



ComEd Contractor / Midstream Rebates 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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Prepared by:

Daniel Rivera
Guidehouse

Alan Tom
Guidehouse

Submitted to:

ComEd
2011 Swift Drive
Oak Brook, IL 60523

Submitted by:

Guidehouse Inc.
150 N. Riverside Plaza, Suite 2100
Chicago, IL 60606

Contact:

Charles Maglione, Partner
703.431.1983
cmaglione@guidehouse.com

Jeff Erickson, Director
608.616.4962
jeff.erickson@guidehouse.com

Neil Curtis, Director
802.526.5119
neil.curtis@guidehouse.com

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Introduction

This report presents the results of the impact evaluation of the Contractor / Midstream Rebates program for the program year from January 1 to December 31, 2023 (CY2023). The program was designed to offer incentives for the installation of qualifying high efficiency equipment and services including:

- Air Source Heat Pumps (ASHPs)
- Ductless Mini-Split Heat Pumps (DMSHPs)
- Central Air Conditioning (CAC) Systems
- Smart Thermostats
- Ground Source Heat Pumps (GSHPs)
- HVAC Tune Up - CAC
- Duct Sealing
- HVAC Tune Up – ASHP

Program Savings Detail

Table 1 summarizes the incremental energy and demand savings the Contractor / Midstream Rebates 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 **Error! Reference source not found.** 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	16,374,091	0.97	15,960,640	Varies			13,059,222
Electric Energy Savings - Converted from Other Fuels§	kWh	3,288,445	1.00	3,275,228	Varies			2,975,503
Electric Energy Savings - Electrification	kWh	32,623,166	1.00	32,628,021	Varies			26,693,673
Total Electric Energy Savings#	kWh	52,285,702	0.99	51,863,889	Varies			42,728,398
Total Electric Energy Savings Including Carryover#	kWh							
Summer Peak** Demand Savings	kW	1,951	0.93	1,815	Varies			1,468
Summer Peak** Demand Savings Including Carryover	kW							

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

‡ 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

¹ The evaluation will determine which other fuel 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."

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 exclude 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		0		0	Varies			0
Electric Energy Savings - Converted from Other Fuel§	kWh	0		0	Varies			0
Electric Energy Savings - Electrification	kWh	11,026,829	1.00	11,028,382	Varies			9,184,682
Total Electric Energy Savings#	kWh	11,026,829	1.00	11,028,382	Varies			9,184,682
Total Electric Energy Savings Including Carryover#	kWh							
Summer Peak*† Demand Savings	kW	179	0.85	153	Varies			125
Summer Peak*† Demand Savings Including Carryover	kW							

Footnotes are defined similarly as found in Table 1.

Source: Evaluation team analysis

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

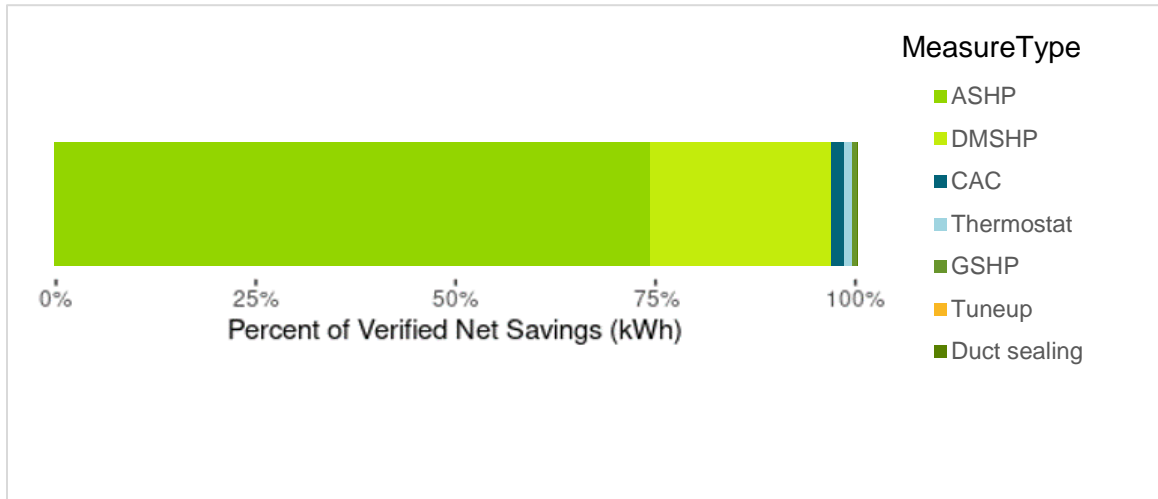
Savings Category	Units	Ex Ante Gross Savings*	Program Gross Realization Rate	Verified Gross Savings*	Program Net-to-Gross Ratio (NTG)	CY2021 Net Carryover Savings	CY2022 Net Carryover Savings	Verified Net Savings†
Electric Energy Savings - Direct‡ kWh	kWh	16,374,091	0.97	15,960,640	Varies			13,059,222
Electric Energy Savings - Converted from Other Fuel§	kWh	3,288,445	1.00	3,275,228	Varies			2,975,503
Electric Energy Savings - Electrification	kWh	21,596,336	1.00	21,599,640	Varies			17,508,991
Total Electric Energy Savings#	kWh	41,258,873	0.99	40,835,507	Varies			33,543,716
Total Electric Energy Savings Including Carryover#	kWh							
Summer Peak*† Demand Savings	kW	1,772	0.94	1,662	Varies			1,343
Summer Peak*† Demand Savings Including Carryover	kW							

Footnotes are defined similarly as found in Table 1.

Source: Evaluation team analysis

Figure 1 shows the electric energy savings by measure type. It includes measure efficiency savings, carryover 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	48,588,661	564,984,266						39,752,894	39,752,894	39,752,894	39,721,052	39,721,052	39,721,052
Historic Program Total Contribution to CPAS‡			9,255,057	18,819,448	22,705,543	27,544,170	38,510,215	38,407,309	37,735,816	37,374,334	36,051,246	35,627,085	33,755,737
Program Total CPAS	48,588,661	564,984,266	9,255,057	18,819,448	22,705,543	27,544,170	38,510,215	78,160,203	77,488,710	77,127,228	75,772,298	75,348,137	73,476,789
CY2023 Program Incremental Expiring Savings§									0	0	31,842	0	0
Historic Program Incremental Expiring Savings								102,906	671,493	361,482	1,323,088	424,161	1,871,348
Program Total Incremental Expiring Savings#								102,906	671,493	361,482	1,354,931	424,161	1,871,348

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	48,588,661	564,984,266	36,418,286	34,511,172	32,819,957	32,819,957	32,819,617	32,397,305	32,397,305	32,397,305	32,397,305	24,462,602	735,329
Historic Program Total Contribution to CPAS‡			33,212,857	31,410,264	30,605,720	29,970,187	29,563,539	23,706,473	23,060,125	19,226,622	13,728,696	2,685,965	1,447,061
Program Total CPAS	48,588,661	564,984,266	69,631,143	65,921,436	63,425,678	62,790,145	62,383,156	56,103,778	55,457,430	51,623,927	46,126,001	27,148,567	2,182,390
CY2023 Program Incremental Expiring Savings§			3,302,766	1,907,114	1,691,215	0	341	422,312	0	0	0	7,934,703	23,727,273
Historic Program Incremental Expiring Savings			542,880	1,802,593	804,544	635,533	406,648	5,857,066	646,348	3,833,503	5,497,926	11,042,731	1,238,904
Program Total Incremental Expiring Savings#			3,845,646	3,709,707	2,495,758	635,533	406,989	6,279,378	646,348	3,833,503	5,497,926	18,977,434	24,966,177

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	48,588,661	564,984,266	735,329	247,080	247,080	231,359	231,359	231,359	231,359	231,359	231,359	0	0	
Historic Program Total Contribution to CPAS‡			656,239	640,135	632,562	586,236	453,140	293,416	153,348	0	0	0	0	
Program Total CPAS	48,588,661	564,984,266	1,391,568	887,215	879,642	817,596	684,500	524,775	384,708	231,359	0	0	0	
CY2023 Program Incremental Expiring Savings§			0	488,249	0	15,721	0	0	0	0	231,359	0	0	
Historic Program Incremental Expiring Savings			790,822	16,104	7,574	46,325	133,096	159,724	140,067	153,348	0	0	0	
Program Total Incremental Expiring Savings#			790,822	504,353	7,574	62,046	133,096	159,724	140,067	153,348	231,359	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)	111,744	1,166,257							101,518	101,518	101,518	101,518	101,518	101,518
CY2023 Program Total Other Fuel Contribution to CPAS (kWh Equivalent)‡	3,275,228							2,975,503	2,975,503	2,975,503	2,975,503	2,975,503	2,975,503	2,975,503
Historic Program Total Other Fuel Contribution to CPAS (kWh Equivalent)§			9,010,884	20,163,675	28,677,238	35,222,981	38,755,320	38,755,320	38,582,170	37,699,464	36,403,542	36,341,731	30,020,430	
Program Total Other Fuel CPAS (kWh Equivalent)	3,275,228	0	9,010,884	20,163,675	28,677,238	35,222,981	38,755,320	41,730,823	41,557,674	40,674,967	39,379,046	39,317,235	32,995,934	
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	173,149	882,707	1,295,921	61,811	6,321,301	
Program Total Incremental Expiring Other Fuel Savings (kWh Equivalent)*†								0	173,149	882,707	1,295,921	61,811	6,321,301	

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)	111,744	1,166,257	101,518	101,518	101,518	101,518	101,518	5,506	5,506	5,506	5,506	5,506	5,506
CY2023 Program Total Other Fuel Contribution to CPAS (kWh Equivalent)‡	3,275,228		2,975,503	2,975,503	2,975,503	2,975,503	2,975,503	161,385	161,385	161,385	161,385	161,385	161,385
Historic Program Total Other Fuel Contribution to CPAS (kWh Equivalent)§			30,020,430	22,446,733	18,413,134	12,166,859	8,726,947	6,045,211	3,022,969	513,489	513,489	513,489	513,489
Program Total Other Fuel CPAS (kWh Equivalent)	3,275,228	0	32,995,934	25,422,236	21,388,638	15,142,363	11,702,450	6,206,596	3,184,354	674,873	674,873	674,873	674,873
CY2023 Program Incremental Expiring Other Fuel Savings (Therms)			0	0	0	0	0	96,012	0	0	0	0	0
CY2023 Program Incremental Expiring Other Fuel Savings (kWh Equivalent)			0	0	0	0	0	2,814,119	0	0	0	0	0
Historic Program Incremental Expiring Other Fuel Savings (kWh Equivalent)#			0	7,573,698	4,033,598	6,246,275	3,439,913	2,681,736	3,022,242	2,509,480	0	0	0
Program Total Incremental Expiring Other Fuel Savings (kWh Equivalent)*†			0	7,573,698	4,033,598	6,246,275	3,439,913	5,495,854	3,022,242	2,509,480	0	0	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)	111,744	1,166,257	5,506	5,506	5,506	0	0	0	0	0	0	0	0
CY2023 Program Total Other Fuel Contribution to CPAS (kWh Equivalent)‡	3,275,228		161,385	161,385	161,385	0	0	0	0	0	0	0	0
Historic Program Total Other Fuel Contribution to CPAS (kWh Equivalent)§			451,586	149,759	57,118	2,865	39,943	0	0	0	0	0	0
Program Total Other Fuel CPAS (kWh Equivalent)	3,275,228	0	612,971	311,144	218,502	2,865	39,943	0	0	0	0	0	0
CY2023 Program Incremental Expiring Other Fuel Savings (Therms)			0	0	0	5,506	0	0	0	0	0	0	0
CY2023 Program Incremental Expiring Other Fuel Savings (kWh Equivalent)			0	0	0	161,385	0	0	0	0	0	0	0
Historic Program Incremental Expiring Other Fuel Savings (kWh Equivalent)#			61,903	301,827	92,641	54,252	-37,077	39,943	0	0	0	0	0
Program Total Incremental Expiring Other Fuel Savings (kWh Equivalent)*†			61,903	301,827	92,641	215,637	-37,077	39,943	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	51,863,889	599,167,266							42,728,398	42,728,398	42,728,398	42,696,556	42,696,556	42,696,556
Historic Program Total Contribution to CPAS [‡]			18,265,941	38,983,124	51,382,780	62,767,151	77,265,535	77,162,629	76,317,986	75,073,798	72,454,788	71,968,816	63,776,167	
Program Total CPAS	51,863,889	599,167,266	18,265,941	38,983,124	51,382,780	62,767,151	77,265,535	119,891,026	119,046,384	117,802,195	115,151,344	114,665,372	106,472,723	
CY2023 Program Incremental Expiring Savings [§]									0	0	31,842	0	0	
Historic Program Incremental Expiring Savings									102,906	844,643	1,244,188	2,619,010	485,972	8,192,649
Program Total Incremental Expiring Savings [#]									102,906	844,643	1,244,188	2,650,852	485,972	8,192,649

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	51,863,889	599,167,266	39,393,790	37,486,675	35,795,461	35,795,461	35,795,120	32,558,690	32,558,690	32,558,690	32,558,690	24,623,987	896,714
Historic Program Total Contribution to CPAS [‡]			63,233,287	53,856,997	49,018,855	42,137,046	38,290,486	29,751,684	26,083,094	19,740,111	14,242,185	3,199,454	1,960,549
Program Total CPAS	51,863,889	599,167,266	102,627,077	91,343,672	84,814,316	77,932,507	74,085,606	62,310,373	58,641,784	52,298,800	46,800,874	27,823,440	2,857,263
CY2023 Program Incremental Expiring Savings [§]			3,302,766	1,907,114	1,691,215	0	341	3,236,431	0	0	0	7,934,703	23,727,273
Historic Program Incremental Expiring Savings			542,880	9,376,290	4,838,142	6,881,808	3,846,561	8,538,802	3,668,590	6,342,983	5,497,926	11,042,731	1,238,904
Program Total Incremental Expiring Savings [#]			3,845,646	11,283,405	6,529,356	6,881,808	3,846,901	11,775,233	3,668,590	6,342,983	5,497,926	18,977,434	24,966,177

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	51,863,889	599,167,266	896,714	408,465	408,465	231,359	231,359	231,359	231,359	231,359	231,359	0	0	0
Historic Program Total Contribution to CPAS [‡]			1,107,825	789,894	689,679	589,102	493,083	293,416	153,348	0	0	0	0	0
Program Total CPAS	51,863,889	599,167,266	2,004,539	1,198,359	1,098,144	820,461	724,442	524,775	384,708	231,359	0	0	0	0
CY2023 Program Incremental Expiring Savings [§]			0	488,249	0	177,105	0	0	0	0	231,359	0	0	0
Historic Program Incremental Expiring Savings			852,725	317,931	100,215	100,578	96,019	199,667	140,067	153,348	0	0	0	0
Program Total Incremental Expiring Savings [#]			852,725	806,180	100,215	277,683	96,019	199,667	140,067	153,348	231,359	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