



ComEd Retail/Online Program Impact Evaluation Report

Energy Efficiency/Demand Response Plan:
Program Year 2023 (CY2023)
(1/1/2023-12/31/2023)

Prepared for:

ComEd

FINAL

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Introduction

This report presents the results of the impact evaluation of the Retail/Online program from the program year from January 1 to December 31, 2023 (CY2023). The program was designed to provide incentives to increase the market share of energy efficient products commonly sold to residential customers. In 2023 this program had five components: Appliance Rebates, Appliance Recycling, ComEd Marketplace, Efficient Choice, and Lighting Discounts. Additional program savings occurred in 2023 stemming from carryover bulbs sold through the Market Rate Lighting component in 2021 and 2022 but not installed until 2023.

One measure sold through this program (Smart Thermostats sold through the ComEd Marketplace) are offered jointly to customers served by ComEd, Nicor Gas, Peoples Gas, and North Shore Gas. This report presents the results just for ComEd. The results for the gas utilities will be provided in separate reports.

Program Savings Detail

Table 1 summarizes the incremental energy and demand savings the Retail/Online Program achieved in CY2023. The gas or other fuel 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.¹ The electrification savings are those resulting from electrification measures.² Table 2 summarizes the savings achieved from income eligible participants and Table 3 summarizes savings from non-income eligible participants. Together they make up the total shown in Table 1.

Table 1. Total Annual Incremental Electric Savings - Total

Savings Category	Units	Ex Ante Gross Savings*	Program Gross Realization Rate	Verified Gross Savings*	Program Net-to-Gross Ratio (NTG)	CY2021 Net Carryover Savings	CY2022 Net Carryover Savings	Verified Net Savings†
Electric Energy Savings - Direct‡	kWh	195,379,737	0.95	185,046,056	0.94	15,679,772	15,266,348	204,499,758
Electric Energy Savings - Converted from Other Fuel§	kWh	352,682,287	0.98	344,326,246	0.88			303,430,181
Electric Energy Savings - Electrification	kWh	19,353	2.11	40,884	0.86			35,312
Total Electric Energy Savings#	kWh	548,081,378	0.97	529,413,185	0.90	15,679,772	15,266,348	507,965,251
Total Electric Energy Savings Including Carryover#	kWh	548,081,378	1.06	580,701,700	0.87	15,679,772	15,266,348	507,965,251
Summer Peak** Demand Savings	kW	97,906	0.22	21,486	0.94	2,015	1,936	24,119
Summer Peak** Demand Savings Including Carryover	kW	97,906	0.29	28,102	0.86	2,015	1,936	24,119

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

* The "Ex Ante Gross Savings" and "Verified Gross Savings" in row one (Electric Energy Savings - Direct) and row six (Summer Peak Demand Savings) exclude gross carryover savings from CY2021 and CY2022.

† The "Verified Net Savings" in row one and row six include net carryover savings from CY2021 and CY2022.

‡ The Electric Energy Savings - Direct includes primary kWh savings from efficient measures (includes efficiency savings from electrification measures but excludes the electrification savings), secondary kWh savings from wastewater treatment, and electric heating penalties.

§ Gas savings converted to kWh by multiplying Therms * 29.31 (which is based on 100,000 Btu/Therm and 3,412 Btu/kWh) and/or propane savings converted to kWh by multiplying Gallons * 26.77 (which is based on 91,333 Btu/Gallon and 3,412 Btu/kWh). The evaluation team will determine which other fuel savings will be converted to kWh and counted toward ComEd's electric savings goal while producing the portfolio-wide Summary Report.

|| Electrification savings excluding direct efficiency savings. Calculated from net electric savings from increase in kWh consumption and decrease in gas consumption from electrification (kWh equivalent).

Total Electric Energy Savings is the sum of the Electric Energy Savings - Direct, the Electric Energy Savings Converted from Other Fuel, and the Electrification Savings. Note: This row does not include carryover gross savings, but the next one includes carryover verified gross savings, for the purpose of recalculating the gross realization rate resulting from including carryover savings (same for the peak demand savings).

*† The Peak Demand Savings are savings occurring at coincident Summer Peak period, defined as 1:00-5:00 PM Central Prevailing Time on non-holiday weekdays, June through August. This definition is in accordance with PJM requirement.

Note: The program-level NTG values are calculated as Verified Net/Verified Gross. The program-level analysis typically used measure-level deemed NTG values, which are listed here: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2023>.

Source: Evaluation team analysis

Table 2. Incremental Electric Savings – Income Eligible

Savings Category	Units	Ex Ante Gross Savings*	Program Gross Realization Rate	Verified Gross Savings*	Program Net-to-Gross Ratio (NTG)	CY2021 Net Carryover Savings	CY2022 Net Carryover Savings	Verified Net Savings†
Electric Energy Savings - Direct‡	kWh	124,385,444	0.98	121,905,791	1.00	5,613,343	2,648,203	129,602,901
Electric Energy Savings - Converted from Other Fuels§	kWh	83,676,927	0.99	82,475,202	1.00			82,475,202
Electric Energy Savings - Electrification	kWh	1,979	2.07	4,098	1.00			4,098
Total Electric Energy Savings#	kWh	208,064,350	0.98	204,385,092	1.00	5,613,343	2,648,203	212,082,202
Total Electric Energy Savings Including Carryover#	kWh	208,064,350	1.03	214,279,929	0.99	5,613,343	2,648,203	212,082,202
Summer Peak** Demand Savings	kW	23,695	0.63	14,909	0.99	705	336	15,875
Summer Peak** Demand Savings Including Carryover	kW	23,695	0.68	16,163	0.98	705	336	15,875

Footnotes are defined similarly as found in Table 1.

Source: Evaluation team analysis

Table 3. Total Annual Incremental Electric Savings – Non-Income Eligible

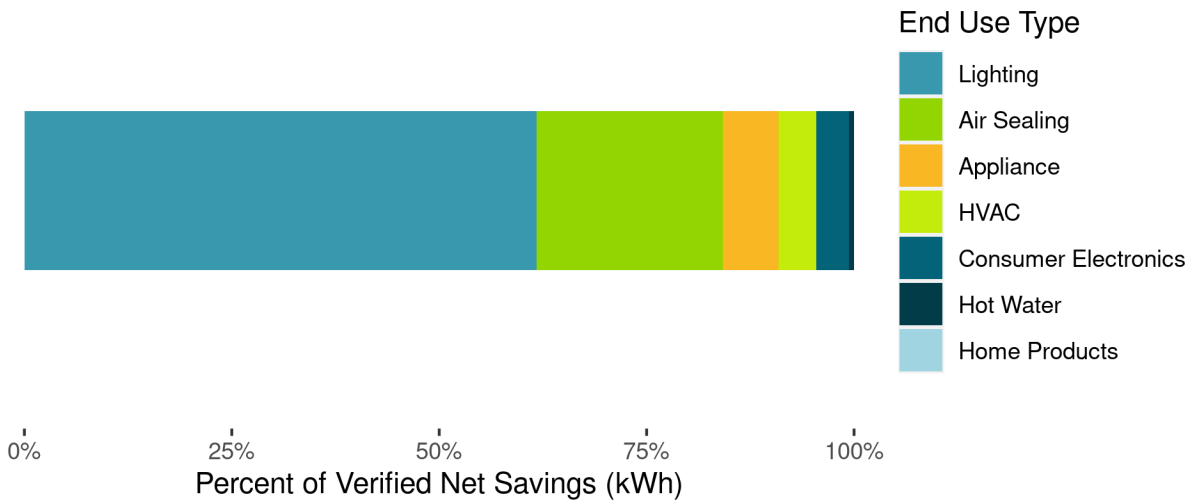
Savings Category	Units	Ex Ante Gross Savings*	Program Gross Realization Rate	Verified Gross Savings*	Program Net-to-Gross Ratio (NTG)	CY2021 Net Carryover Savings	CY2022 Net Carryover Savings	Verified Net Savings†
Electric Energy Savings - Direct‡	kWh	70,994,292	0.89	63,140,265	0.83	10,066,429	12,618,145	74,896,856
Electric Energy Savings - Converted from Other Fuels§	kWh	269,005,361	0.97	261,851,044	0.84			220,954,979
Electric Energy Savings - Electrification	kWh	17,375	2.12	36,785	0.85			31,214
Total Electric Energy Savings#	kWh	340,017,028	0.96	325,028,094	0.84	10,066,429	12,618,145	295,883,049
Total Electric Energy Savings Including Carryover#	kWh	340,017,028	1.08	366,421,770	0.81	10,066,429	12,618,145	295,883,049
Summer Peak** Demand Savings	kW	74,210	0.09	6,577	0.81	1,310	1,600	8,244
Summer Peak** Demand Savings Including Carryover	kW	74,210	0.16	11,939	0.69	1,310	1,600	8,244

Footnotes are defined similarly as found in Table 1.

Source: Evaluation team analysis

Figure 1 shows the electric energy savings by measure end use. It includes measure efficiency savings, carryover kWh, secondary water kWh, and electrification savings. It does not include other fuel savings converted to kWh.

Figure 1. Verified Net Savings by Measure – Electric



Source: Evaluation team analysis

Cumulative Persisting Annual Savings

Table 4 to Table 6 show the cumulative persisting annual savings (CPAS) for the measures installed in CY2023. The electric CPAS across all measures installed in 2023 is shown in Table 4. The gas and other fuel contribution to CPAS (converted to equivalent electricity) are shown in Table 5. The combined savings are shown in Table 6.

Table 4. CPAS – Electric

Savings Category	Verified Gross Savings (kWh)	Lifetime Net Savings (kWh)†	CPAS Verified Net kWh Savings										
			2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
CY2023 Program Total Contribution to CPAS	236,375,454	2,144,650,168						204,535,070	204,534,689	194,734,901	194,734,901	182,106,205	181,836,729
Historic Program Total Contribution to CPAS‡			382,319,670	656,815,817	942,574,802	1,018,494,418	1,236,801,274	1,219,188,957	1,035,481,346	933,140,023	844,223,477	790,017,162	592,132,102
Program Total CPAS			382,319,670	656,815,817	942,574,802	1,018,494,418	1,236,801,274	1,423,724,027	1,240,016,035	1,127,874,924	1,038,958,378	972,123,367	773,968,831
CY2023 Program Incremental Expiring Savings§									381	9,799,788	0	12,628,696	269,477
Historic Program Incremental Expiring Savings								17,612,317	183,707,611	102,341,323	88,916,545	54,206,316	197,885,059
Program Total Incremental Expiring Savings#								17,612,317	183,707,992	112,141,112	88,916,545	66,835,011	198,154,536

Savings Category	Verified Gross Savings (kWh)	Lifetime Net Savings (kWh)†	CPAS Verified Net kWh Savings										
			2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
CY2023 Program Total Contribution to CPAS	236,375,454	2,144,650,168	180,304,751	157,148,151	79,629,736	72,027,112	61,655,844	52,319,925	49,364,868	49,359,946	47,894,538	46,806,482	46,550,342
Historic Program Total Contribution to CPAS‡			523,397,574	401,216,623	274,258,575	171,246,426	105,182,478	85,462,099	50,261,453	15,764,884	4,658,069	3,124,168	2,187,746
Program Total CPAS			703,702,326	558,364,774	353,888,312	243,273,538	166,838,322	137,782,024	99,626,321	65,124,830	52,552,607	49,930,651	48,738,088
CY2023 Program Incremental Expiring Savings§			1,531,977	23,156,601	77,518,415	7,602,625	10,371,267	9,335,919	2,955,057	4,922	1,465,408	1,088,056	256,140
Historic Program Incremental Expiring Savings			68,734,528	122,180,951	126,958,048	103,012,149	66,063,948	19,720,379	35,200,646	34,496,570	11,106,815	1,533,901	936,422
Program Total Incremental Expiring Savings#			70,266,505	145,337,552	204,476,462	110,614,774	76,435,216	29,056,298	38,155,703	34,501,492	12,572,222	2,621,957	1,192,562

Savings Category	Verified Gross Savings (kWh)	Lifetime Net Savings (kWh)†	CPAS Verified Net kWh Savings										
			2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
CY2023 Program Total Contribution to CPAS	236,375,454	2,144,650,168	46,550,342	46,549,345	46,006,288	0	0	0	0	0	0	0	0
Historic Program Total Contribution to CPAS‡			2,085,765	1,629,089	28,976	523							
Program Total CPAS			48,636,108	48,178,434	46,035,264	523	0	0	0	0	0	0	0
CY2023 Program Incremental Expiring Savings§			0	998	543,057	46,006,288	0	0	0	0	0	0	0
Historic Program Incremental Expiring Savings			101,980	456,676	1,600,113	28,453	523	0	0	0	0	0	0
Program Total Incremental Expiring Savings#			101,980	457,674	2,143,170	46,034,741	523	0	0	0	0	0	0

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

‡ Historical savings go back to CY2018.

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

|| Historic incremental expiring savings are equal to Historic CPAS Yn-1 – Historic CPAS Yn.

Program total incremental expiring savings are equal to current year total incremental expiring savings plus historic total incremental expiring savings.

Source: Evaluation team analysis

Table 5. CPAS – Other Fuel (Gas + Propane)

Savings Category	Verified Gross Savings (Therms)	Lifetime Net Savings†	CPAS Verified Net Therms Savings										
			2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
CY2023 Program Total Other Fuel Contribution to CPAS (Therms)	11,747,740	190,331,168						10,352,446	10,352,446	10,352,446	10,352,446	10,352,446	10,352,446
CY2023 Program Total Other Fuel Contribution to CPAS (kWh Equivalent)‡	344,326,246	5,578,606,544						303,430,181	303,430,181	303,430,181	303,430,181	303,430,181	303,430,181
Historic Program Total Other Fuel Contribution to CPAS (kWh Equivalent)§			60,598,906	176,247,714	273,018,371	439,388,860	555,465,875	555,465,875	555,465,875	555,465,875	555,465,875	555,465,875	497,047,336
Program Total Other Fuel CPAS (kWh Equivalent)			60,598,906	176,247,714	273,018,371	439,388,860	555,465,875	858,896,056	858,896,056	858,896,056	858,896,056	858,896,056	800,477,517
CY2023 Program Incremental Expiring Other Fuel Savings (Therms)										0	0	0	0
CY2023 Program Incremental Expiring Other Fuel Savings (kWh Equivalent)										0	0	0	0
Historic Program Incremental Expiring Other Fuel Savings (kWh Equivalent)#									0	0	0	0	58,418,539
Program Total Incremental Expiring Other Fuel Savings (kWh Equivalent)*†									0	0	0	0	58,418,539

Savings Category	Verified Gross Savings (Therms)	Lifetime Net Savings†	CPAS Verified Net Therms Savings										
			2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
CY2023 Program Total Other Fuel Contribution to CPAS (Therms)	11,747,740	190,331,168	10,352,446	10,352,446	10,352,446	10,352,446	10,013,400	8,559,802	8,559,802	8,556,188	8,519,592	8,519,741	8,519,547
CY2023 Program Total Other Fuel Contribution to CPAS (kWh Equivalent)‡	344,326,246	5,578,606,544	303,430,181	303,430,181	303,430,181	303,430,181	293,492,755	250,887,789	250,887,789	250,781,861	249,709,228	249,713,615	249,707,924
Historic Program Total Other Fuel Contribution to CPAS (kWh Equivalent)§			497,047,336	383,247,836	288,567,370	122,420,426	19,523,292	17,433,102	15,029,189	14,146,507	14,146,507	14,146,507	14,146,507
Program Total Other Fuel CPAS (kWh Equivalent)			800,477,517	686,678,017	591,997,551	425,850,607	313,016,047	268,320,891	265,916,978	264,928,368	263,855,735	263,860,122	263,854,431
CY2023 Program Incremental Expiring Other Fuel Savings (Therms)			0	0	0	0	339,046	1,453,598	0	3,614	36,596	-150	194
CY2023 Program Incremental Expiring Other Fuel Savings (kWh Equivalent)			0	0	0	0	9,937,426	42,604,966	0	105,928	1,072,633	-4,387	5,691
Historic Program Incremental Expiring Other Fuel Savings (kWh Equivalent)#			0	113,799,500	94,680,467	166,146,943	102,897,134	2,090,191	2,403,913	882,682	0	0	0
Program Total Incremental Expiring Other Fuel Savings (kWh Equivalent)*†			0	113,799,500	94,680,467	166,146,943	112,834,560	44,695,157	2,403,913	988,610	1,072,633	-4,387	5,691

Savings Category	Verified Gross Savings (Therms)	Lifetime Net Savings†	CPAS Verified Net Therms Savings										
			2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
CY2023 Program Total Other Fuel Contribution to CPAS (Therms)	11,747,740	190,331,168	8,519,547	8,519,547	8,519,547	0	0	0	0	0	0	0	0
CY2023 Program Total Other Fuel Contribution to CPAS (kWh Equivalent)‡	344,326,246	5,578,606,544	249,707,924	249,707,924	249,707,924	0	0	0	0	0	0	0	0
Historic Program Total Other Fuel Contribution to CPAS (kWh Equivalent)§			14,146,507	14,146,507									
Program Total Other Fuel CPAS (kWh Equivalent)			263,854,431	263,854,431	249,707,924	0	0	0	0	0	0	0	0
CY2023 Program Incremental Expiring Other Fuel Savings (Therms)			0	0	0	8,519,547	0	0	0	0	0	0	0
CY2023 Program Incremental Expiring Other Fuel Savings (kWh Equivalent)			0	0	0	249,707,924	0	0	0	0	0	0	0
Historic Program Incremental Expiring Other Fuel Savings (kWh Equivalent)#			0	0	14,146,507	0	0	0	0	0	0	0	0
Program Total Incremental Expiring Other Fuel Savings (kWh Equivalent)*†			0	0	14,146,507	249,707,924	0	0	0	0	0	0	0

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

‡ Fossil fuel savings (from natural gas, propane, etc.) are reported in therms. kWh equivalent savings are calculated by multiplying therms savings by 29.31.

§ Historical savings go back to CY2018.

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

Historic incremental expiring savings are equal to Historic CPAS Yn-1 – Historic CPAS Yn.

*† Program total incremental expiring savings are equal to current year total incremental expiring savings plus historic total incremental expiring savings.

Source: Evaluation team analysis

Table 6. CPAS – Total

Savings Category	Verified Gross Savings (kWh)	Lifetime Net Savings (kWh) [†]	CPAS Verified Net kWh Savings											
			2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
CY2023 Program Total Contribution to CPAS	580,701,700	7,723,256,712							507,965,251	507,964,870	498,165,082	498,165,082	485,536,386	485,266,910
Historic Program Total Contribution to CPAS [‡]			443,124,067	833,269,023	1,215,798,665	1,457,883,279	1,792,267,091	1,774,654,774	1,590,937,606	1,488,596,284	1,399,679,739	1,345,482,535	1,089,178,967	
Program Total CPAS			443,124,067	833,269,023	1,215,798,665	1,457,883,279	1,792,267,091	2,282,620,025	2,098,902,476	1,986,761,366	1,897,844,820	1,831,018,922	1,574,445,877	
CY2023 Program Incremental Expiring Savings [§]									381	9,799,788	0	12,628,696	269,477	
Historic Program Incremental Expiring Savings									17,612,317	183,717,168	102,341,322	88,916,545	54,197,203	256,303,568
Program Total Incremental Expiring Savings [#]									17,612,317	183,717,549	112,141,110	88,916,545	66,825,899	256,573,045

Savings Category	Verified Gross Savings (kWh)	Lifetime Net Savings (kWh) [†]	CPAS Verified Net kWh Savings										
			2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
CY2023 Program Total Contribution to CPAS	580,701,700	7,723,256,712	483,734,932	460,578,332	383,059,917	375,457,293	355,148,599	303,207,714	300,252,657	300,141,808	297,603,767	296,520,098	296,258,266
Historic Program Total Contribution to CPAS [‡]			1,020,443,253	784,462,018	562,823,530	293,619,369	124,659,515	102,829,023	65,144,281	29,765,030	18,678,138	17,270,675	16,334,252
Program Total CPAS			1,504,178,185	1,245,040,349	945,883,447	669,076,661	479,808,115	406,036,737	365,396,939	329,906,838	316,281,905	313,790,773	312,592,519
CY2023 Program Incremental Expiring Savings [§]			1,531,977	23,156,601	77,518,415	7,602,625	20,308,693	51,940,885	2,955,057	110,850	2,538,041	1,083,669	261,832
Historic Program Incremental Expiring Savings			68,735,714	235,981,235	221,638,488	269,204,161	168,959,853	21,830,492	37,684,742	35,379,252	11,086,892	1,407,463	936,422
Program Total Incremental Expiring Savings [#]			70,267,691	259,137,836	299,156,902	276,806,786	189,268,547	73,771,377	40,639,799	35,490,101	13,624,933	2,491,132	1,198,254

Savings Category	Verified Gross Savings (kWh)	Lifetime Net Savings (kWh) [†]	CPAS Verified Net kWh Savings										
			2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
CY2023 Program Total Contribution to CPAS	580,701,700	7,723,256,712	296,258,266	296,257,269	295,714,212	0	0	0	0	0	0	0	0
Historic Program Total Contribution to CPAS [‡]			16,231,954	15,775,278	28,658	523							
Program Total CPAS			312,490,220	312,032,546	295,742,869	523	0	0	0	0	0	0	0
CY2023 Program Incremental Expiring Savings [§]			0	998	543,057	295,714,212	0	0	0	0	0	0	0
Historic Program Incremental Expiring Savings			102,299	456,676	15,746,620	28,135	523	0	0	0	0	0	0
Program Total Incremental Expiring Savings [#]			102,299	457,674	16,289,677	295,742,347	523	0	0	0	0	0	0

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

[‡] Historical savings go back to CY2018.

[§] Incremental expiring savings are equal to CPAS Yn-1 - CPAS Yn.

^{||} Historic incremental expiring savings are equal to Historic CPAS Yn-1 – Historic CPAS Yn.

[#] Program total incremental expiring savings are equal to current year total incremental expiring savings plus historic total incremental expiring savings.

Source: Evaluation team analysis