



ComEd New Construction - IE Impact Evaluation Report

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

Prepared for:

ComEd

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Introduction

This report presents the results of the impact evaluation of the New Construction – Income Eligible (IE) program for the program year from January 1 to December 31, 2023 (CY2023). The New Construction – IE Program offers technical assistance and incentive funding to building developers for new construction or major renovation of affordable housing, including single-family, low-rise, mid-rise, and high-rise multifamily buildings. Bundled energy conservation measures and custom or prescriptive approaches for specific building types are designed to result in significant energy savings over the current Illinois energy code. The program targets affordable housing developers and owners who are constructing housing for households with incomes at or below 80% of the area median income. The program also aims to educate housing developers on cost-effective energy efficient building practices.

The program is offered jointly to customers served by ComEd and Nicor Gas. This report presents the results just for ComEd. The results for the gas utilities will be in a separate report.

Program Savings Detail

Table 1 summarizes the incremental energy and demand savings the New Construction - IE program achieved in CY2023. The gas savings are only those that ComEd may be able to claim, which excludes savings the gas utilities claim, either via joint or non-joint programs.¹ The electrification savings are those resulting from electrification measures.² There were no savings from non-income eligible participants. Guidehouse applied the CY2022 measure-level realization rates for the New Construction - IE program to determine the gross verified savings for CY2023.

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	955,337	1.15	1,102,724	1.00	0	0	1,102,724
Electric Energy Savings - Converted from Other Fuel§	kWh	1,056,366	1.02	1,076,506	1.00	N/A	N/A	1,076,506
Electric Energy Savings - Electrification	kWh	1,835,009	1.05	1,933,079	1.00	N/A	N/A	1,933,079
Total Electric Energy Savings#	kWh	3,846,712	1.07	4,112,309	1.00	0	0	4,112,309
Total Electric Energy Savings Including Carryover#	kWh	-	-	-	-	-	-	-
Summer Peak** Demand Savings	kW	168	0.95	159	1.00	0	0	159
Summer Peak** Demand Savings Including Carryover	kW	-	-	-	-	-	-	-

¹ The evaluation will determine which gas savings will be counted toward 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 total savings requirement as defined in paragraph (7.5) of subsection (g) of this Section be met through savings of fuels other than electricity.”

² The evaluation team will determine which electrification savings will be counted toward ComEd’s electric savings goal while producing the portfolio-wide Summary Report. According to Section 8-103B(b-27) of the Illinois Public Utilities Act, “In no event shall electrification savings counted toward each year’s applicable annual total savings requirement, as defined in paragraph (7.5) of subsection (g) of this Section, be greater than 5% per year for each year from 2022 through 2025.”

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

* Ex ante and verified gross savings exclude gross carryover savings from CY2021 and CY2022.

† The “Verified Net Savings” in row one (Electric Energy Savings - Direct) excludes carryover savings as they do not apply to this program.

‡ 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). The evaluation team will determine which gas savings will be converted to kWh and counted toward ComEd’s electric savings goal while producing the portfolio-wide Summary Report.

|| Electrification savings excluding direct efficiency savings calculated from net electric savings from an 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 Gas, and the Electrification Savings.

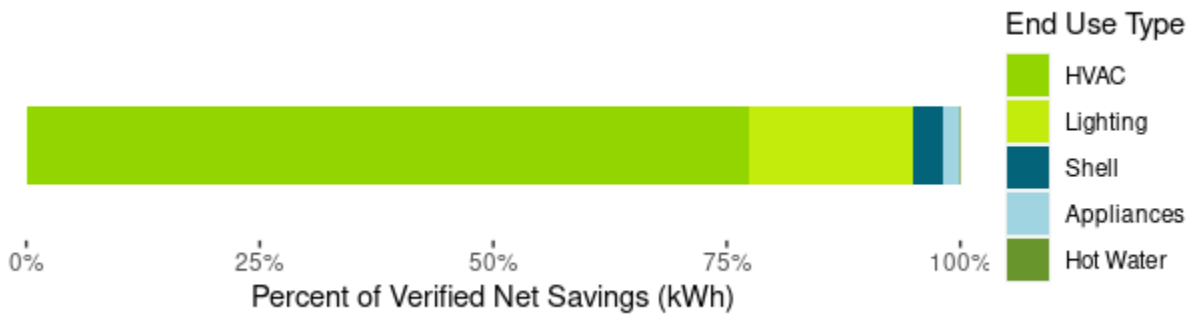
*† The Peak Demand Savings are savings occurring at coincident Summer Peak period, defined as 1:00 p.m. -5:00 p.m. Central Prevailing Time on non-holiday weekdays, June through August. This definition is in accordance with PJM requirement.

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-2022>.

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 gas savings converted to kWh.

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



Source: Evaluation team analysis

Cumulative Persistent Annual Savings

Tables 2 to 4 show the cumulative persisting annual savings (CPAS) for the measures installed in CY2023. Table 4 shows the electric CPAS across all measures installed in 2023. Table 5 shows the gas contribution to CPAS (converted to equivalent electricity). Table 6 shows the combined savings.

Table 2. 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	3,035,803	43,669,462						3,035,803	3,035,803	3,035,803	3,035,803	3,035,803	3,035,803
Historic Program Total Contribution to CPAS‡			1,935,089	4,227,324	5,896,588	6,916,634	12,096,347	12,096,347	12,096,347	12,096,347	12,096,347	11,364,915	10,371,275
Program Total CPAS	3,035,803	43,669,462	1,935,089	4,227,324	5,896,588	6,916,634	12,096,347	15,132,150	15,132,150	15,132,150	15,132,150	14,400,718	13,407,078
CY2023 Program Incremental Expiring Savings§								0	0	0	0	0	0
Historic Program Incremental Expiring Savings								0	0	0	0	731,432	993,640
Program Total Incremental Expiring Savings#								0	0	0	0	731,432	993,640

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	3,035,803	43,669,462	3,035,803	3,035,803	3,035,803	3,031,298	3,023,076	2,990,548	2,988,696	2,053,553	865,524	294,689	279,343
Historic Program Total Contribution to CPAS‡			9,393,309	9,056,503	9,048,508	8,930,365	8,520,042	8,204,508	6,266,663	2,886,736	2,000,125	1,032,164	792,188
Program Total CPAS	3,035,803	43,669,462	12,429,112	12,092,305	12,084,310	11,961,663	11,543,118	11,195,056	9,255,359	4,940,290	2,865,648	1,326,854	1,071,531
CY2023 Program Incremental Expiring Savings§			0	0	0	4,505	8,222	32,528	1,852	935,143	1,188,030	570,834	15,346
Historic Program Incremental Expiring Savings			977,966	336,806	7,995	118,143	410,323	315,535	1,937,844	3,379,927	886,612	967,960	239,976
Program Total Incremental Expiring Savings#			977,966	336,806	7,995	122,648	418,544	348,063	1,939,697	4,315,070	2,074,641	1,538,795	255,322

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	3,035,803	43,669,462	279,343	279,343	261,823	0	0	0	0	0	0	0	0
Historic Program Total Contribution to CPAS‡			743,701	653,763	593,453	498,960	131,384	0	0	0	0	0	0
Program Total CPAS	3,035,803	43,669,462	1,023,044	933,106	855,276	498,960	131,384	0	0	0	0	0	0
CY2023 Program Incremental Expiring Savings§			0	0	17,520	261,823	0	0	0	0	0	0	0
Historic Program Incremental Expiring Savings			48,487	89,938	60,310	94,493	367,576	131,384	0	0	0	0	0
Program Total Incremental Expiring Savings#			48,487	89,938	77,830	356,316	367,576	131,384	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 3. CPAS – Other Fuel

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)	36,728	615,316							36,728	36,728	36,728	36,728	36,728	36,728
CY2023 Program Total Other Fuel Contribution to CPAS (kWh Equivalent)‡	1,076,506	18,034,917							1,076,506	1,076,506	1,076,506	1,076,506	1,076,506	1,076,506
Historic Program Total Other Fuel Contribution to CPAS (kWh Equivalent)§			0	672,456	672,456	672,456	1,970,236	1,970,236	1,970,236	1,970,236	1,970,236	1,970,236	1,970,236	1,961,749
Program Total Other Fuel CPAS (kWh Equivalent)	1,076,506	18,034,917	0	672,456	672,456	672,456	1,970,236	3,046,742	3,046,742	3,046,742	3,046,742	3,046,742	3,046,742	3,038,255
CY2023 Program Incremental Expiring Other Fuel Savings (Therms)									0	0	0	0	0	0
CY2023 Program Incremental Expiring Other Fuel Savings (kWh Equivalent)									0	0	0	0	0	0
Historic Program Incremental Expiring Other Fuel Savings (kWh Equivalent)#									0	0	0	0	0	8,487
Program Total Incremental Expiring Other Fuel Savings (kWh Equivalent)*†									0	0	0	0	0	8,487

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)	36,728	615,316	36,728	36,728	36,728	36,728	31,644	25,809	25,809	25,809	25,068	21,984	21,984
CY2023 Program Total Other Fuel Contribution to CPAS (kWh Equivalent)‡	1,076,506	18,034,917	1,076,506	1,076,506	1,076,506	1,076,506	927,492	756,458	756,458	756,458	734,738	644,340	644,340
Historic Program Total Other Fuel Contribution to CPAS (kWh Equivalent)§			1,885,368	1,885,368	1,847,001	1,000,734	922,141	922,141	915,375	913,207	517,048	498,544	498,544
Program Total Other Fuel CPAS (kWh Equivalent)	1,076,506	18,034,917	2,961,874	2,961,874	2,923,506	2,077,240	1,849,633	1,678,599	1,671,833	1,669,664	1,251,786	1,142,884	1,142,884
CY2023 Program Incremental Expiring Other Fuel Savings (Therms)			0	0	0	0	5,084	5,835	0	0	741	3,084	0
CY2023 Program Incremental Expiring Other Fuel Savings (kWh Equivalent)			0	0	0	0	149,014	171,035	0	0	21,719	90,398	0
Historic Program Incremental Expiring Other Fuel Savings (kWh Equivalent)#			76,381	0	38,367	846,267	78,593	0	6,766	2,169	396,159	18,504	0
Program Total Incremental Expiring Other Fuel Savings (kWh Equivalent)*†			76,381	0	38,367	846,267	227,606	171,035	6,766	2,169	417,878	108,902	0

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)	36,728	615,316	21,984	21,984	21,984	3,977	0	0	0	0	0	0	0
CY2023 Program Total Other Fuel Contribution to CPAS (kWh Equivalent)‡	1,076,506	18,034,917	644,340	644,340	644,340	116,554	0	0	0	0	0	0	0
Historic Program Total Other Fuel Contribution to CPAS (kWh Equivalent)§			498,544	310,428	114,578	29,033	0	0	0	0	0	0	0
Program Total Other Fuel CPAS (kWh Equivalent)	1,076,506	18,034,917	1,142,884	954,768	758,918	145,588	0	0	0	0	0	0	0
CY2023 Program Incremental Expiring Other Fuel Savings (Therms)			0	0	0	18,007	3,977	0	0	0	0	0	0
CY2023 Program Incremental Expiring Other Fuel Savings (kWh Equivalent)			0	0	0	527,786	116,554	0	0	0	0	0	0
Historic Program Incremental Expiring Other Fuel Savings (kWh Equivalent)#			0	188,116	195,851	85,544	29,033	0	0	0	0	0	0
Program Total Incremental Expiring Other Fuel Savings (kWh Equivalent)*†			0	188,116	195,851	613,330	145,588	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 4. 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	4,112,309	61,704,379						4,112,309	4,112,309	4,112,309	4,112,309	4,112,309	4,112,309
Historic Program Total Contribution to CPAS [‡]			1,935,089	4,899,780	6,569,044	7,589,090	14,066,583	14,066,583	14,066,583	14,066,583	14,066,583	13,335,151	12,333,024
Program Total CPAS	4,112,309	61,704,379	1,935,089	4,899,780	6,569,044	7,589,090	14,066,583	18,178,891	18,178,891	18,178,891	18,178,891	17,447,459	16,445,332
CY2023 Program Incremental Expiring Savings [§]								0	0	0	0	0	0
Historic Program Incremental Expiring Savings								0	0	0	0	731,432	1,002,127
Program Total Incremental Expiring Savings [#]								0	0	0	0	731,432	1,002,127

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	4,112,309	61,704,379	4,112,309	4,112,309	4,112,309	4,107,804	3,950,568	3,747,006	3,745,154	2,810,011	1,600,262	939,030	923,683
Historic Program Total Contribution to CPAS [‡]			11,278,677	10,941,870	10,895,508	9,931,099	9,442,183	9,126,649	7,182,039	3,799,943	2,517,173	1,530,708	1,290,732
Program Total CPAS	4,112,309	61,704,379	15,390,985	15,054,179	15,007,817	14,038,902	13,392,752	12,873,654	10,927,192	6,609,954	4,117,435	2,469,738	2,214,415
CY2023 Program Incremental Expiring Savings [§]			0	0	0	4,505	157,235	203,563	1,852	935,143	1,209,749	661,232	15,346
Historic Program Incremental Expiring Savings			1,054,347	336,806	46,362	964,409	488,915	315,535	1,944,610	3,382,096	1,282,770	986,465	239,976
Program Total Incremental Expiring Savings [#]			1,054,347	336,806	46,362	968,914	646,151	519,097	1,946,462	4,317,238	2,492,519	1,647,697	255,322

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	4,112,309	61,704,379	923,683	923,683	906,163	116,554	0	0	0	0	0	0	0
Historic Program Total Contribution to CPAS [‡]			1,242,245	964,191	708,031	527,993	131,384	0	0	0	0	0	0
Program Total CPAS	4,112,309	61,704,379	2,165,928	1,887,875	1,614,194	644,548	131,384	0	0	0	0	0	0
CY2023 Program Incremental Expiring Savings [§]			0	0	17,520	789,609	116,554	0	0	0	0	0	0
Historic Program Incremental Expiring Savings			48,487	278,054	256,161	180,037	396,609	131,384	0	0	0	0	0
Program Total Incremental Expiring Savings [#]			48,487	278,054	273,681	969,646	513,164	131,384	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