



ComEd Small Business – Private Impact Evaluation Report

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

Prepared for:

**ComEd
FINAL**

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1. Introduction

This report presents results from the CY2020 impact evaluation of ComEd's Small Business – Private (SBP) 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. CY2020 covers January 1, 2020 through December 31, 2020.

2. Program Description

The SBP Program is designed to assist qualified ComEd private, nonresidential customers¹ in achieving electric energy savings by educating them about energy efficiency opportunities through no-cost, onsite energy assessments conducted by trained energy efficiency service providers (EESPs) and installing no-cost, direct install measures. Further savings are available from implementing other measures identified during the assessment that require a customer copay. Incentives that can cover up to 75% of the project's costs are available for these measures.² EESPs are the primary promoters and recruiters of the SBP Program. Nexant, Inc. (Nexant) was the implementation contractor for the SBP Program throughout ComEd's service territory in CY2020.

The program had 6,828 participants in CY2020, and distributed 36,426 measures, as Table 2-1 shows. A total of 30,576 lighting measures were installed through 6,915 projects, and 5,850 non-lighting measures were installed through 2,682 projects.

Table 2-1. CY2020 Volumetric Findings Detail

Participation	Total
Participants*	6,828
Installed Projects	7,501
Total Measures†	36,426
Lighting Measures	30,576
Non-Lighting Measures	5,850

* Participant count is by unique project address.

† Total measures refers to the number of line items in the tracking data.

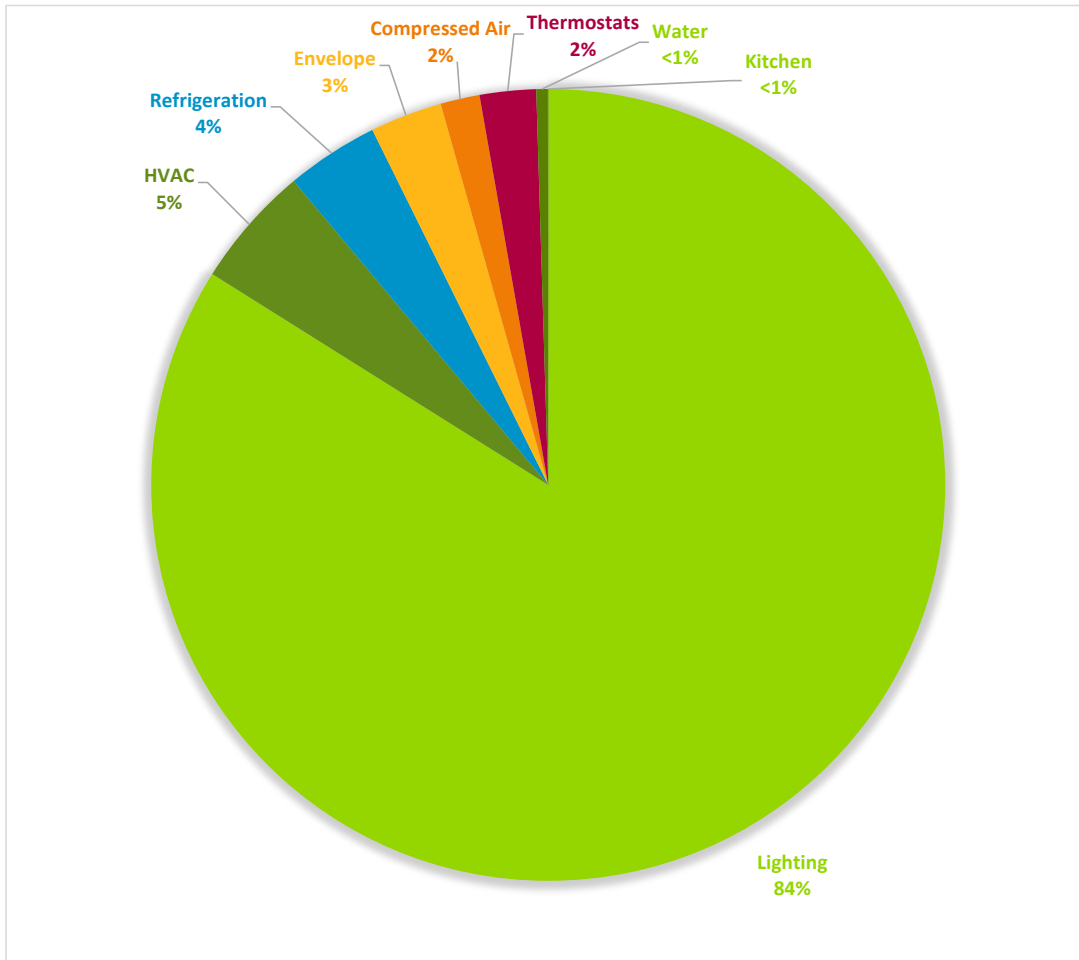
Source: ComEd tracking data and evaluation team analysis

¹ Customers with electric peak demand equal to or less than 100 kW.

² Incented measures may include upgrades to T8/T5 lighting, LED retrofits and fixtures, high bay fluorescents, lighting controls, HVAC system components, electric water heaters, refrigeration system components, commercial kitchen equipment, compressed air system measures, smart thermostats, and building envelope measures.

Figure 2-1 shows the distribution of measures installed through the program by measure type.

Figure 2-1. Share of Measures Installed 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 SBP Program achieved in CY2020. The program had an overall realization rate of 0.99 and 1.00 for energy and demand savings, respectively. The gas savings shown are only those that ComEd may be able to claim, which excludes savings the gas utilities claim, via either joint or non-joint programs.

Table 3-1. CY2020 Total Annual Incremental Electric Savings

Savings Category	Energy Savings (kWh)	Summer Peak* Demand Savings (kW)
Electricity		
Ex Ante Gross Savings	216,336,050	52,517
Program Gross Realization Rate	0.99	1.00
Verified Gross Savings	213,945,287	52,468
Program Net-to-Gross Ratio (NTG)	0.97	0.97
Verified Net Savings	207,526,928	50,894
Converted from Gas†		
Ex Ante Gross Savings	12,965,216	NA
Program Gross Realization Rate	1.00	NA
Verified Gross Savings	12,965,100	NA
Program Net-to-Gross Ratio (NTG)	0.97	NA
Verified Net Savings	12,576,148	NA
Total Electric Plus Gas		
Ex Ante Gross Savings	229,301,266	52,517
Program Gross Realization Rate	0.99	1.00
Verified Gross Savings	226,910,387	52,468
Program Net-to-Gross Ratio (NTG)	0.97	0.97
Verified Net Savings	220,103,076	50,894

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 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 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 SBP Program and the cumulative persisting annual savings (CPAS) for the measures installed in CY2020. The electric CPAS across all measures installed in 2020 is 207,526,928 kWh (Table 4-1). Figure 4-1 shows the savings across the effective useful life of the measures.

The CY2020 gas contribution to CPAS (converted to equivalent electricity) is 12,576,148 kWh (Table 4-2). Adding the gas and electric contributions produces 220,103,076 kWh of total CY2020 contribution to CPAS (Table 4-3). The historic rows in each table are the CPAS contribution back to CY2018. The Program Total Electric CPAS and the Program Total Gas CPAS rows are the sum of the CY2020 contribution and the historic contribution.

CPAS accounts for midlife savings adjustments to LED lighting measures with T12 baselines, screw-based omnidirectional lamps, specialty decorative, and directional lamps, as required by the Illinois Statewide Technical Reference Manual (TRM) v8.0 and the Energy Independence and Security Act (EISA 2007) baseline adjustment requirements. The evaluation applied

baseline midlife CPAS adjustment for the early replacement for air cooled air conditioners (ACs) measure.

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)†	Verified Net kWh Savings										
						2018	2019	2020	2021	2022	2023	2024	2025	2026		
Lighting	LED Lamps and Fixtures	13.0	158,968,130	0.97	1,769,356,496			154,199,086	154,168,537	153,468,188	144,524,631	129,388,453	129,341,273	129,200,820		
Lighting	Lighting Controls	8.0	31,520,787	0.97	244,601,304			30,575,163	30,575,163	30,575,163	30,575,163	30,575,163	30,575,163	30,575,163		
Refrigeration	EC Motor with Evaporator Fan Controls for Cooler or Freezer	13.0	5,109,749	0.97	64,433,936			4,956,457	4,956,457	4,956,457	4,956,457	4,956,457	4,956,457	4,956,457		
Refrigeration	EC Motor for Cooler or Freezer	15.0	2,538,428	0.97	36,934,120			2,462,275	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275		
Refrigeration	Anti-Sweat Heater Controls for Glass Door Cooler or Refrigerat	10.0	1,808,983	0.97	17,547,140			1,754,714	1,754,714	1,754,714	1,754,714	1,754,714	1,754,714	1,754,714		
HVAC	Economizer with DCV	10.0	1,637,409	0.97	15,882,867			1,588,287	1,588,287	1,588,287	1,588,287	1,588,287	1,588,287	1,588,287		
HVAC	Thermostat	11.0	1,625,545	0.97	17,344,569			1,576,779	1,576,779	1,576,779	1,576,779	1,576,779	1,576,779	1,576,779		
Lighting	LED Decorative & Directional Lamps	13.6	1,557,980	0.97	13,892,243			1,511,240	1,511,240	1,511,240	1,511,240	820,319	820,319	820,319		
Envelope	Weather Stripping	10.0	1,298,115	0.97	12,591,719			1,259,172	1,259,172	1,259,172	1,259,172	1,259,172	1,259,172	1,259,172		
Compressed Air	Air Compressors with Integrated VSD	13.0	1,024,447	0.97	12,918,281			993,714	993,714	993,714	993,714	993,714	993,714	993,714		
Lighting	LED Omnidirectional	13.9	952,372	0.97	7,343,238			923,800	923,800	923,800	923,800	369,520	369,293	368,753		
HVAC	Early Replacement for Air Cooled AC	15.0	691,243	0.97	9,856,436			670,506	670,506	670,506	670,506	670,506	650,391	650,391		
Compressed Air	No-Loss Condensate Drains	10.0	543,625	0.97	5,273,163			527,316	527,316	527,316	527,316	527,316	527,316	527,316		
HVAC	Thermostat Adjustment	2.0	514,394	0.97	997,924			498,962	498,962							
Refrigeration	LED Refrigerated Display Case Lighting	8.6	502,730	0.97	4,202,416			487,648	487,648	487,648	487,648	487,648	487,648	487,648		
HVAC	Variable Speed Drive on HVAC - Supply and Return Fans	15.0	454,823	0.97	6,617,682			441,179	441,179	441,179	441,179	441,179	441,179	441,179		
Refrigeration	Strip Curtains for Cooler or Freezer	4.0	385,989	0.97	1,497,636			374,409	374,409	374,409	374,409					
Compressed Air	Compressed Air Leak Repair	2.0	336,060	0.97	651,956			325,978	325,978							
Lighting	LED Exit Signs	5.0	313,279	0.97	1,519,404			303,881	303,881	303,881	303,881	303,881				
HVAC	Air Conditioner Tune-Up	3.0	294,667	0.97	857,482			285,827	285,827	285,827						
HVAC	Advanced Rooftop Controls	10.0	290,893	0.97	2,821,661			282,166	282,166	282,166	282,166	282,166	282,166	282,166		
HVAC	Smart Strip - Tier 1	7.0	232,787	0.97	1,580,621			225,803	225,803	225,803	225,803	225,803	225,803	225,803		
Refrigeration	Auto Closer for Walk-in Cooler or Freezer	8.0	222,835	0.97	1,729,200			216,150	216,150	216,150	216,150	216,150	216,150	216,150		
Compressed Air	High-Efficiency Air Nozzles	15.0	218,526	0.97	3,179,557			211,970	211,970	211,970	211,970	211,970	211,970	211,970		
HVAC	Restroom Exhaust Fan Occupancy Sensor	8.0	210,857	0.97	1,636,250			204,531	204,531	204,531	204,531	204,531	204,531	204,531		
HVAC	Packaged RTU Sealing	5.0	128,174	0.97	621,644			124,329	124,329	124,329	124,329	124,329	124,329	124,329		
HVAC	Variable Speed Drive on HVAC - Pumps and Fans	15.0	120,122	0.97	1,747,776			116,518	116,518	116,518	116,518	116,518	116,518	116,518		
Refrigeration	Beverage, Snack and Cooler Machine Controls	5.0	88,934	0.97	431,328			86,266	86,266	86,266	86,266	86,266	86,266	86,266		
Food Service Equipment	Kitchen Fan with DCV	15.0	69,524	0.97	1,011,574			67,438	67,438	67,438	67,438	67,438	67,438	67,438		
Hot Water	Bathroom and Kitchen Faucet Aerators	10.0	68,522	0.97	664,666			66,467	66,467	66,467	66,467	66,467	66,467	66,467		
Refrigeration	Night Covers	5.0	67,303	0.97	326,420			65,284	65,284	65,284	65,284	65,284	65,284	65,284		
Refrigeration	O-Sync Motors for Reach-in Coolers/Freezers	10.0	59,008	0.97	572,378			57,238	57,238	57,238	57,238	57,238	57,238	57,238		
Lighting	LED Lit Signage	11.6	25,094	0.97	211,943			24,341	24,341	24,341	24,341	24,341	13,631	13,631		
Food Service Equipment	ENERGY STAR Dishwasher	20.0	21,185	0.97	410,981			20,549	20,549	20,549	20,549	20,549	20,549	20,549		
HVAC	Economizer Repair and Optimization	5.0	8,953	0.97	43,422			8,684	8,684	8,684	8,684	8,684	8,684	8,684		
Hot Water	High Efficiency Pre-Rinse Spray Valve	5.0	8,921	0.97	43,266			8,653	8,653	8,653	8,653	8,653	8,653	8,653		
Refrigeration	ENERGY STAR Solid or Glass Door Refrigerator or Freezer	12.0	8,102	0.97	94,309			7,859	7,859	7,859	7,859	7,859	7,859	7,859		
HVAC	Guest Room Energy Management System	15.0	6,384	0.97	92,887			6,192	6,192	6,192	6,192	6,192	6,192	6,192		
HVAC	Cogged V-Belt	3.0	5,453	0.97	15,867			5,289	5,289	5,289						
Hot Water	Showerhead - Low Flow	10.0	1,805	0.97	17,508			1,751	1,751	1,751	1,751	1,751	1,751	1,751		
HVAC	End of life Replacement for Air Cooled AC	15.0	1,653	0.97	24,057			1,604	1,604	1,604	1,604	1,604	1,604	1,604		
Compressed Air	Efficient Refrigerated CA Dryer	13.0	862	0.97	10,872			836	836	836	836	836	836	836		
Lighting	LED Open & Channel Sign	15.0	574	0.97	8,348			557	557	557	557	557	557	557		
Lighting	Linear T8 and T5 Lamps and Ballast	15.0	61	0.97	889			59	59	59	59	59	59	59		
CY2020 Program Total Electric Contribution to CPAS			213,945,287		2,261,617,433			207,526,928	207,496,380	205,971,090	196,736,416	179,980,629	179,305,300	179,164,306		
Historic Program Total Electric Contribution to CPAS†								196,963,232	329,370,837	328,859,688	327,684,698	327,081,014	325,794,886	300,128,742	299,626,718	289,794,479
Program Total Electric CPAS								196,963,232	329,370,837	536,386,617	535,181,078	533,052,104	522,531,303	480,109,371	478,932,018	468,958,786
CY2020 Program Incremental Expiring Electric Savings\$									30,549	1,525,289	9,234,674	16,755,788	675,329	140,993		
Historic Program Incremental Expiring Electric Savings†\$									511,149	1,174,990	603,684	1,286,128	25,666,145	502,023	9,832,239	
Program Total Incremental Expiring Electric Savings\$									511,149	1,205,539	2,128,973	10,520,802	42,421,932	1,177,352	9,973,232	

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Lighting	LED Lamps and Fixtures	129,164,018	128,913,966	125,576,790	122,972,201	100,610,708	61,852,076	55,075,257	50,900,490							
Lighting	Lighting Controls	30,575,163														
Refrigeration	EC Motor with Evaporator Fan Controls for Cooler or Freezer	4,956,457	4,956,457	4,956,457	4,956,457	4,956,457	4,956,457									
Refrigeration	EC Motor for Cooler or Freezer	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275							
Refrigeration	Anti-Sweat Heater Controls for Glass Door Cooler or Refrigerator	1,754,714	1,754,714	1,754,714	1,754,714											
HVAC	Economizer with DCV	1,588,287	1,588,287	1,588,287												
HVAC	Thermostat	1,576,779	1,576,779	1,576,779	1,576,779											
Lighting	LED Decorative & Directional Lamps	820,319	820,319	820,319	741,249	650,947	555,280	539,062	438,827							
Envelope	Weather Stripping	1,259,172	1,259,172	1,259,172												
Compressed Air	Air Compressors with Integrated VSD	993,714	993,714	993,714	993,714	993,714	993,714									
Lighting	LED Omnidirectional	368,753	368,753	368,753	347,911	320,972	292,530	278,510	194,290							
HVAC	Early Replacement for Air Cooled AC	650,391	650,391	650,391	650,391	650,391	650,391	650,391	650,391							
Compressed Air	No-Loss Condensate Drains	527,316	527,316	527,316												
HVAC	Thermostat Adjustment															
Refrigeration	LED Refrigerated Display Case Lighting	487,648	301,229													
HVAC	Variable Speed Drive on HVAC - Supply and Return Fans	441,179	441,179	441,179	441,179	441,179	441,179	441,179	441,179							
Refrigeration	Strip Curtains for Cooler or Freezer															
Compressed Air	Compressed Air Leak Repair															
Lighting	LED Exit Signs															
HVAC	Air Conditioner Tune-Up															
HVAC	Advanced Rooftop Controls	282,166	282,166	282,166												
HVAC	Smart Strip - Tier 1															
Refrigeration	Auto Closer for Walk-in Cooler or Freezer	216,150														
Compressed Air	High-Efficiency Air Nozzles	211,970	211,970	211,970	211,970	211,970	211,970	211,970	211,970							
HVAC	Restroom Exhaust Fan Occupancy Sensor	204,531														
HVAC	Packaged RTU Sealing															
HVAC	Variable Speed Drive on HVAC - Pumps and Fans	116,518	116,518	116,518	116,518	116,518	116,518	116,518	116,518							
Refrigeration	Beverage, Snack and Cooler Machine Controls															
Food Service Equipment	Kitchen Fan with DCV	67,438	67,438	67,438	67,438	67,438	67,438	67,438	67,438							
Hot Water	Bathroom and Kitchen Faucet Aerators	66,467	66,467	66,467												
Refrigeration	Night Covers															
Refrigeration	Q-Sync Motors for Reach-in Coolers/Freezers	57,238	57,238	57,238												
Lighting	LED Lit Signage	13,631	13,631	13,631	13,631	8,449										
Food Service Equipment	ENERGY STAR Dishwasher	20,549	20,549	20,549	20,549	20,549	20,549	20,549	20,549	20,549	20,549	20,549	20,549	20,549	20,549	20,549
HVAC	Economizer Repair and Optimization															
Hot Water	High Efficiency Pre-Rinse Spray Valve															
Refrigeration	ENERGY STAR Solid or Glass Door Refrigerator or Freezer	7,859	7,859	7,859	7,859	7,859										
HVAC	Guest Room Energy Management System	6,192	6,192	6,192	6,192	6,192	6,192	6,192	6,192							
HVAC	Cogged V-Belt															
Hot Water	Showerhead - Low Flow	1,751	1,751	1,751	0											
HVAC	End of life Replacement for Air Cooled AC	1,604	1,604	1,604	1,604	1,604	1,604	1,604	1,604							
Compressed Air	Efficient Refrigerated CA Dryer	836	836	836	836	836	836									
Lighting	LED Open & Channel Sign	557	557	557	557	557	557	557	557							
Lighting	Linear T8 and T5 Lamps and Ballast	59	59	59	59	59	59	59	59							
CY2020 Program Total Electric Contribution to CPAS		178,901,702	147,469,386	143,830,981	135,589,370	111,528,673	72,629,625	59,871,561	55,512,340	20,549	20,549	20,549	20,549	20,549	20,549	20,549
Historic Program Total Electric Contribution to CPAS†		283,719,251	277,735,415	268,946,702	151,728,835	124,061,034	114,279,486	105,812,878	24,727	24,727	24,727	24,727	13,881			
Program Total Electric CPAS		462,620,953	425,204,802	412,777,683	287,318,204	235,589,707	186,909,111	165,684,439	55,537,067	45,276	45,276	45,276	34,430	20,549		
CY2020 Program Incremental Expiring Electric Savings§		262,605	31,432,315	3,638,405	8,241,611	24,060,697	38,899,048	12,758,064	4,359,221	55,491,791	-	-	-	-	20,549	-
Historic Program Incremental Expiring Electric Savings†§		6,075,228	5,983,836	8,788,714	117,217,867	27,667,801	9,781,548	8,466,608	105,788,151	-	-	-	10,846	13,881		
Program Total Incremental Expiring Electric Savings§		6,337,833	37,416,151	12,427,119	125,459,478	51,728,497	48,680,596	21,224,673	110,147,372	55,491,791	-	-	10,846	13,881	20,549	-

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 Stakeholder Advisory Group (SAG) website: https://www.ilsag.info/ntg_2020.

† Lifetime savings are the sum of CPAS savings through the effective useful life (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 (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			
HVAC	Economizer with DCV	10.0	121,962	0.97	1,183,031			118,303	118,303	118,303	118,303	118,303	118,303	118,303	118,303		
HVAC	Thermostat	11.0	112,924	0.97	1,204,900			109,536	109,536	109,536	109,536	109,536	109,536	109,536	109,536		
Envelope	Weather Stripping	10.0	59,782	0.97	579,882			57,988	57,988	57,988	57,988	57,988	57,988	57,988	57,988		
HVAC	Thermostat Adjustment	2.0	31,415	0.97	60,944			30,472	30,472								
HVAC	Advanced Rooftop Controls	10.0	18,158	0.97	176,134			17,613	17,613	17,613	17,613	17,613	17,613	17,613	17,613		
HVAC	Packaged RTU Sealing	5.0	9,253	0.97	44,877			8,975	8,975	8,975	8,975	8,975	8,975	8,975	8,975		
Food Service Equipment	Kitchen Fan with DCV	15.0	86,895	0.97	1,264,321			84,288	84,288	84,288	84,288	84,288	84,288	84,288	84,288		
Food Service Equipment	ENERGY STAR Dishwasher	20.0	740	0.97	14,364			718	718	718	718	718	718	718	718		
HVAC	Guest Room Energy Management System	15.0	1,215	0.97	17,678			1,179	1,179	1,179	1,179	1,179	1,179	1,179	1,179		
CY2020 Program Total Gas Contribution to CPAS (Therms)			442,344		4,546,132			429,074	429,074	398,601	398,601	398,601	398,601	398,601	398,601		
CY2020 Program Total Gas Contribution to CPAS (kWh Equivalent)‡								12,576,148	12,576,147	11,683,006	11,683,006	11,683,006	11,683,006	11,683,006	11,683,006		
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)‡§							9,794,779	21,307,759	21,307,759	21,292,748	21,123,564	21,123,564	21,049,385	21,049,385	21,049,385		
Program Total Gas CPAS (kWh Equivalent)‡							9,794,779	21,307,759	33,883,907	33,868,895	32,806,570	32,806,570	32,732,391	32,469,322	32,469,322		
CY2020 Program Incremental Expiring Gas Savings (Therms)										30,472	-	-	-	8,975	-		
CY2020 Program Incremental Expiring Gas Savings (kWh Equivalent)‡										0	893,141	-	-	263,070	-		
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)‡§									-	15,012	169,184	-	74,179	-	-		
Program Total Incremental Expiring Gas Savings (kWh Equivalent)‡									-	15,012	1,062,325	-	74,179	263,070	-		

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
HVAC	Economizer with DCV	118,303	118,303	118,303											-	-
HVAC	Thermostat	109,536	109,536	109,536	109,536										-	-
Envelope	Weather Stripping	57,988	57,988	57,988											-	-
HVAC	Thermostat Adjustment														-	-
HVAC	Advanced Rooftop Controls	17,613	17,613	17,613											-	-
HVAC	Packaged RTU Sealing														-	-
Food Service Equipment	Kitchen Fan with DCV	84,288	84,288	84,288	84,288	84,288	84,288	84,288	84,288						-	-
Food Service Equipment	ENERGY STAR Dishwasher	718	718	718	718	718	718	718	718	718	718	718	718	718	-	-
HVAC	Guest Room Energy Management System	1,179	1,179	1,179	1,179	1,179	1,179	1,179	1,179						-	-
CY2020 Program Total Gas Contribution to CPAS (Therms)		389,626	389,626	389,626	195,721	86,185	86,185	86,185	86,185	718	718	718	718	718	-	-
CY2020 Program Total Gas Contribution to CPAS (kWh Equivalent)‡		11,419,936	11,419,936	11,419,936	5,736,587	2,526,077	2,526,077	2,526,077	2,526,077	21,050	21,050	21,050	21,050	21,050	-	-
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)‡§		20,837,559	14,737,783	5,974,090	3,525,819	3,525,819	3,525,819	711,505	711,505	711,505	711,505	711,505	711,505	711,505	-	-
Program Total Gas CPAS (kWh Equivalent)‡		32,257,495	26,157,719	17,394,026	9,262,407	6,051,896	6,051,896	3,237,582	3,237,582	732,555	732,555	732,555	21,050	21,050	-	-
CY2020 Program Incremental Expiring Gas Savings (Therms)		-	-	-	193,905	109,536	-	-	-	85,467	-	-	-	-	718	-
CY2020 Program Incremental Expiring Gas Savings (kWh Equivalent)‡		-	-	-	5,683,349	3,210,510	-	-	-	2,505,027	-	-	-	-	21,050	-
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)‡§		211,827	6,099,776	8,763,693	2,448,271	-	-	2,814,314	-	-	-	-	711,505	-	-	-
Program Total Incremental Expiring Gas Savings (kWh Equivalent)‡		211,827	6,099,776	8,763,693	8,131,619	3,210,510	-	2,814,314	-	2,505,027	-	-	711,505	-	21,050	-

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 Yn-1 - CPAS Yn.

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 Lamps and Fixtures	13.0	158,968,130	0.97	1,769,356,496		154,199,086	154,168,537	153,468,188	144,524,631	129,388,453	129,341,273	129,200,820		
Lighting	Lighting Controls	8.0	31,520,787	0.97	244,601,304		30,575,163	30,575,163	30,575,163	30,575,163	30,575,163	30,575,163	30,575,163		
Refrigeration	EC Motor with Evaporator Fan Controls for Cooler or Freezer	13.0	5,109,749	0.97	64,433,936		4,956,457	4,956,457	4,956,457	4,956,457	4,956,457	4,956,457	4,956,457		
Refrigeration	EC Motor for Cooler or Freezer	15.0	2,538,428	0.97	36,934,120		2,462,275	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275		
Refrigeration	Anti-Sweat Heater Controls for Glass Door Cooler or Refrigerator	10.0	1,808,983	0.97	17,547,140		1,754,714	1,754,714	1,754,714	1,754,714	1,754,714	1,754,714	1,754,714		
HVAC	Economizer with DCV	10.0	5,212,115	0.97	50,557,517		5,055,752	5,055,752	5,055,752	5,055,752	5,055,752	5,055,752	5,055,752		
HVAC	Thermostat	11.0	4,935,350	0.97	52,660,181		4,787,289	4,787,289	4,787,289	4,787,289	4,787,289	4,787,289	4,787,289		
Lighting	LED Decorative & Directional Lamps	13.6	1,557,980	0.97	13,892,243		1,511,240	1,511,240	1,511,240	1,511,240	820,319	820,319	820,319		
Envelope	Weather Stripping	10.0	3,050,315	0.97	29,588,055		2,958,805	2,958,805	2,958,805	2,958,805	2,958,805	2,958,805	2,958,805		
Compressed Air	Air Compressors with Integrated VSD	13.0	1,024,447	0.97	12,918,281		993,714	993,714	993,714	993,714	993,714	993,714	993,714		
Lighting	LED Omnidirectional	13.9	952,372	0.97	7,343,238		923,800	923,800	923,800	923,800	369,520	369,293	368,753		
HVAC	Early Replacement for Air Cooled AC	15.0	691,243	0.97	9,856,436		670,506	670,506	670,506	670,506	670,506	650,391	650,391		
Compressed Air	No-Loss Condensate Drains	10.0	543,625	0.97	5,273,163		527,316	527,316	527,316	527,316	527,316	527,316	527,316		
HVAC	Thermostat Adjustment	2.0	1,435,158	0.97	2,784,207		1,392,104	1,392,104	-	-	-	-	-		
Refrigeration	LED Refrigerated Display Case Lighting	8.6	502,730	0.97	4,202,416		487,648	487,648	487,648	487,648	487,648	487,648	487,648		
HVAC	Variable Speed Drive on HVAC - Supply and Return Fans	15.0	454,823	0.97	6,617,682		441,179	441,179	441,179	441,179	441,179	441,179	441,179		
Refrigeration	Strip Curtains for Cooler or Freezer	4.0	385,989	0.97	1,497,636		374,409	374,409	374,409	374,409	-	-	-		
Compressed Air	Compressed Air Leak Repair	2.0	336,060	0.97	651,956		325,978	325,978	-	-	-	-	-		
Lighting	LED Exit Signs	5.0	313,279	0.97	1,519,404		303,881	303,881	303,881	303,881	303,881	-	-		
HVAC	Air Conditioner Tune-Up	3.0	294,667	0.97	857,482		285,827	285,827	285,827	-	-	-	-		
HVAC	Advanced Rooftop Controls	10.0	823,109	0.97	7,984,162		798,416	798,416	798,416	798,416	798,416	798,416	798,416		
HVAC	Smart Strip - Tier 1	7.0	232,787	0.97	1,580,621		225,803	225,803	225,803	225,803	225,803	225,803	225,803		
Refrigeration	Auto Closer for Walk-in Cooler or Freezer	8.0	222,835	0.97	1,729,200		216,150	216,150	216,150	216,150	216,150	216,150	216,150		
Compressed Air	High-Efficiency Air Nozzles	15.0	218,526	0.97	3,179,557		211,970	211,970	211,970	211,970	211,970	211,970	211,970		
HVAC	Restroom Exhaust Fan Occupancy Sensor	8.0	210,857	0.97	1,636,250		204,531	204,531	204,531	204,531	204,531	204,531	204,531		
HVAC	Packaged RTU Sealing	5.0	399,380	0.97	1,936,994		387,399	387,399	387,399	387,399	-	-	-		
HVAC	Variable Speed Drive on HVAC - Pumps and Fans	15.0	120,122	0.97	1,747,776		116,518	116,518	116,518	116,518	116,518	116,518	116,518		
Refrigeration	Beverage, Snack and Cooler Machine Controls	5.0	88,934	0.97	431,328		86,266	86,266	86,266	86,266	86,266	-	-		
Food Service Equipment	Kitchen Fan with DCV	15.0	2,616,415	0.97	38,068,833		2,537,922	2,537,922	2,537,922	2,537,922	2,537,922	2,537,922	2,537,922		
Hot Water	Bathroom and Kitchen Faucet Aerators	10.0	68,522	0.97	664,666		66,467	66,467	66,467	66,467	66,467	66,467	66,467		
Refrigeration	Night Covers	5.0	67,303	0.97	326,420		65,284	65,284	65,284	65,284	65,284	-	-		
Refrigeration	O-Sync Motors for Reach-in Coolers/Freezers	10.0	59,008	0.97	572,378		57,238	57,238	57,238	57,238	57,238	57,238	57,238		
Lighting	LED Lit Signage	11.6	25,094	0.97	211,943		24,341	24,341	24,341	24,341	24,341	13,631	13,631		
Food Service Equipment	ENERGY STAR Dishwasher	20.0	42,886	0.97	831,983		41,599	41,599	41,599	41,599	41,599	41,599	41,599		
HVAC	Economizer Repair and Optimization	5.0	8,953	0.97	43,422		8,684	8,684	8,684	8,684	8,684	-	-		
Hot Water	High Efficiency Pre-Rinse Spray Valve	5.0	8,921	0.97	43,266		8,653	8,653	8,653	8,653	8,653	-	-		
Refrigeration	ENERGY STAR Solid or Glass Door Refrigerator or Freezer	12.0	8,102	0.97	94,309		7,859	7,859	7,859	7,859	7,859	7,859	7,859		
HVAC	Guest Room Energy Management System	15.0	41,996	0.97	611,037		40,736	40,736	40,736	40,736	40,736	40,736	40,736		
HVAC	Cogged V-Belt	3.0	5,453	0.97	15,867		5,289	5,289	5,289	5,289	-	-	-		
Hot Water	Showerhead - Low Flow	10.0	1,805	0.97	17,508		1,751	1,751	1,751	1,751	1,751	1,751	1,751		
HVAC	End of life Replacement for Air Cooled AC	15.0	1,653	0.97	24,057		1,604	1,604	1,604	1,604	1,604	1,604	1,604		
Compressed Air	Efficient Refrigerated CA Dryer	13.0	862	0.97	10,872		836	836	836	836	836	836	836		
Lighting	LED Open & Channel Sign	15.0	574	0.97	8,348		557	557	557	557	557	557	557		
Lighting	Linear T8 and T5 Lamps and Ballast	15.0	61	0.97	889		59	59	59	59	59	59	59		
CY2020 Program Total Contribution to CPAS			226,910,388		2,394,864,574		220,103,076	220,072,527	217,654,096	208,419,423	191,663,635	190,725,236	190,584,243		
Historic Program Total Contribution to CPAS †						206,758,011	350,678,596	350,167,447	348,977,446	348,204,578	346,918,450	321,178,127	320,676,104	310,843,865	
Program Total CPAS						206,758,011	350,678,596	570,270,523	569,049,973	565,858,674	555,337,873	512,841,762	511,401,340	501,428,107	
CY2020 Program Incremental Expiring Savings\$								30,549	2,418,431	9,234,674	16,755,788	938,399	140,993		
Historic Program Incremental Expiring Savings†\$							511,149	1,190,002	772,868	1,286,128	25,740,323	502,023	9,832,239		
Program Total Incremental Expiring Savings\$							511,149	1,220,551	3,191,298	10,520,802	42,496,111	1,440,422	9,973,232		

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Lighting	LED Lamps and Fixtures	129,164,018	128,913,966	125,576,790	122,972,201	100,610,708	61,852,076	55,075,257	50,900,490	-	-	-	-	-	-	-
Lighting	Lighting Controls	30,575,163	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	EC Motor with Evaporator Fan Controls for Cooler or Freezer	4,956,457	4,956,457	4,956,457	4,956,457	4,956,457	4,956,457	-	-	-	-	-	-	-	-	-
Refrigeration	EC Motor for Cooler or Freezer	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275	2,462,275	-	-	-	-	-	-	-
Refrigeration	Anti-Sweat Heater Controls for Glass Door Cooler or Refrigerator	1,754,714	1,754,714	1,754,714	-	-	-	-	-	-	-	-	-	-	-	-
HVAC	Economizer with DCV	5,055,752	5,055,752	5,055,752	-	-	-	-	-	-	-	-	-	-	-	-
HVAC	Thermostat	4,787,289	4,787,289	4,787,289	4,787,289	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED Decorative & Directional Lamps	820,319	820,319	820,319	741,249	650,947	555,280	539,062	438,827	-	-	-	-	-	-	-
Envelope	Weather Stripping	2,958,805	2,958,805	2,958,805	-	-	-	-	-	-	-	-	-	-	-	-
Compressed Air	Air Compressors with Integrated VSD	993,714	993,714	993,714	993,714	993,714	993,714	-	-	-	-	-	-	-	-	-
Lighting	LED Omnidirectional	368,753	368,753	368,753	347,911	320,972	292,530	278,510	194,290	-	-	-	-	-	-	-
HVAC	Early Replacement for Air Cooled AC	650,391	650,391	650,391	650,391	650,391	650,391	650,391	650,391	-	-	-	-	-	-	-
Compressed Air	No-Loss Condensate Drains	527,316	527,316	527,316	-	-	-	-	-	-	-	-	-	-	-	-
HVAC	Thermostat Adjustment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	LED Refrigerated Display Case Lighting	487,648	301,229	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC	Variable Speed Drive on HVAC - Supply and Return Fans	441,179	441,179	441,179	441,179	441,179	441,179	441,179	441,179	-	-	-	-	-	-	-
Refrigeration	Strip Curtains for Cooler or Freezer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compressed Air	Compressed Air Leak Repair	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED Exit Signs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC	Air Conditioner Tune-Up	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC	Advanced Rooftop Controls	798,416	798,416	798,416	-	-	-	-	-	-	-	-	-	-	-	-
HVAC	Smart Strip - Tier 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	Auto Closer for Walk-in Cooler or Freezer	216,150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compressed Air	High-Efficiency Air Nozzles	211,970	211,970	211,970	211,970	211,970	211,970	211,970	211,970	-	-	-	-	-	-	-
HVAC	Restroom Exhaust Fan Occupancy Sensor	204,531	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC	Packaged RTU Sealing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC	Variable Speed Drive on HVAC - Pumps and Fans	116,518	116,518	116,518	116,518	116,518	116,518	116,518	116,518	-	-	-	-	-	-	-
Refrigeration	Beverage, Snack and Cooler Machine Controls	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food Service Equipment	Kitchen Fan with DCV	2,537,922	2,537,922	2,537,922	2,537,922	2,537,922	2,537,922	2,537,922	2,537,922	-	-	-	-	-	-	-
Hot Water	Bathroom and Kitchen Faucet Aerators	66,467	66,467	66,467	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	Night Covers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	Q-Sync Motors for Reach-in Coolers/Freezers	57,238	57,238	57,238	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED LI Signage	13,631	13,631	13,631	13,631	8,449	-	-	-	-	-	-	-	-	-	-
Food Service Equipment	ENERGY STAR Dishwasher	41,599	41,599	41,599	41,599	41,599	41,599	41,599	41,599	41,599	41,599	41,599	41,599	41,599	41,599	-
HVAC	Economizer Repair and Optimization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	High Efficiency Pre-Rinse Spray Valve	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	ENERGY STAR Solid or Glass Door Refrigerator or Freezer	7,859	7,859	7,859	7,859	7,859	-	-	-	-	-	-	-	-	-	-
HVAC	Guest Room Energy Management System	40,736	40,736	40,736	40,736	40,736	40,736	40,736	40,736	-	-	-	-	-	-	-
HVAC	Cogged V-Belt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	Showerhead - Low Flow	1,751	1,751	1,751	0	-	-	-	-	-	-	-	-	-	-	-
HVAC	End of life Replacement for Air Cooled AC	1,604	1,604	1,604	1,604	1,604	1,604	1,604	1,604	-	-	-	-	-	-	-
Compressed Air	Efficient Refrigerated CA Dryer	836	836	836	836	836	836	-	-	-	-	-	-	-	-	-
Lighting	LED Open & Channel Sign	557	557	557	557	557	557	557	557	-	-	-	-	-	-	-
Lighting	Linear T8 and T5 Lamps and Ballast	59	59	59	59	59	59	59	59	-	-	-	-	-	-	-
CY2020 Program Total Contribution to CPAS		190,321,638	158,889,322	155,250,917	141,325,957	114,054,750	75,155,703	62,397,638	58,038,417	41,599	41,599	41,599	41,599	41,599	41,599	-
Historic Program Total Contribution to CPAS†		304,556,810	292,473,198	274,920,792	155,254,654	127,586,853	117,805,305	106,524,383	736,232	736,232	736,232	736,232	736,232	13,881	-	-
Program Total CPAS		494,878,448	451,362,521	430,171,709	296,580,611	241,641,604	192,961,008	168,922,021	58,774,649	777,831	777,831	777,831	777,831	55,480	41,599	-
CY2020 Program Incremental Expiring Savings§		262,605	31,432,315	3,638,405	13,924,960	27,271,207	38,899,048	12,758,064	4,359,221	57,996,818	-	-	-	-	41,599	-
Historic Program Incremental Expiring Savings†§		6,287,055	12,083,612	17,552,406	119,666,138	27,667,801	9,781,548	11,280,922	105,788,151	-	-	-	722,351	13,881	-	-
Program Total Incremental Expiring Savings§		6,549,659	43,515,927	21,190,812	133,591,098	54,939,007	48,680,596	24,038,987	110,147,372	57,996,818	-	-	722,351	13,881	41,599	-

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.

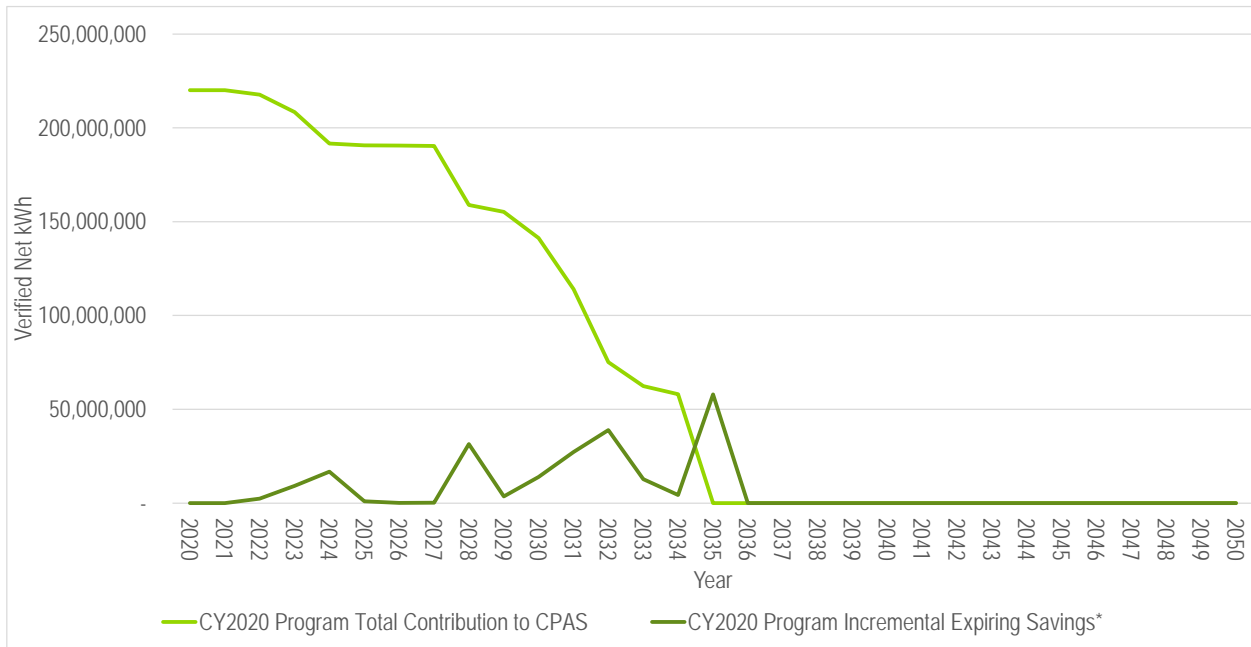
† Lifetime savings are the sum of CPAS savings through the EUL.

‡ 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



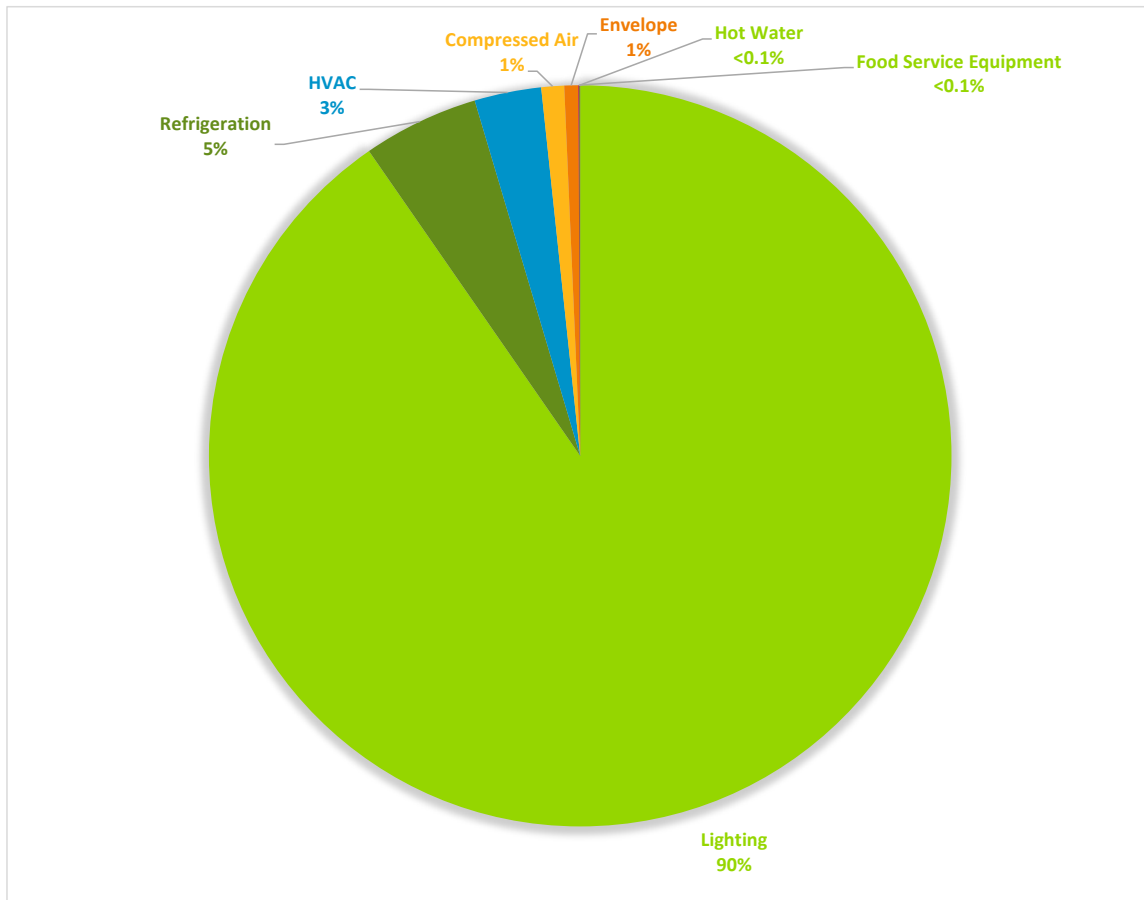
* Expiring savings are equal to $CPAS_{Y_{n-1}} - CPAS_{Y_n} + Expiring\ Savings_{Y_{n-1}}$.

Source: Evaluation team analysis

5. Program Savings by Measure

The program includes 44 measures, as the following tables show. In CY2020, exterior and interior LED fixture replacements contributed substantial savings. Overall, the lighting end use accounts for the majority of the program’s verified energy savings (see Figure 5-1), with 90% of verified net savings. Refrigeration end use measures account for 5%, followed by HVAC with 3% of verified net savings. The program had water measures and claimed secondary electric energy (kWh) savings from water supply and wastewater treatment plants. The overall electric gross realization rate was 0.99.

Figure 5-1. Verified Net Savings by End Use – 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 Lamps and Fixtures	160,818,847	0.99	158,968,130	0.97	154,199,086	13.0
Lighting	Lighting Controls	32,069,047	0.98	31,520,787	0.97	30,575,163	8.0
Refrigeration	EC Motor with Evaporator Fan Controls for Cooler or Freezer	5,109,749	1.00	5,109,749	0.97	4,956,457	13.0
Refrigeration	EC Motor for Cooler or Freezer	2,538,428	1.00	2,538,428	0.97	2,462,275	15.0
Refrigeration	Anti-Sweat Heater Controls for Glass Door Cooler or Refrigerator	1,808,985	1.00	1,808,983	0.97	1,754,714	10.0
HVAC	Economizer with DCV	1,636,604	1.00	1,637,409	0.97	1,588,287	10.0
HVAC	Thermostat	1,625,551	1.00	1,625,545	0.97	1,576,779	11.0
Lighting	LED Decorative & Directional Lamps	1,567,272	0.99	1,557,980	0.97	1,511,240	13.6
Envelope	Weather Stripping	1,298,115	1.00	1,298,115	0.97	1,259,172	10.0
Compressed Air	Air Compressors with Integrated VSD	1,024,447	1.00	1,024,447	0.97	993,714	13.0
Lighting	LED Omnidirectional	957,225	0.99	952,372	0.97	923,800	13.9
HVAC	Early Replacement for Air Cooled AC	691,243	1.00	691,243	0.97	670,506	15.0
Compressed Air	No-Loss Condensate Drains	543,625	1.00	543,625	0.97	527,316	10.0
HVAC	Thermostat Adjustment	514,395	1.00	514,394	0.97	498,962	2.0
Refrigeration	LED Refrigerated Display Case Lighting	502,730	1.00	502,730	0.97	487,648	8.6
HVAC	Variable Speed Drive on HVAC - Supply and Return Fans	454,797	1.00	454,823	0.97	441,179	15.0
Refrigeration	Strip Curtains for Cooler or Freezer	385,970	1.00	385,989	0.97	374,409	4.0
Compressed Air	Compressed Air Leak Repair	336,056	1.00	336,060	0.97	325,978	2.0
Lighting	LED Exit Signs	315,780	0.99	313,279	0.97	303,881	5.0
HVAC	Air Conditioner Tune-Up	294,667	1.00	294,667	0.97	285,827	3.0
HVAC	Advanced Rooftop Controls	290,889	1.00	290,893	0.97	282,166	10.0
HVAC	Smart Strip - Tier 1	232,787	1.00	232,787	0.97	225,803	7.0
Refrigeration	Auto Closer for Walk-in Cooler or Freezer	222,835	1.00	222,835	0.97	216,150	8.0
Compressed Air	High-Efficiency Air Nozzles	219,241	1.00	218,526	0.97	211,970	15.0
HVAC	Restroom Exhaust Fan Occupancy Sensor	210,857	1.00	210,857	0.97	204,531	8.0
HVAC	Packaged RTU Sealing	127,673	1.00	128,174	0.97	124,329	5.0
HVAC	Variable Speed Drive on HVAC - Pumps and Fans	120,151	1.00	120,122	0.97	116,518	15.0
Refrigeration	Beverage, Snack and Cooler Machine Controls	88,934	1.00	88,934	0.97	86,266	5.0
Food Service Equipment	Kitchen Fan with DCV	69,524	1.00	69,524	0.97	67,438	15.0
Hot Water	Bathroom and Kitchen Faucet Aerators	51,837	1.32	68,522	0.97	66,467	10.0
Refrigeration	Night Covers	67,303	1.00	67,303	0.97	65,284	5.0
Refrigeration	Q-Sync Motors for Reach-in Coolers/Freezers	59,008	1.00	59,008	0.97	57,238	10.0
Lighting	LED Lit Signage	25,094	1.00	25,094	0.97	24,341	11.6
Food Service Equipment	ENERGY STAR Dishwasher	16,079	1.32	21,185	0.97	20,549	20.0
HVAC	Economizer Repair and Optimization	8,953	1.00	8,953	0.97	8,684	5.0
Hot Water	High Efficiency Pre-Rinse Spray Valve	6,942	1.28	8,921	0.97	8,653	5.0
Refrigeration	ENERGY STAR Solid or Glass Door Refrigerator or Freezer	8,102	1.00	8,102	0.97	7,859	12.0
HVAC	Guest Room Energy Management System	6,384	1.00	6,384	0.97	6,192	15.0
HVAC	Cogged V-Belt	5,453	1.00	5,453	0.97	5,289	3.0
Hot Water	Showerhead - Low Flow	1,262	1.43	1,805	0.97	1,751	10.0
HVAC	End of life Replacement for Air Cooled AC	1,653	1.00	1,653	0.97	1,604	15.0
Compressed Air	Efficient Refrigerated CA Dryer	862	1.00	862	0.97	836	13.0
Lighting	LED Open & Channel Sign	631	0.91	574	0.97	557	15.0
Lighting	Linear T8 and T5 Lamps and Ballast	61	1.00	61	0.97	59	15.0
	Total	216,336,050	0.99	213,945,287	0.97	207,526,928	NA

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

* 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 Lamps and Fixtures	27,806.39	1.00	27,801.91	0.97	26,967.86
Lighting	Lighting Controls	21,676.58	1.00	21,632.63	0.97	20,983.66
Refrigeration	EC Motor with Evaporator Fan Controls for Cooler or Freezer	583.61	1.00	583.61	0.97	566.11
Lighting	LED Decorative & Directional Lamps	377.86	1.00	377.60	0.97	366.27
HVAC	Early Replacement for Air Cooled AC	368.19	1.00	368.19	0.97	357.15
Refrigeration	EC Motor for Cooler or Freezer	290.00	1.00	289.77	0.97	281.08
Compressed Air	Air Compressors with Integrated VSD	246.26	1.00	246.26	0.97	238.87
Lighting	LED Omnidirectional	244.28	1.00	244.28	0.97	236.95
HVAC	Air Conditioner Tune-Up	125.52	1.00	125.52	0.97	121.75
HVAC	Thermostat	97.58	1.00	97.58	0.97	94.66
Refrigeration	LED Refrigerated Display Case Lighting	86.65	1.00	86.65	0.97	84.05
Compressed Air	Compressed Air Leak Repair	85.03	1.00	85.03	0.97	82.48
Compressed Air	No-Loss Condensate Drains	84.17	1.00	84.17	0.97	81.64
HVAC	Packaged RTU Sealing	57.67	1.00	57.67	0.97	55.94
HVAC	Advanced Rooftop Controls	53.36	1.00	53.45	0.97	51.85
Compressed Air	High-Efficiency Air Nozzles	52.70	1.00	52.53	0.97	50.95
HVAC	Thermostat Adjustment	45.76	1.00	45.76	0.97	44.39
Refrigeration	Strip Curtains for Cooler or Freezer	44.03	1.00	44.03	0.97	42.71
Lighting	LED Exit Signs	40.97	1.00	40.97	0.97	39.75
HVAC	Restroom Exhaust Fan Occupancy Sensor	34.80	1.00	34.80	0.97	33.75
Refrigeration	Auto Closer for Walk-in Cooler or Freezer	31.30	1.00	31.30	0.97	30.36
HVAC	Variable Speed Drive on HVAC - Supply and Return Fans	27.79	1.00	27.75	0.97	26.91
HVAC	Variable Speed Drive on HVAC - Pumps and Fans	21.78	1.00	21.79	0.97	21.14
Hot Water	Bathroom and Kitchen Faucet Aerators	9.58	1.00	9.60	0.97	9.31
Food Service Equipment	Kitchen Fan with DCV	9.52	1.00	9.52	0.97	9.23
Refrigeration	Q-Sync Motors for Reach-in Coolers/Freezers	6.78	1.00	6.78	0.97	6.58
HVAC	Guest Room Energy Management System	5.10	1.00	5.10	0.97	4.95
Food Service Equipment	ENERGY STAR Dishwasher	1.00	1.00	1.00	0.97	0.97
Refrigeration	ENERGY STAR Solid or Glass Door Refrigerator or Freezer	0.87	1.00	0.87	0.97	0.84
HVAC	End of life Replacement for Air Cooled AC	0.86	1.00	0.86	0.97	0.84
HVAC	Cogged V-Belt	0.78	1.00	0.78	0.97	0.76
Compressed Air	Efficient Refrigerated CA Dryer	0.21	1.00	0.21	0.97	0.20
Hot Water	Showerhead - Low Flow	0.16	1.00	0.16	0.97	0.15
Lighting	LED Open & Channel Sign	0.15	1.00	0.15	0.97	0.14
Lighting	Linear T8 and T5 Lamps and Ballast	0.01	1.00	0.01	0.97	0.01
	Total	52,517.31	1.00	52,468.32	0.97	50,894.27

* 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)
HVAC	Economizer with DCV	121,966	1.00	121,962	0.97	118,303	10.0
HVAC	Thermostat	112,924	1.00	112,924	0.97	109,536	11.0
Envelope	Weather Stripping	59,782	1.00	59,782	0.97	57,988	10.0
HVAC	Thermostat Adjustment	31,415	1.00	31,415	0.97	30,472	2.0
HVAC	Advanced Rooftop Controls	18,158	1.00	18,158	0.97	17,613	10.0
HVAC	Packaged RTU Sealing	9,253	1.00	9,253	0.97	8,975	5.0
Food Service Equipment	Kitchen Fan with DCV	86,895	1.00	86,895	0.97	84,288	15.0
Food Service Equipment	ENERGY STAR Dishwasher	740	1.00	740	0.97	718	20.0
HVAC	Guest Room Energy Management System	1,215	1.00	1,215	0.97	1,179	15.0
	Total Therms	442,348	1.00	442,344	0.97	429,074	NA
	Total kWh Converted From Therms†	12,965,216	1.00	12,965,100	0.97	12,576,148	NA

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

† Gas savings converted to kWh by multiplying therms by 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 Lamps and Fixtures	160,818,847	0.99	158,968,130	0.97	154,199,086
Lighting	Lighting Controls	32,069,047	0.98	31,520,787	0.97	30,575,163
HVAC	Economizer with DCV	5,211,424	1.00	5,212,115	0.97	5,055,752
Refrigeration	EC Motor with Evaporator Fan Controls for Cooler or Freezer	5,109,749	1.00	5,109,749	0.97	4,956,457
Envelope	Weather Stripping	3,050,315	1.00	3,050,315	0.97	2,958,805
Food Service Equipment	Kitchen Fan with DCV	2,616,415	1.00	2,616,415	0.97	2,537,922
Refrigeration	EC Motor for Cooler or Freezer	2,538,428	1.00	2,538,428	0.97	2,462,275
Refrigeration	Anti-Sweat Heater Controls for Glass Door Cooler or Refrigerator	1,808,985	1.00	1,808,983	0.97	1,754,714
HVAC	Thermostat	4,935,350	1.00	4,935,350	0.97	4,787,289
Lighting	LED Decorative & Directional Lamps	1,567,272	0.99	1,557,980	0.97	1,511,240
Compressed Air	Air Compressors with Integrated VSD	1,024,447	1.00	1,024,447	0.97	993,714
Lighting	LED Omnidirectional	957,225	1.00	952,372	0.97	923,800
HVAC	Advanced Rooftop Controls	823,105	1.00	823,109	0.97	798,416
HVAC	Early Replacement for Air Cooled AC	691,243	1.00	691,243	0.97	670,506
Compressed Air	No-Loss Condensate Drains	543,625	1.00	543,625	0.97	527,316
HVAC	Thermostat Adjustment	1,435,158	1.00	1,435,158	0.97	1,392,104
Refrigeration	LED Refrigerated Display Case Lighting	502,730	1.00	502,730	0.97	487,648
HVAC	Variable Speed Drive on HVAC - Supply and Return Fans	454,797	1.00	454,823	0.97	441,179
Refrigeration	Strip Curtains for Cooler or Freezer	385,970	1.00	385,989	0.97	374,409
Compressed Air	Compressed Air Leak Repair	336,056	1.00	336,060	0.97	325,978
Lighting	LED Exit Signs	315,780	1.00	313,279	0.97	303,881
HVAC	Air Conditioner Tune-Up	294,667	1.00	294,667	0.97	285,827
HVAC	Smart Strip - Tier 1	232,787	1.00	232,787	0.97	225,803
Refrigeration	Auto Closer for Walk-in Cooler or Freezer	222,835	1.00	222,835	0.97	216,150
Compressed Air	High-Efficiency Air Nozzles	219,241	1.00	218,526	0.97	211,970
HVAC	Restroom Exhaust Fan Occupancy Sensor	210,857	1.00	210,857	0.97	204,531
HVAC	Packaged RTU Sealing	399,380	1.00	399,380	0.97	387,399
HVAC	Variable Speed Drive on HVAC - Pumps and Fans	120,151	1.00	120,122	0.97	116,518
Refrigeration	Beverage, Snack and Cooler Machine Controls	88,934	1.00	88,934	0.97	86,266
Hot Water	Bathroom and Kitchen Faucet Aerators	51,837	1.32	68,522	0.97	66,467
Refrigeration	Night Covers	67,303	1.00	67,303	0.97	65,284
Refrigeration	Q-Sync Motors for Reach-in Coolers/Freezers	59,008	1.00	59,008	0.97	57,238
HVAC	Guest Room Energy Management System	41,996	1.00	41,996	0.97	40,736
Food Service Equipment	ENERGY STAR Dishwasher	37,780	1.14	42,886	0.97	41,599
Lighting	LED Lit Signage	25,094	1.00	25,094	0.97	24,341
HVAC	Economizer Repair and Optimization	8,953	1.00	8,953	0.97	8,684
Hot Water	High Efficiency Pre-Rinse Spray Valve	6,942	1.28	8,921	0.97	8,653
Refrigeration	ENERGY STAR Solid or Glass Door Refrigerator or Freezer	8,102	1.00	8,102	0.97	7,859
HVAC	Cogged V-Belt	5,453	1.00	5,453	0.97	5,289
Hot Water	Showerhead - Low Flow	1,262	1.43	1,805	0.97	1,751
HVAC	End of life Replacement for Air Cooled AC	1,653	1.00	1,653	0.97	1,604
Compressed Air	Efficient Refrigerated CA Dryer	862	1.00	862	0.97	836
Lighting	LED Open & Channel Sign	631	0.91	574	0.97	557
Lighting	Linear T8 and T5 Lamps and Ballast	61	1.00	61	0.97	59
	Total†	229,301,760	0.99	226,910,388	0.97	220,103,076

* 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 SBP 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 in the electricity savings shown 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)
Food Service Equipment	ENERGY STAR Dishwasher	101,905	NR	NA	5,105	0.97	4,952
Hot Water	Bathroom and Kitchen Faucet Aerators	625,874	NR	NA	16,700	0.97	16,199
Hot Water	High Efficiency Pre-Rinse Spray Valve	39,811	NR	NA	1,991	0.97	1,931
Hot Water	Showerhead - Low Flow	10,801	NR	NA	541	0.97	525
Total		778,392	NR	NA	24,338	NA	23,607

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

NR = not reported

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.

* Water savings converted to kWh by water savings (gallons) / 1,000,000 * E_{water}, where E_{water} equals 5,010 (kWh/million gallons) or 2,937 (kWh/million gallons) for measures installed in Cook County. TRM v8.0, Section 4.3.2, p. 126.

† 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 calculated verified gross and net savings (energy and coincident peak demand) resulting from the CY2020 SBP Program using algorithms defined by the TRM v8.0 or the ComEd CY2020 workpapers. 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 were deemed.

Table 6-1. Savings Parameters

Gross Savings Input Parameters	Value	Units	Deemed or Evaluated?	Source*
Quantity	Varies	Varies	Evaluated	CY2020 Program Tracking Database
Net-to-Gross (NTG)	0.97	NA	Deemed	Illinois SAG Consensus
Deemed Lighting Measure Savings Parameters: Hours of Use (HOU), Coincidence Factor, Interactive Effects	Varies	NA	Deemed	TRM v8.0, TRM v8.0 Errata Memo
Lighting Measure Watts (Deemed by TRM v8.0), kW Controlled, In-Service Rate (ISR)	Varies	Watts	Deemed	CY2020 Program Tracking Database, TRM v8.0, Program Measure Workpapers
T12 Baseline Adjustment, EISA Midlife Adjustment (LED Omnidirectional, Decorative, and Directional Lamps)	Varies	kWh	Evaluated	TRM v8.0 Errata Memo
HVAC measures including Electric Air-Cooled Chillers, Air Conditioners, Packaged Terminal Air Conditioners (PTAC), Packaged Terminal Heat Pumps (PTHP), Packaged Roof Top Unit (RTU) Sealing. Refrigeration measures including Electronically Commutated (EC) Motors, Anti-Sweat Heater Controls, Refrigerated Case Lighting. Others include Variable Speed Drives (VSD), Kitchen Demand Control Ventilation (DCV), Food Service and Air Compressor measures.	Varies	kWh	Evaluated	TRM v8.0, TRM v8.0 Errata Memo, Program Measure Workpapers, and Evaluation, Measurement, and Verification
Verified Realization Rate on Ex Ante Gross Savings	Varies	NA	Evaluated	CY2020 Evaluation
EUL	Varies	Years	Mixture	TRM v8.0

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

* TRM is the Illinois Statewide 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.

6.2 Other Impact Findings and Recommendations

The evaluation team developed several recommendations based on findings from the CY2020 evaluation. These findings suggest ways to improve the measure-level realization rates. The end use-level realization rates and program savings percentages are presented in Table 6-2 to give context to the team's recommendations.

Table 6-2. End Use-Level Savings and Realization Rates

End Use	Realization Rate	Percent of Verified Net Savings
Lighting	0.99	90%
Refrigeration	1.00	5%
HVAC	1.00	3%
Compressed Air	1.00	1%
Envelope	1.00	1%
Food Service Equipment	1.06	0%
Hot Water	1.32	0%

Source: Evaluation team analysis of CY2020 ComEd tracking data

6.2.1 Tracking T12 to T8 Equivalent Baseline Wattages

Finding 1. The tracking data provides values for both efficient and replaced wattages for LED lamps and fixtures. However, Guidehouse also uses a T8 equivalent wattage to calculate CPAS savings that the tracking data does not provide. The evaluation team used the TRM v8.0 as a reference to determine the T8 equivalent wattage and midlife adjustment factors.

Recommendation 1. The evaluation team recommends that ComEd review the tracking data to provide T8 equivalent wattages for LED lamp and fixture replacements with T12 baselines.

6.2.2 Heating Penalties

Finding 2. The tracking data has the Primary Energy Source for HVAC input field with 1,401 row entries of lighting and lighting control measures that had electric heating systems. The ex ante savings did not account for electric heating penalty adjustment as required by the TRM v8.0. The verified gross savings adjusted for 2,415,939 kWh of heating penalties, and the adjustment resulted in a program gross kWh realization rate of 0.99.

Recommendation 2. The evaluation team acknowledges that ComEd and Nexant are working to update eTrack to include the methodology for calculating electric heating penalties as well as an additional tracking field. This effort will require updating the Nexant Measure Workbook and ComEd's eTrack system.

6.2.3 Tracking Secondary Water Savings

Finding 3. The tracking data provides the gallons of water saved but does not calculate the secondary electric energy (kWh) savings from water supply and wastewater treatment plants for measures claimed by ComEd. These additional savings are estimated in the Measure Workbook but not included in the ex ante savings. The additional verified savings (24,338 kWh) increased the gross savings realization rates for the faucet aerators, showerheads, pre-rinse sprayers, and ENERGY STAR dishwaters.

Recommendation 3. The evaluation team acknowledges that ComEd and Nexant are working to include an additional tracking field in eTrack to calculate secondary kWh savings using the TRM guidelines and algorithms. The evaluation team will review the inputs during the CY2021 early impact evaluation.

6.2.4 Packaged RTU Sealing

Finding 4. Gas savings for the packaged RTU sealing measure depend on heating kBtu/h capacity values. The tracking data provides cooling capacity values to determine electric savings but not heating capacity values. Guidehouse reviewed the calculations and eTrack inputs and verified the total savings at a 1.00 realization rate.

Recommendation 4. The evaluation team recommends that ComEd include additional fields in the tracking data that provide the heating capacities (kBtu/h) and the control equipment model numbers for verification.

6.2.5 Ex Ante Per Unit Values

Finding 5. The evaluation team found several instances where the lighting ex ante per unit savings in the tracking data was not consistent with the per unit savings in the program Measure Workbook. As a result, multiplying the lighting measure quantity by per unit savings in the tracking data was not consistently equal to the total gross savings in the tracking data, although the evaluation team verified that the total gross savings was accurate and consistent with the TRM v8.0 and the Measure Workbook. The evaluation team analyzed the data based upon the total gross value, however, the per unit values should also be accurate and up to date.

Table 6-3. Tracking Data Per Unit Savings Discrepancies

Measure_Installation_ID	Measure Description	Measure Quantity	Measure Units	Gross kWh Per Unit	Per Unit * Quantity	Tracking Total Gross kWh
5-3674737	LED Refrigerated Display Case Lighting	23	Lamp	264.57	6,085.13	7,849.83
29-3674586	Occupancy Sensors Plus Daylighting Controls	11	Each	232.61	2,558.73	2,840.19
29-3675002	LED Omnidirectional	2	Each	138.11	276.21	306.60
29-3675058	LED Fixtures - T8/T5 to LED	153	Watt Reduced	2.67	409.12	454.10
29-3675069	LED Fixtures	501	Watt Reduced	2.67	1,339.67	1,486.97

Recommendation 5. The evaluation team recommends that ComEd and Nexant ensure eTrack data per unit savings values are updated to match the TRM and Workbook values and that they equal the total gross savings when multiplied by the measure quantity.

Appendix A. Impact Analysis Methodology

A.1 Verified Gross Program Savings Analysis Approach

Guidehouse determined the verified gross savings for each program measure by:

1. Reviewing the savings algorithm inputs in the Measure Workbook for agreement with the Illinois Technical Reference Manual (TRM) v8.0 or secondary research.
2. Validating that the savings algorithms were applied correctly.
3. Cross-checking the per-unit savings values in the tracking data with the verified values in the Measure Workbook or in the evaluation team's calculations if the workbook did not agree with the TRM v8.0.
4. Multiplying the verified per-unit savings value by the quantity reported in the tracking data.

The evaluation team downloaded the final tracking data and Measure Workbook for the CY2020 impact evaluation from the ComEd Evaluation ShareFile site. The team relied on the following documents to verify the per-unit savings for each program measure:

- Final CY2020 tracking database file: "SBSB_CY2020_EOY_Data_Rev1_01052021"
- ComEd Small Business Offering Workpaper³
- ComEd SBP Program Workbook⁴
- TRM v8.0 and TRM v8.0 Errata Memo for deemed input parameters or secondary evaluation research to verify any custom inputs used in the ex ante calculations
- T12 and EISA baseline and midlife analysis using the TRM v8.0 Errata Memo

A.2 Verified Net Program Savings Analysis Approach

Guidehouse calculated verified net energy and demand (coincident peak and overall) savings by multiplying the verified gross savings estimates by a net-to-gross (NTG) ratio. In CY2020, the NTG ratio estimate used to calculate the net verified savings was 0.97 based on past evaluation research and defined by a consensus process through the Illinois SAG. This document is found on the SAG website.⁵

³ 2020 SBO Workpaper Final_072420.pdf

⁴ 2020 ComEd Measure Workbook_072420.xlsx

⁵ The Illinois SAG website is found here: https://www.ilsag.info/ntg_2020/.

Appendix B. Impact Analysis Detail

B.1 T12 Baseline and EISA Midlife Adjustments

The tracking data provided enough information for the evaluation team to determine the measures affected by T12 adjustment (interior and outdoor linear LED fixtures, TLEDs, lit signage) and EISA midlife adjustment (LED screw-in omnidirectional, directional, and decorative lamps). In the tracking data, lighting measures with T12 baseline comprised 28% of the CY2020 ex ante savings, and the LED screw-in lamps comprised 1%.

In CY2020, the remaining useful life (RUL) for the T12 midlife adjustment was calculated as one-third of the 40,000-hour ballast life divided by the average HOU per year as prescribed by the TRM v8.0 Errata Memo. To account for EISA backstop adjustment for omnidirectional, decorative, and directional lamps in CY2020, the TRM v8.0 specifies these lamps will have a baseline adjustment starting January 1, 2024. Table B-1 shows the EISA adjustment factors for screw-in lamps.

Table B-1. EISA Adjustment Factors

Lamp Type	Year from which adjustment is applied	Adjustment Factor applied to Annual kWh Savings
Omnidirectional	2024	40%
Decorative	2024	56%
Directional	2024	54%

Source: Illinois SAG website: https://www.ilsag.info/TRM_2020

The tracking data contains 20,703 line items for the LED lamps and fixtures measure; 8,276 (40%) have a T12 baseline measure type. The affected measures have an adjusted savings of 52%. Including the measures without T12 baselines, the adjustment factor turned out to be 84% (overall decay percentage). Each measures decay percentage is calculated with the following equation using the T8 equivalent baseline wattage for T12:

$$\% \text{ Adjusted} = (\text{T8 wattage} - \text{efficient wattage}) / (\text{existing wattage} - \text{efficient wattage})$$

The % adjusted is restricted to be within 0% and 100%. A negative value would mean negative savings at the adjustment point and a value over 100 would increase savings at the midlife adjustment. Guidehouse previously shared the details of the adjustment calculation with ComEd in spreadsheet on February 26, 2021.⁶

⁶ Small Business Private CY2020 T12 Midlife Adjustment Calculation.xlsx (sent to ComEd on 2-26-2021)

Appendix C. Total Resource Cost Detail

Table C-1 shows the TRC cost-effectiveness analysis inputs available at the time of finalizing this impact evaluation report. Additional required cost data (e.g., measure costs, program-level incentive and non-incentive costs) are not included in this table and will be provided to the evaluation team during the 2020 TRC analysis (to be completed after the calendar year by June 29, 2021).

Table C-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)	Gross Secondary Savings due to Water Reduction (kWh)	Gross Heating Penalty (kWh)	Gross Heating Penalty (Therms)	NTG (kWh)	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 Lamps and Fixtures	Watt Reduced	42,116,985	13.0	Yes	158,968,130	27,801.91	0		-1,850,422	-1,693,744	0.97	0.97	0.97	154,199,086	26,967.86		-1,794,909	-1,642,931
Lighting	Lighting Controls	Each	1,013,541	8.0	No	31,520,787	21,632.63	0		-549,766	-268,485	0.97	0.97	0.97	30,575,163	20,983.66		-533,273	-260,430
Refrigeration	EC Motor with Evaporator Fan Controls for Cooler or Freezer	Motor	1,503	13.0	No	5,109,749	583.61					0.97	0.97	0.97	4,956,457	566.11			0
Refrigeration	EC Motor for Cooler or Freezer	Motor	1,491	15.0	No	2,538,428	289.77					0.97	0.97	0.97	2,462,275	281.08			0
Refrigeration	Anti-Sweat Heater Controls for Glass Door Cooler or Refrigerator	Linear Foot	4,412	10.0	No	1,808,983	0.00					0.97	0.97	0.97	1,754,714	0.00			0
HVAC	Economizer with DCV	Ton	4,667	10.0	No	1,637,409	0.00	121,962				0.97	0.97	0.97	1,588,287	0.00	118,303		0
HVAC	Thermostat	Each	951	11.0	No	1,625,545	97.58	112,924				0.97	0.97	0.97	1,576,779	94.66	109,536		0
Lighting	LED Decorative & Directional Lamps	Each	9,203	13.6	Yes	1,557,980	377.60	0		-8,279	-20,777	0.97	0.97	0.97	1,511,240	366.27		-8,031	-20,153
Envelope	Weather Stripping	Linear Foot	16,267	10.0	No	1,298,115	0.00	59,782				0.97	0.97	0.97	1,259,172	0.00	57,988		0
Compressed Air	Air Compressors with Integrated VSD	Horsepower	1,545	13.0	No	1,024,447	246.26					0.97	0.97	0.97	993,714	238.87			0
Lighting	LED Omnidirectional	Each	6,626	13.9	Yes	952,372	244.28	0		-4,854	-12,571	0.97	0.97	0.97	923,800	236.95		-4,708	-12,194
HVAC	Early Replacement for Air Cooled AC	Ton	3,504	15.0	Yes	691,243	368.19					0.97	0.97	0.97	670,506	357.15			0
Compressed Air	No-Loss Condensate Drains	Each	276	10.0	No	543,625	84.17					0.97	0.97	0.97	527,316	81.64			0
HVAC	Thermostat Adjustment	Each	446	2.0	No	514,394	45.76	31,415				0.97	0.97	0.97	498,962	44.39	30,472		0
Refrigeration	LED Refrigerated Display Case Lighting	Lamp	1,473	8.6	No	502,730	86.65			0		0.97	0.97	0.97	487,648	84.05			0
HVAC	Variable Speed Drive on HVAC - Supply and Return Fans	Horsepower	282	15.0	No	454,823	27.75					0.97	0.97	0.97	441,179	26.91			0
Refrigeration	Strip Curtains for Cooler or Freezer	Door	559	4.0	No	385,989	44.03					0.97	0.97	0.97	374,409	42.71			0
Compressed Air	Compressed Air Leak Repair	Horsepower	1,765	2.0	No	336,060	85.03					0.97	0.97	0.97	325,978	82.48			0
Lighting	LED Exit Signs	Kit	2,108	5.0	No	313,279	40.97	0		-2,562	-4,239	0.97	0.97	0.97	303,881	39.75		-2,485	-4,112
HVAC	Air Conditioner Tune-Up	Ton	2,597	3.0	No	294,667	125.52					0.97	0.97	0.97	285,827	121.75			0
HVAC	Advanced Rooftop Controls	Ton	646	10.0	No	290,893	53.45	18,158				0.97	0.97	0.97	282,166	51.85	17,613		0
HVAC	Smart Strip - Tier 1	Each	2,144	7.0	No	232,787	0.00					0.97	0.97	0.97	225,803	0.00			0
Refrigeration	Auto Closer for Walk-in Cooler or Freezer	Each	177	8.0	No	222,835	31.30					0.97	0.97	0.97	216,150	30.36			0
Compressed Air	High-Efficiency Air Nozzles	Each	804	15.0	No	218,526	52.53					0.97	0.97	0.97	211,970	50.95			0
HVAC	Restroom Exhaust Fan Occupancy Sensor	Fan	1,227	8.0	No	210,857	34.80					0.97	0.97	0.97	204,531	33.75			0
HVAC	Packaged RTU Sealing	Ton	2,175	5.0	No	128,174	57.67	9,253				0.97	0.97	0.97	124,329	55.94	8,975		0
HVAC	Variable Speed Drive on HVAC - Pumps and Fans	Horsepower	230	15.0	No	120,122	21.79					0.97	0.97	0.97	116,518	21.14			0
Refrigeration	Beverage, Snack and Cooler Machine Controls	Each	58	5.0	No	88,934	0.00					0.97	0.97	0.97	86,266	0.00			0
Food Service Equipment	Kitchen Fan with DCV	Each	14	15.0	No	69,524	9.52	86,895				0.97	0.97	0.97	67,438	9.23	84,288		0
Refrigeration	Night Covers	Linear Foot	370	5.0	No	67,303	0.00					0.97	0.97	0.97	65,284	0.00			0
Refrigeration	Q-Sync Motors for Reach-in Coolers/Freezers	Motor	128	10.0	No	59,008	6.78					0.97	0.97	0.97	57,238	6.58			0
Hot Water	Bathroom and Kitchen Faucet Aerators	Each	338	10.0	No	51,822	9.60		16,700			0.97	0.97	0.97	50,267	9.31	16,199		0
Lighting	LED Lit Signage	Watt Reduced	5,832	11.6	Yes	25,094	0.00					0.97	0.97	0.97	24,341	0.00			0
Food Service Equipment	ENERGY STAR Dishwasher	Each	1	20.0	No	16,079	1.00	740	5,106			0.97	0.97	0.97	15,597	0.97	718	4,952	0
HVAC	Economizer Repair and Optimization	Ton	308	5.0	No	8,953	0.00					0.97	0.97	0.97	8,684	0.00			0
Refrigeration	ENERGY STAR Solid or Glass Door Refrigerator or Freezer	Each	19	12.0	No	8,102	0.87					0.97	0.97	0.97	7,859	0.84			0
Hot Water	High Efficiency Pre-Rinse Spray Valve	Each	1	5.0	No	6,930	0.00		1,991			0.97	0.97	0.97	6,722	0.00		1,931	0
HVAC	Guest Room Energy Management System	Ton	48	15.0	No	6,384	5.10	1,215				0.97	0.97	0.97	6,192	4.95	1,179		0
HVAC	Cogged V-Belt	Each	19	3.0	No	5,453	0.78					0.97	0.97	0.97	5,289	0.76			0
HVAC	End of Life Replacement for Air Cooled AC	Ton	15	15.0	No	1,653	0.86					0.97	0.97	0.97	1,604	0.84			0
Hot Water	Showerhead - Low Flow	Each	4	10.0	No	1,264	0.16		541			0.97	0.97	0.97	1,226	0.15	525		0
Compressed Air	Efficient Refrigerated CA Dryer	CFM	125	13.0	No	862	0.21					0.97	0.97	0.97	836	0.20			0
Lighting	LED Open & Channel Sign	Each	6	15.0	No	574	0.15	0		-57	-5	0.97	0.97	0.97	557	0.14		-56	-5
Lighting	Linear T8 and T5 Lamps and Ballast	Watt Reduced	12	15.0	No	61	0.01	0		0	-2	0.97	0.97	0.97	59	0.01			-2
	Total		NA			213,920,949	52,468	442,344	24,338	-2,415,939	-1,999,822	NA	NA	207,503,321	50,894	429,074	23,607	-2,343,461	-1,939,827

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

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

‡ The EUL for this measure varies over time. See Table 4-1 to Table 4-3.

|| The therm savings from this measure may also be claimed by the gas companies.

†§ 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