,761	-
HVAC	Advanced Thermostat	1,668	1,668	1,668	1,668	-	-	-	-	-	-	-	-	-	-
Hot Water	Kitchen Aerator	1,326	1,326	1,326	-	-	-	-	-	-	-	-	-	-	-
Envelope	Belly Insulation	767	767	767	750	750	750	750	750	750	750	750	750	750	-
Lighting	LED - 12 W Dimmable	427	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 15 W Flood Light PAR 30	476	476	476	-	-	-	-	-	-	-	-	-	-	-
Hot Water	Bath Aerator	388	388	388	-	-	-	-	-	-	-	-	-	-	-
Hot Water	Pipe Wrap Insulation	167	167	167	167	167	167	167	167	-	-	-	-	-	-
CY2020 Program Total Electric Contribution to CPAS		27,759	24,858	24,858	14,001	12,333	12,333	12,333	12,333	12,166	12,166	10,881	10,881	10,881	-
Historic Program Total Electric Contribution to CPAS [†]		170,895	170,895	76,316	67,073	67,073	67,073	67,073	30,416	30,416	29,131	29,131	29,131	-	-
Program Total Electric CPAS		198,654	195,753	101,174	81,074	79,406	79,406	79,406	42,749	42,582	41,297	40,012	40,012	10,881	-
CY2020 Program Incremental Expiring Electric Savings [§]		25,396	2,900	-	10,857	1,668	-	-	-	167	-	1,285	-	-	10,881
Historic Program Incremental Expiring Electric Savings [§]		11,244	-	94,579	9,243	-	-	-	36,657	-	1,285	-	-	29,131	-
Program Total Incremental Expiring Electric Savings [§]		36,640	2,900	94,579	20,100	1,668	-	-	36,657	167	1,285	1,285	-	29,131	10,881

Note: The green highlighted cell shows program total first year electric savings. The gray cells are blank, indicating no values or no contribution to calculating CPAS in CY2020.

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

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

‡ Historical savings go back to CY2018

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

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	
Lighting	LED - 10 W	10.0	-	1.00	-		-	-	-	-	-	-	-	-	
Refrigeration	Refrigerator + Recycling	17.0	-	1.00	-		-	-	-	-	-	-	-	-	
Shell	Duct Insulation & Sealing	20.0	612	1.00	11,701			612	612	612	612	612	612	612	
Hot Water	Showerhead - Handheld - 1.5 GPM	10.0	145	1.00	1,453			145	145	145	145	145	145	145	
Lighting	LED - 12 W	10.0	-	1.00	-		-	-	-	-	-	-	-	-	
Electronics	Advanced Power Strip	7.0	-	1.00	-		-	-	-	-	-	-	-	-	
Lighting	LED - 4 W Candelabra	10.0	-	1.00	-		-	-	-	-	-	-	-	-	
HVAC	Programmable Thermostat	8.0	364	1.00	2,916			364	364	364	364	364	364	364	
Hot Water	Showerhead 1.5 GPM	10.0	85	1.00	847			85	85	85	85	85	85	85	
Lighting	LED - 8 W Globe G25 Bulb	10.0	-	1.00	-		-	-	-	-	-	-	-	-	
Envelope	Air Sealing	20.0	270	1.00	5,314			270	270	270	270	270	270	270	
HVAC	Advanced Thermostat	11.0	688	1.00	6,884			688	688	688	688	688	688	688	
Hot Water	Kitchen Aerator	10.0	69	1.00	687			69	69	69	69	69	69	69	
Envelope	Belly Insulation	20.0	135	1.00	2,572			135	135	135	135	135	135	135	
Lighting	LED - 12 W Dimmable	8.0	-	1.00	-		-	-	-	-	-	-	-	-	
Lighting	LED - 15 W Flood Light PAR 30	10.0	-	1.00	-		-	-	-	-	-	-	-	-	
Hot Water	Bath Aerator	10.0	34	1.00	343			34	34	34	34	34	34	34	
Hot Water	Pipe Wrap Insulation	15.0	11	1.00	169			11	11	11	11	11	11	11	
CY2020 Program Total Gas Contribution to CPAS (Therms)			2,414		32,885			2,414	2,414	2,414	2,414	2,414	2,414	2,414	
CY2020 Program Total Gas Contribution to CPAS (kWh Equivalent) [‡]			70,754		963,868			70,754	70,754	70,754	70,754	70,754	70,754	70,754	
Historic Program Total Gas Contribution to CPAS (kWh Equivalent) ¹⁵						-	572,636	572,636	571,202	571,202	571,202	571,202	571,202	571,202	
Program Total Gas CPAS (kWh Equivalent) [†]						-	572,636	643,390	641,956	641,956	641,956	641,956	641,956	641,956	
CY2020 Program Incremental Expiring Gas Savings (Therms) ¹¹								-	-	-	-	-	-		
CY2020 Program Incremental Expiring Gas Savings (kWh Equivalent) ¹¹								-	-	-	-	-	-		
Historic Program Incremental Expiring Gas Savings (kWh Equivalent) ¹⁵ ¹¹								-	1,434	-	-	-	-		
Program Total Incremental Expiring Gas Savings (kWh Equivalent) ¹¹								-	1,434	-	-	-	-		

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Lighting	LED - 10 W	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	Refrigerator + Recycling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	Duct Insulation & Sealing	612	612	612	558	558	558	558	558	558	558	558	558	558	-
Hot Water	Showerhead - Handheld - 1.5 GPM	145	145	145	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 12 W	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electronics	Advanced Power Strip	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 4 W Candelabra	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC	Programmable Thermostat	364	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	Showerhead 1.5 GPM	85	85	85	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 8 W Globe G25 Bulb	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Envelope	Air Sealing	270	270	270	262	262	262	262	262	262	262	262	262	262	-
HVAC	Advanced Thermostat	688	688	688	-	-	-	-	-	-	-	-	-	-	-
Hot Water	Kitchen Aerator	69	69	69	-	-	-	-	-	-	-	-	-	-	-
Envelope	Belly Insulation	135	135	135	122	122	122	122	122	122	122	122	122	122	-
Lighting	LED - 12 W Dimmable	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 15 W Flood Light PAR 30	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	Bath Aerator	34	34	34	-	-	-	-	-	-	-	-	-	-	-
Hot Water	Pipe Wrap Insulation	11	11	11	11	11	11	11	11	-	-	-	-	-	-
CY2020 Program Total Gas Contribution to CPAS (Therms)		2,414	2,050	2,050	953	953	953	953	953	942	942	942	942	942	-
CY2020 Program Total Gas Contribution to CPAS (kWh Equivalent)‡		70,754	60,073	60,073	27,934	27,934	27,934	27,934	27,934	27,604	27,604	27,604	27,604	27,604	-
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)§		451,451	451,451	346,146	301,111	301,111	301,111	301,111	298,541	298,541	298,541	298,541	298,541	-	-
Program Total Gas CPAS (kWh Equivalent)†		522,205	511,524	406,219	329,045	329,045	329,045	329,045	326,475	326,145	326,145	326,145	326,145	27,604	-
CY2020 Program Incremental Expiring Gas Savings (Therms)¶		-	364	-	1,097	-	-	-	-	11	-	-	-	-	942
CY2020 Program Incremental Expiring Gas Savings (kWh Equivalent)¶¶		-	10,682	-	32,138	-	-	-	-	331	-	-	-	-	27,604
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)§§		119,751	-	105,305	45,035	-	-	-	2,570	-	-	-	-	298,541	-
Program Total Incremental Expiring Gas Savings (kWh Equivalent)¶¶¶		119,751	10,682	105,305	77,173	-	-	-	2,570	331	-	-	-	298,541	27,604

Note: The green highlighted cell shows program total first year gas savings in kWh equivalents. The gray cells are blank, indicating no values or no contribution to calculating CPAS in CY2020.

* A deemed value. Source: 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	
Lighting	LED - 10 W	10.0	16,480	1.00	115,362			16,480	16,480	16,480	16,480	16,480	16,480	16,480	16,480
Refrigeration	Refrigerator + Recycling	17.0	16,231	1.00	111,515			16,231	16,231	16,231	16,231	16,231	16,231	16,231	1,285
Shell	Duct Insulation & Sealing	20.0	26,410	1.00	511,250			26,410	26,410	26,410	26,410	26,410	26,410	26,410	26,410
Hot Water	Showerhead - Handheld - 1.5 GPM	10.0	7,900	1.00	79,005			7,900	7,900	7,900	7,900	7,900	7,900	7,900	7,900
Lighting	LED - 12 W	10.0	3,063	1.00	21,439			3,063	3,063	3,063	3,063	3,063	3,063	3,063	3,063
Electronics	Advanced Power Strip	7.0	3,090	1.00	21,630			3,090	3,090	3,090	3,090	3,090	3,090	3,090	3,090
Lighting	LED - 4 W Candelabra	10.0	2,872	1.00	24,670			2,872	2,872	2,872	2,872	2,872	2,872	2,872	2,872
HVAC	Programmable Thermostat	8.0	13,155	1.00	105,243			13,155	13,155	13,155	13,155	13,155	13,155	13,155	13,155
Hot Water	Showerhead 1.5 GPM	10.0	4,882	1.00	48,817			4,882	4,882	4,882	4,882	4,882	4,882	4,882	4,882
Lighting	LED - 8 W Globe G25 Bulb	10.0	1,823	1.00	15,659			1,823	1,823	1,823	1,823	1,823	1,823	1,823	1,823
Envelope	Air Sealing	20.0	9,693	1.00	191,279			9,693	9,693	9,693	9,693	9,693	9,693	9,693	9,693
HVAC	Advanced Thermostat	11.0	21,845	1.00	220,119			21,845	21,845	21,845	21,845	21,845	21,845	21,845	21,845
Hot Water	Kitchen Aerator	10.0	3,339	1.00	33,393			3,339	3,339	3,339	3,339	3,339	3,339	3,339	3,339
Envelope	Belly Insulation	20.0	4,721	1.00	90,551			4,721	4,721	4,721	4,721	4,721	4,721	4,721	4,721
Lighting	LED - 12 W Dimmable	8.0	748	1.00	5,666			748	748	748	748	748	748	748	748
Lighting	LED - 15 W Flood Light PAR 30	10.0	711	1.00	6,406			711	711	711	711	711	711	711	711
Hot Water	Bath Aerator	10.0	1,394	1.00	13,939			1,394	1,394	1,394	1,394	1,394	1,394	1,394	1,394
Hot Water	Pipe Wrap Insulation	15.0	498	1.00	7,469			498	498	498	498	498	498	498	498
CY2020 Program Total Contribution to CPAS			138,855		1,623,411			138,855	138,855	138,855	138,855	138,855	138,855	138,855	123,909
Historic Program Total Contribution to CPAS [‡]						-	903,336	903,336	826,243	826,243	826,243	791,572	777,674	777,674	753,341
Program Total CPAS						-	903,336	1,042,191	965,098	965,098	965,098	930,427	916,529	877,250	
CY2020 Program Incremental Expiring Savings [§]									-	-	-	-	-	-	14,946
Historic Program Incremental Expiring Savings [§]													34,671	13,898	24,333
Program Total Incremental Expiring Savings [§]													34,671	13,898	39,279

Source: Evaluation team analysis

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Lighting	LED - 10 W	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	Refrigerator + Recycling	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	-	-	-	-
Shell	Duct Insulation & Sealing	26,410	26,410	26,410	24,715	24,715	24,715	24,715	24,715	24,715	24,715	24,715	24,715	24,715	-
Hot Water	Showerhead - Handheld - 1.5 GPM	7,900	7,900	7,900	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 12 W	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electronics	Advanced Power Strip	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 4 W Candelabra	1,522	1,522	1,522	-	-	-	-	-	-	-	-	-	-	-
HVAC	Programmable Thermostat	13,155	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	Showerhead 1.5 GPM	4,882	4,882	4,882	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 8 W Globe G25 Bulb	966	966	966	-	-	-	-	-	-	-	-	-	-	-
Envelope	Air Sealing	9,693	9,693	9,693	9,435	9,435	9,435	9,435	9,435	9,435	9,435	9,435	9,435	9,435	-
HVAC	Advanced Thermostat	21,845	21,845	21,845	1,668	-	-	-	-	-	-	-	-	-	-
Hot Water	Kitchen Aerator	3,339	3,339	3,339	-	-	-	-	-	-	-	-	-	-	-
Envelope	Belly Insulation	4,721	4,721	4,721	4,335	4,335	4,335	4,335	4,335	4,335	4,335	4,335	4,335	4,335	-
Lighting	LED - 12 W Dimmable	427	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED - 15 W Flood Light PAR 30	476	476	476	-	-	-	-	-	-	-	-	-	-	-
Hot Water	Bath Aerator	1,394	1,394	1,394	-	-	-	-	-	-	-	-	-	-	-
Hot Water	Pipe Wrap Insulation	498	498	498	498	498	498	498	498	-	-	-	-	-	-
CY2020 Program Total Contribution to CPAS		98,513	84,931	84,931	41,935	40,267	40,267	40,267	40,267	39,769	39,769	38,485	38,485	38,485	-
Historic Program Total Contribution to CPAS [†]		622,346	622,346	422,462	368,184	368,184	368,184	368,184	328,957	328,957	327,672	327,672	327,672	327,672	-
Program Total CPAS		720,859	707,277	507,393	410,119	408,451	408,451	408,451	369,224	368,726	367,441	366,157	366,157	38,485	-
CY2020 Program Incremental Expiring Savings [§]		25,396	13,582	-	42,996	1,668	-	-	-	498	-	1,285	-	-	38,485
Historic Program Incremental Expiring Savings [§]		130,995	-	199,884	54,278	-	-	-	39,227	-	1,285	-	-	327,672	-
Program Total Incremental Expiring Savings [§]		156,391	13,582	199,884	97,274	1,668	-	-	39,227	498	1,285	1,285	-	327,672	38,485

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 no contribution to calculating CPAS in CY2020.

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

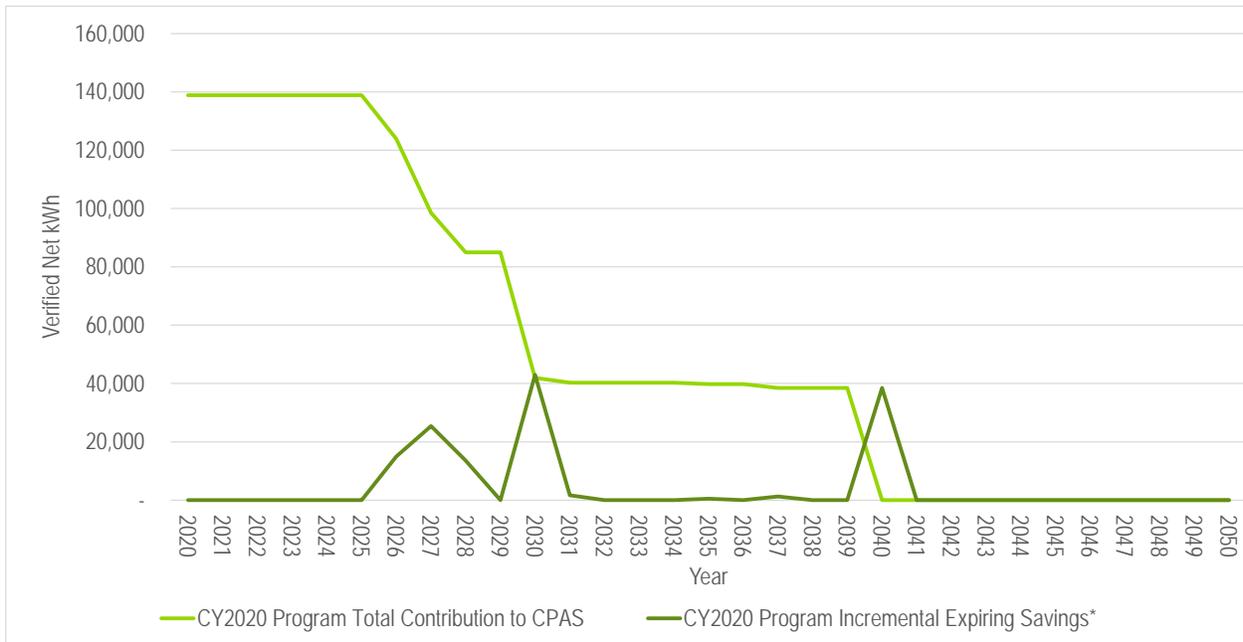
† Lifetime savings are the sum of CPAS savings through the EUL.

‡ 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



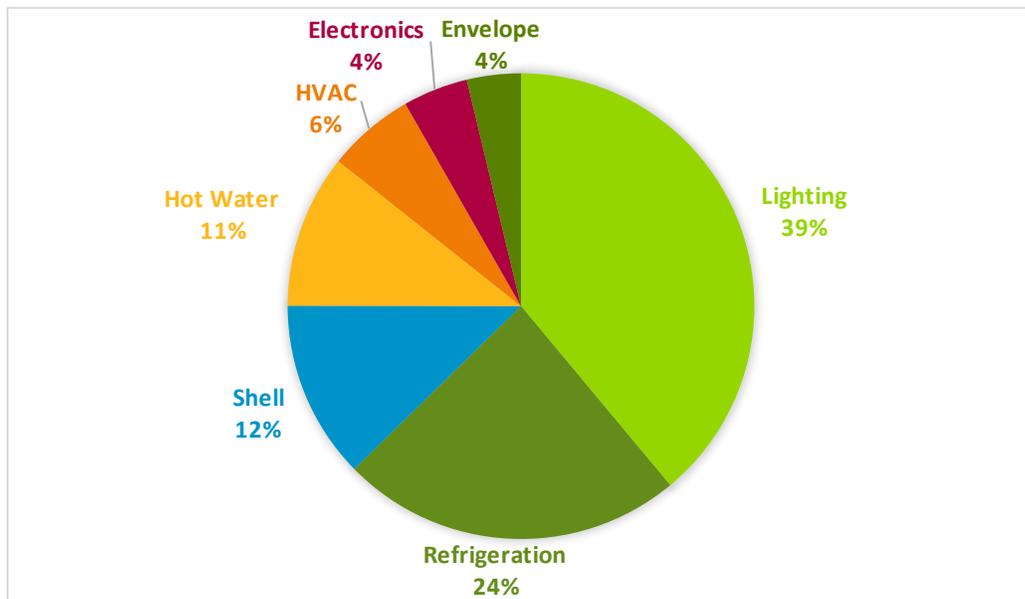
* Expiring savings are equal to CPAS Yn-1 - CPAS Yn

Source: Evaluation team analysis

5. Program Savings by Measure

The MHR Program included 18 measures as the following tables show. The LED Lighting and Refrigeration measures contributed the most electric energy savings (see Figure 5-1).

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



Source: Evaluation team analysis

Table 5-1. 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)
Lighting	LED - 10 W	16,778	0.98	16,480	1.00	16,480	10.0
Refrigeration	Refrigerator + Recycling	16,402	0.99	16,231	1.00	16,231	17.0
Shell	Duct Insulation & Sealing	8,461	1.00	8,460	1.00	8,460	20.0
Hot Water	Showerhead - Handheld - 1.5 GPM	3,392	1.07	3,643	1.00	3,643	10.0
Lighting	LED - 12 W	3,073	1.00	3,063	1.00	3,063	10.0
Electronics	Advanced Power Strip	3,090	1.00	3,090	1.00	3,090	7.0
Lighting	LED - 4 W Candelabra	2,872	1.00	2,872	1.00	2,872	10.0
HVAC	Programmable Thermostat	2,474	1.00	2,474	1.00	2,474	8.0
Hot Water	Showerhead 1.5 GPM	2,262	1.06	2,398	1.00	2,398	10.0
Lighting	LED - 8 W Globe G25 Bulb	1,823	1.00	1,823	1.00	1,823	10.0
Envelope	Air Sealing	1,895	0.95	1,791	1.00	1,791	20.0
HVAC	Advanced Thermostat	1,654	1.01	1,668	1.00	1,668	11.0
Hot Water	Kitchen Aerator	1,203	1.10	1,326	1.00	1,326	10.0
Envelope	Belly Insulation	889	0.86	767	1.00	767	20.0
Lighting	LED - 12 W Dimmable	748	1.00	748	1.00	748	8.0
Lighting	LED - 15 W Flood Light PAR 30	711	1.00	711	1.00	711	10.0
Hot Water	Bath Aerator	280	1.39	388	1.00	388	10.0
Hot Water	Pipe Wrap Insulation	217	0.77	167	1.00	167	15.0
Total		68,223	1.00	68,101	NA	68,101	NA

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

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

Source: ComEd tracking data and evaluation team analysis

Table 5-2. 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)
Lighting	LED - 10 W	2.15	0.97	2.09	1.00	2.09
Refrigeration	Refrigerator + Recycling	2.47	0.99	2.45	1.00	2.45
Shell	Duct Insulation & Sealing	0.46	1.00	0.46	1.00	0.46
Hot Water	Showerhead - Handheld - 1.5 GPM	0.37	1.00	0.37	1.00	0.37
Lighting	LED - 12 W	0.38	0.99	0.38	1.00	0.38
Electronics	Advanced Power Strip	0.35	1.00	0.35	1.00	0.35
Lighting	LED - 4 W Candelabra	0.45	1.00	0.45	1.00	0.45
HVAC	Programmable Thermostat	0.00	-	0.00	1.00	0.00
Hot Water	Showerhead 1.5 GPM	0.25	1.00	0.25	1.00	0.25
Lighting	LED - 8 W Globe G25 Bulb	0.28	1.00	0.28	1.00	0.28
Envelope	Air Sealing	0.29	0.96	0.28	1.00	0.28
HVAC	Advanced Thermostat	0.62	0.81	0.50	1.00	0.50
Hot Water	Kitchen Aerator	0.26	1.00	0.26	1.00	0.26
Envelope	Belly Insulation	0.04	1.00	0.04	1.00	0.04
Lighting	LED - 12 W Dimmable	0.08	1.00	0.08	1.00	0.08
Lighting	LED - 15 W Flood Light PAR 30	0.08	1.00	0.08	1.00	0.08
Hot Water	Bath Aerator	0.69	0.64	0.44	1.00	0.44
Hot Water	Pipe Wrap Insulation	0.02	0.77	0.02	1.00	0.02
Total		9.25	0.95	8.77	NA	8.77

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

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

Source: ComEd tracking data and evaluation team analysis

Table 5-3. 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)
Lighting	LED - 10 W	0	-	0	1.00	0	10.0
Refrigeration	Refrigerator + Recycling	0	-	0	1.00	0	17.0
Shell	Duct Insulation & Sealing	621	0.99	612	1.00	612	20.0
Hot Water	Showerhead - Handheld - 1.5 GPM	145	1.00	145	1.00	145	10.0
Lighting	LED - 12 W	0	-	0	1.00	0	10.0
Electronics	Advanced Power Strip	0	-	0	1.00	0	7.0
Lighting	LED - 4 W Candelabra	0	-	0	1.00	0	10.0
HVAC	Programmable Thermostat	364	1.00	364	1.00	364	8.0
Hot Water	Showerhead 1.5 GPM	85	1.00	85	1.00	85	10.0
Lighting	LED - 8 W Globe G25 Bulb	0	-	0	1.00	0	10.0
Envelope	Air Sealing	270	1.00	270	1.00	270	20.0
HVAC	Advanced Thermostat	688	1.00	688	1.00	688	11.0
Hot Water	Kitchen Aerator	69	1.00	69	1.00	69	10.0
Envelope	Belly Insulation	130	1.04	135	1.00	135	20.0
Lighting	LED - 12 W Dimmable	0	-	0	1.00	0	8.0
Lighting	LED - 15 W Flood Light PAR 30	0	-	0	1.00	0	10.0
Hot Water	Bath Aerator	34	1.00	34	1.00	34	10.0
Hot Water	Pipe Wrap Insulation	15	0.77	11	1.00	11	15.0
Total Therms		2,421	1.00	2,414	NA	2,414	NA
Total kWh Converted From Therms[†]		70,952	1.00	70,754	NA	70,754	NA

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

* A deemed value. Source: 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).

Source: ComEd tracking data and evaluation team analysis

Table 5-4. 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)
Lighting	LED - 10 W	16,778	0.98	16,480	1.00	16,480
Refrigeration	Refrigerator + Recycling	16,402	0.99	16,231	1.00	16,231
Shell	Duct Insulation & Sealing	26,655	0.99	26,410	1.00	26,410
Hot Water	Showerhead - Handheld - 1.5 GPM	7,650	1.03	7,900	1.00	7,900
Lighting	LED - 12 W	3,073	1.00	3,063	1.00	3,063
Electronics	Advanced Power Strip	3,090	1.00	3,090	1.00	3,090
Lighting	LED - 4 W Candelabra	2,872	1.00	2,872	1.00	2,872
HVAC	Programmable Thermostat	13,155	1.00	13,155	1.00	13,155
Hot Water	Showerhead 1.5 GPM	4,745	1.03	4,882	1.00	4,882
Lighting	LED - 8 W Globe G25 Bulb	1,823	1.00	1,823	1.00	1,823
Envelope	Air Sealing	9,797	0.99	9,693	1.00	9,693
HVAC	Advanced Thermostat	21,831	1.00	21,845	1.00	21,845
Hot Water	Kitchen Aerator	3,216	1.04	3,339	1.00	3,339
Envelope	Belly Insulation	4,697	1.00	4,721	1.00	4,721
Lighting	LED - 12 W Dimmable	748	1.00	748	1.00	748
Lighting	LED - 15 W Flood Light PAR 30	711	1.00	711	1.00	711
Hot Water	Bath Aerator	1,286	1.08	1,394	1.00	1,394
Hot Water	Pipe Wrap Insulation	645	0.77	498	1.00	498
	Total†	139,175	1.00	138,855	NA	138,855

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

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

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

Source: ComEd tracking data and evaluation team analysis

The MHR Program includes measures that save water. That reduction in water produces secondary kWh savings from water supply and wastewater treatment. Table 5-5 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 5-5. 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)
Lighting	LED - 10 W	0	NR	NA	0	1.00	0
Refrigeration	Refrigerator + Recycling	0	NR	NA	0	1.00	0
Shell	Duct Insulation & Sealing	0	NR	NA	0	1.00	0
Hot Water	Showerhead - Handheld - 1.5 GPM	57,989	NR	NA	250	1.00	250
Lighting	LED - 12 W	0	NR	NA	0	1.00	0
Electronics	Advanced Power Strip	0	NR	NA	0	1.00	0
Lighting	LED - 4 W Candelabra	0	NR	NA	0	1.00	0
HVAC	Programmable Thermostat	0	NR	NA	0	1.00	0
Hot Water	Showerhead 1.5 GPM	36,243	NR	NA	136	1.00	136
Lighting	LED - 8 W Globe G25 Bulb	0	NR	NA	0	1.00	0.0
Envelope	Air Sealing	0	NR	NA	0	1.00	0.0
HVAC	Advanced Thermostat	0	NR	NA	0	1.00	0.0
Hot Water	Kitchen Aerator	28,960	NR	NA	124	1.00	124
Envelope	Belly Insulation	0	NR	NA	0	1.00	0
Lighting	LED - 12 W Dimmable	0	NR	NA	0	1.00	0
Lighting	LED - 15 W Flood Light PAR 30	0	NR	NA	0	1.00	0
Hot Water	Bath Aerator	13,584	NR	NA	108	1.00	108
Hot Water	Pipe Wrap Insulation	0	NR	NA	0	1.00	0
Total		136,777	NR	NA	619	NA	619

NR = Not reported

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

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

Source: ComEd tracking data and evaluation team analysis

6. Impact Analysis Findings and Recommendations

6.1 Impact Parameter Estimates

The evaluation team estimated the lifetime energy and demand savings of each measure using the Illinois Statewide Technical Resource Manual (TRM v8.0) algorithm inputs and tracking data. Table 6-1 presents the key parameters and references used in the verified gross and net savings calculations; the table indicates which parameters were examined through CY2020 evaluation research and which parameters were deemed.

Table 6-1. Savings Parameters

Measure	Custom Input Parameters	Deemed Input Parameters	Deemed Input Data Source *	Measure
Advanced Power Strip	None	kWh, ISR, Hours, CF	TRM v8.0 – 5.2.1	Advanced Power Strip
Low Flow Faucet Aerators	None	%ElectricDHW, GPM_base, L_base, GPM_low, L_low, Household, DF, FPH, EPG_electric, ISR, ΔWater, E_water_total, Hours, CF, %FossilDHW, EPG_gas	TRM v8.0 – 5.4.4	Low Flow Faucet Aerators
Air Sealing	CFM_existing, CFM_new, ηCool, ηHeat	N_cool, CDD, DUA, LM, ADJ _{AirSealingCool} , IE _{NetCorrection} , %Cool, HDD, %ElectricHeat, Fe, ADJ _{AirSealingHeatFan} , FLH_cooling, CF, ADJ _{AirSealingGasHeat} , N_heat	TRM v8.0 – 5.6.1	Air Sealing
Belly Insulation	R_added, Area, ηCool, ηHeat	R_old, Framing_Factor, CDD, DUA, ADJ _{FloorCool} , %Cool, HDD, ADJ _{FloorHeat} , %ElectricHeat, Fe, FLH_cooling, CF, %GasHeat	TRM v8.0 – 5.6.3	Floor Insulation Above Crawlspace
Duct Insulation and Sealing	ΔCFM _{25DL} , CapacityCool, OutputCapacityHeat, InputCapacityHeat, DE _{after} , DE _{before} , ηCool, ηHeat	FLHcool, TRFcool, %Cool, Fe, FLHheat, TRFheat, %ElectricHeat, CF, %GasHeat, ηEquipment, ηSystem	TRM v8.0 – 5.3.4	Duct Insulation and Sealing
LED Lighting	Watts _{base} , Watts _{EE}	ISR, Leakage, Hours, WHFe, WHFd, CF, HF	TRM v8.0 and TRM v8.0 Errata – 5.5.6 & 5.5.8	LED Lighting
Pipe Wrap Insulation	L, C _{new} , R _{new}	C _{exist} , R _{exist} , ΔT, ηDHW	TRM v8.0 – 5.4.1	Domestic Hot Water Pipe Insulation
Programmable Thermostat	None	%ElectricHeat, Elec_Heating_Consumption, Heating_Reduction, HF, Eff_ISR, Fe, %FossilHeat, Gas_Heating_Consumption	TRM v8.0 – 5.3.11	Programmable Thermostats
Refrigerator + Recycling	Age, Size, Side-by-Side	UEC _{BASE} , UEC _{EE} , UEC _{EXIST} , TAF, LSAF,	TRM v8.0 – 5.1.6 & 5.1.8	ENERGY STAR and CEE Tier 2 Refrigerator & Refrigerator and Freezer Recycling

Measure	Custom Input Parameters	Deemed Input Parameters	Deemed Input Data Source *	Measure
Showerheads	None	%ElectricDHW, GPM_base, L_base, GPM_low, L_low, Household, SPCD, SPH, EPG_electric, ISR	TRM v8.0 – 5.4.5	Low Flow Showerheads
Advanced Thermostat	Seasonal Energy Efficiency Ratio (SEER), Energy Efficiency Ratio (EER)	%ElectricHeat, Elec_Heating_Consumption, Heating_Reduction, HF, Eff_ISR, %AC, FLH, Capacity, Cooling_Reduction	TRM v8.0 – 5.3.16	Advanced Thermostats

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

Source: Evaluation team analysis

6.2 Other Impact Findings and Recommendations

Although this program concluded, the evaluation team developed three recommendations based on findings from the CY2020 evaluation that can be applied to similar programs. These findings suggest ways to improve the measure-level realization rates. The measure-level realization rates and program savings percentages presented in Table 6-2 give context to the team's recommendations.

Table 6-2. Measure-Level Savings and Realization Rates

End Use	Research Category	Realization Rate	Percentage of Verified Net Savings
Lighting	LED - 10 W	0.98	12%
Refrigeration	Refrigerator + Recycling	0.99	12%
Shell	Duct Insulation & Sealing	0.99	19%
Hot Water	Showerhead - Handheld - 1.5 GPM	1.03	6%
Lighting	LED - 12 W	1.01	2%
Electronics	Advanced Power Strip	1.00	2%
Lighting	LED - 4 W Candelabra	1.04	2%
HVAC	Programmable Thermostat	1.00	9%
Hot Water	Showerhead 1.5 GPM	1.03	4%
Lighting	LED - 8 W Globe G25 Bulb	1.03	1%
Envelope	Air Sealing	0.99	7%
HVAC	Advanced Thermostat	1.00	16%
Hot Water	Kitchen Aerator	1.04	2%
Envelope	Belly Insulation	1.00	3%
Lighting	LED - 12 W Dimmable	1.00	1%
Lighting	LED - 15 W Flood Light PAR 30	1.00	1%
Hot Water	Bath Aerator	1.08	1%
Hot Water	Pipe Wrap Insulation	0.77	<1%

Source: Evaluation team analysis

Finding 1. Ex ante calculations use deemed input values, even if TRM v8.0 indicates that actual values should be used if available.

Recommendation 1. Since the implementer included the HVAC heating and cooling system efficiencies in the tracking data, Guidehouse recommends using the actual efficiencies when indicated in the TRM v8.0. Using actual efficiencies instead of deemed efficiencies affected the realization rates of the envelope measures, which represent 4% of the program savings. Air sealing had a realization rate of 0.95 and belly insulation had a realization rate of 0.86.

Finding 2. Ex ante electric energy savings calculations for hot water measures do not include secondary energy savings resulting from saved water.

Recommendation 2. Secondary energy savings from hot water measures need to be separated out for cost-effectiveness calculations but should be included in total energy savings.

Finding 3. Lighting measures represented about 19% of the program's total savings. About 10% of lighting measures were tracked to be in uncooled spaces, but the waste heat factor for energy (WHFe) and the waste heat factor for demand (WHFd) used in the ex ante calculations assumed these spaces were cooled.

Recommendation 3. Guidehouse recommends using waste heat factors of 1.00 for uncooled spaces and in homes without air conditioning as documented in the TRM v8.0.

Appendix A. Impact Analysis Methodology

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

- Reviewing the savings algorithm inputs in the measure workbook for agreement with the TRM v8.0 and TRM Errata v8.0, where applicable.
- Validating the savings algorithm was applied correctly.
- Cross-checking per-unit savings values in the program tracking data with the verified values in the measure workbook or in Guidehouse'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.

The evaluation team calculated verified net energy and demand (coincident peak and overall) savings by multiplying the verified gross savings estimates by a NTG ratio of 1.0. For CY2020 the MHRProgram's NTG estimate was defined by a consensus process through the Illinois SAG.

Appendix B. Total Resource Cost Detail

Table B-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) is not included in this table and will be provided to the evaluation team later.

Table B-1. Total Resource Cost Savings Summary

End Use Type	Research Category	Units	Quantity	EUL (years)*	ER Flag†	Gross Electric Energy Savings (kWh)	Gross Peak Demand Reduction (kW)	Gross Gas Savings (Therms)	Secondary Savings due to Water Reduction (kWh)	Gross Heating Penalty (kWh)	Gross Heating Penalty (Therms)	NTG (kWh)	NTG (Therms)	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)
Lighting	LED - 10 W	Lamp	467	10.0	YES	16,480	2.09	0	0	-754	-349	1.00	1.00	1.00	16,480	2.09	0	0	-754	-349
Refrigeration	Refrigerator + Recycling	Each	29	17.0	YES	16,231	2.45	0	0	0	0	1.00	1.00	1.00	16,231	2.45	0	0	0	0
Shell	Duct Insulation & Sealing	Each	28	20.0	NO	8,460	0.46	612	0	0	0	1.00	1.00	1.00	8,460	0.46	612	0	0	0
Hot Water	Showerhead - Handheld - 1.5 GPM	Each	24	10.0	NO	3,392	0.37	145	250	0	0	1.00	1.00	1.00	3,392	0.37	145	250	0	0
Lighting	LED - 12 W	Lamp	68	10.0	YES	3,063	0.38	0	0	-42	-68	1.00	1.00	1.00	3,063	0.38	0	0	-42	-68
Electronics	Advanced Power Strip	Each	75	7.0	NO	3,090	0.35	0	0	0	0	1.00	1.00	1.00	3,090	0.35	0	0	0	0
Lighting	LED - 4 W Candelabra	Lamp	109	10.0	YES	2,872	0.45	0	0	-127	-12	1.00	1.00	1.00	2,872	0.45	0	0	-127	-12
HVAC	Programmable Thermostat	Each	9	8.0	NO	2,474	0.00	364	0	0	0	1.00	1.00	1.00	2,474	0.00	364	0	0	0
Hot Water	Showerhead 1.5 GPM	Each	15	10.0	NO	2,262	0.25	85	136	0	0	1.00	1.00	1.00	2,262	0.25	85	136	0	0
Lighting	LED - 8 W Globe G25 Bulb	Lamp	72	10.0	YES	1,823	0.28	0	0	-48	-7	1.00	1.00	1.00	1,823	0.28	0	0	-48	-7
Envelope	Air Sealing	Each	22	20.0	NO	1,791	0.28	270	0	0	0	1.00	1.00	1.00	1,791	0.28	270	0	0	0
HVAC	Advanced Thermostat	Each	11	11.0	NO	1,668	0.50	688	0	0	0	1.00	1.00	1.00	1,668	0.50	688	0	0	0
Hot Water	Kitchen Aerator	Each	14	10.0	NO	1,203	0.26	69	124	0	0	1.00	1.00	1.00	1,203	0.26	69	124	0	0
Envelope	Belly Insulation	Sq Ft	1,208	20.0	NO	767	0.04	135	0	0	0	1.00	1.00	1.00	767	0.04	135	0	0	0
Lighting	LED - 12 W Dimmable	Lamp	5	8.0	YES	748	0.08	0	0	0	0	1.00	1.00	1.00	748	0.08	0	0	0	0
Lighting	LED - 15 W Flood Light PAR 30	Lamp	4	10.0	YES	711	0.08	0	0	0	0	1.00	1.00	1.00	711	0.08	0	0	0	0
Hot Water	Bath Aerator	Each	27	10.0	NO	280	0.44	34	108	0	0	1.00	1.00	1.00	280	0.44	34	108	0	0
Hot Water	Pipe Wrap Insulation	Ln Ft	72	15.0	NO	167	0.02	11	0	0	0	1.00	1.00	1.00	167	0.02	11	0	0	0
Total				NA		67,482	8.77	2,414	619	-972	-437	NA	NA	NA	67,482	8.77	2,414	619	-972	-437

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

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 the EUL and measure savings divided by total program savings.

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

Source: ComEd tracking data and evaluation team analysis