

ComEd New Construction – Bus/Pub Program Impact Evaluation Report

Energy Efficiency/Demand Response Plan: Program Year 2022 (CY2022) (1/1/2022-12/31/2022)

Prepared for:

ComEd

FINAL

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Introduction

This report presents the results of the impact evaluation of the New Construction - Bus/Pub program for the program year from January 1 to December 31, 2022 (CY2022).

The program was designed to capture immediate and long-term energy efficiency opportunities that are available during the design and construction of non-residential and multifamily buildings in ComEd's service territory. The program covers new buildings, additions, and major renovations.

The program reaches out to design professionals, commercial real estate developers, and customers at the beginning of the design process. The implementation team provides technical assistance in building design to reduce energy use beyond what is required by existing building codes and standards.

The program is 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 in a separate report.

Program Savings Detail

Table 1 summarizes the incremental energy and demand savings the New Construction – Bus/Pub Program achieved in CY2022. 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

Savings Category	/Units		Program Gross Realization Rate	Verified Gross ^F Savings	Program Net-to- Gross Ratio (NTG)	CY2020 Net Carryover Savings	CY2021 Net Carryover Savings	Verified Net Savings
Electric Energy Savings - Direct‡	kWh	23,680,102	0.95	22,410,491	0.48	N/A	N/A	10,757,036
Electric Energy Savings - Converted from Gas§	kWh	253,004	0.97	245,683	0.48	N/A	N/A	117,928
Total Electric Energy Savings#	kWh	23,933,106	0.95	22,656,175	0.48	N/A	N/A	10,874,964
Secondary Water Savings	kWh	54,738	1.11	60,497	0.48	N/A	N/A	29,039
Summer Peak*† Demand Savings	kW	3,475	0.97	3,354	0.48	N/A	N/A	1,610

Table 1. Total Annual Incremental Electric Savings - Total

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[‡] The Electric Energy Savings - Direct includes primary kWh savings from efficient measures (includes efficiency savings from fuel switching measures but excludes the fuel switching 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 from fuel switching measures excluding direct efficiency savings calculated from net electric savings from an increase in kWh consumption and decrease in gas consumption from fuel switching (kWh

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."



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 from fuel switching.

*† 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

Cumulative Persistent Annual Savings

Tables 2 to 4 show the cumulative persisting annual savings (CPAS) for the measures installed in CY2022. Table 2 shows the electric CPAS across all measures installed in 2022. Table 3 shows the gas contribution to CPAS (converted to equivalent electricity). Table 4 shows the combined savings.

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Table 2. CPAS – Electric

Second District No. Part Color No. Part Pa														
Semina Celesyon Part	CPAS Verified Net kWh Savings													
Sample (Sample (Samp					, and the second second									
Cargade Program Food Confision for CPAS 2,410,49 17,174,27 2,239,87 40,975,88 8,403,77 74,240,39 74,040,39 7	Cavinga Catagon,			2010	2010	2020	2024	2022	2022	2024	2025	2026	2027	2020
Historic Program Tool Contribution to CPASH Program	_ ° ° ,			2016	2019	2020	2021							
Pagear Total CPAS 19,717, 24,717, 24,718, 22,239,82 40,976,56 50,403,275 40,903,		22,410,491	107,172,422	22 220 222	40.076.650	EQ 402 27E	74 040 220							-, - ,
Character Char		00 440 404	407 470 400			<u> </u>								
Marche Program Incommental Expring Savings 1		22,410,491	187,172,422	22,239,823	40,976,658	58,403,275	74,240,339	84,997,375						
Pagnam Total Internential Expring Savingsis Variet Glass Var														
Serins Californ Series Cal								ŭ						
Saming Cattlegony	Program Total Incremental Expiring Savings#							0	0	0	0	0	0	0
Swings Calegory Swings Calegory Swings (Wh) Wh) 1909 2008 0,757 308		Varified Gross												
CY2022 Program Total Contribution to CPAS 22,410,49 187,172,42 10,757,036	Savings Category			2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Histoir Program Total Contribution to CPAS			• •	10.757.036	10.757.036	10.757.036	10.757.036	10.757.036	10.757.036	10.757.036	10.757.036	10.757.036	10.757.036	4.302.814
Program Total CPAS 16.17.17.2.2 16.997.375 16.997		, -, -	- , ,											
CY2022 Program Incremental Expiring Savings		22.410.491	187.172.422	84.997.375	84.997.375	84.997.375							17.091.862	4.302.814
Historic Program Incremental Expiring Savings# 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CY2022 Program Incremental Expiring Savings§	, ,	, ,	0	0	0	0	0	0	0	0	0	0	6.454.221
Program Total Incremental Expiring Savings				0	0	0	0	0	0	13.343.894	20.138.030	17.950.704		
				0	0	0	0	0	0					
Savings Category Savings (Wh) (Wh) Category Savings (Wh) (Wh) Category C			Lifetime Net			•			•	10,010,00		,	10, 11 =,000	12,1 00,0 11
CY2022 Program Total Contribution to CPAS 22,410,491 187,172,422 0 0 0 0 0 0 0 0 0		Verified Gross												
Historic Program Total Contribution to CPAS	Savings Category	Savings (kWh)	(kWh)†	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Program Total CPAS 22,410,491 187,172,422 0 0 0 0 0 0 0 0 0	CY2022 Program Total Contribution to CPAS	22,410,491	187,172,422	0	0	0	0	0	0	0	0	0	0	0
CY2022 Program Incremental Expiring Savings 4,302,814 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Historic Program Total Contribution to CPAS‡			0	0	0	0	0	0	0	0	0	0	0
Historic Program Incremental Expiring Savings# 1,430,2,814 0 0 0 0 0 0 0 0 0	Program Total CPAS	22,410,491	187,172,422	0	0	0	0	0	0	0	0	0	0	0
Program Total Incremental Expiring Savings# 4,302,814 0 0 0 0 0 0 0 0 0	CY2022 Program Incremental Expiring Savings§			4,302,814	0	0	0	0	0	0	0	0	0	0
Savings Category Savings (kWh) Savings (Historic Program Incremental Expiring Savings			0	0	0	0	0	0	0	0	0	0	0
Savings Category Savings (km) Verified Gross Savings (km)	Program Total Incremental Expiring Savings#			4,302,814	0	0	0	0	0	0	0	0	0	0
Savings Category Savings (km) Verified Gross Savings (km)					СР	AS Verified Net	kWh Savings							
Savings Category Savings (kWh) (kWh) It 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 CY2022 Program Total Contribution to CPAS 22,410,491 187,172,422 187,172,422 10,757,036 <td></td> <td></td> <td>Lifetime Net</td> <td></td> <td>3. .</td> <td></td> <td>go</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			Lifetime Net		3. .		go							
CY2022 Program Total Contribution to CPAS														
Historic Program Total Contribution to CPAS‡ 22,39,823 40,976,658 58,403,275 74,240,339	- 9 · 0 /			2018	2019	2020	2021							
Program Total CPAS 22,410,491 187,172,422 22,239,823 40,976,658 58,403,275 74,240,339 84,997,375 84,997,	-	22,410,491	187,172,422											
CY2022 Program Incremental Expiring Savings\ CY2022 Program Incremental Expiring Savings\ Historic Program Incremental Expiring Savings\ Historic Program Incremental Expiring Savings\ CY2022 Program Total Incremental Expiring Savings\ Savings CATC CA	0			,,-	-,,	,, -								, -,
Historic Program Incremental Expiring Savings	<u> </u>	22,410,491	187,172,422	22,239,823	40,976,658	58,403,275	74,240,339	84,997,375	84,997,375	84,997,375	84,997,375	84,997,375	84,997,375	84,997,375
Program Total Incremental Expiring Savings# Iteletime Net Savings Category Lifetime Net Savings (kWh) Verified Gross Savings (kWh)† 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 CY2022 Program Total Contribution to CPAS 22,410,491 187,172,422 10,757,036	CY2022 Program Incremental Expiring Savings§								0	0	0	ŭ	0	0
Lifetime Net Verified Gross Savings Savings Category Savings (kWh) (kWh)† 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 CY2022 Program Total Contribution to CPAS 22,410,491 187,172,422 10,757,036 1	Historic Program Incremental Expiring Savings							0		0	0		0	0
Verified Gross Savings Savings Category Savings (kWh) (kWh)† 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 CY2022 Program Total Contribution to CPAS 22,410,491 187,172,422 10,757,036 10,75	Program Total Incremental Expiring Savings#							0	0	0	0	0	0	0
Savings Category Savings (kWh) (kWh)† 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 CY2022 Program Total Contribution to CPAS 22,410,491 187,172,422 10,757,036														
CY2022 Program Total Contribution to CPAS 22,410,491 187,172,422 10,757,036 10,757,036 10,757,036 10,757,036 10,757,036 10,757,036 10,757,036 10,757,036 10,757,036 10,757,036 10,757,036 4,302,814	Savinga Catagoni			2020	2020	2024	2022	2022	2024	2025	2036	2027	2039	2030
			```											
TISIONG FIOURANT FOR THE COUNT OF THE COUNT	0	22,410,491	101,112,422											
	nisione Program Total Continbution to CPAS+			14,240,339	14,240,339	14,240,339	14,240,339	14,240,339	14,240,339	00,090,445	40,700,410	22,0UI,III	0,334,020	U



CPAS Verified Net kWh Savings													
Savings Category	Verified Gross Savings (kWh)	Lifetime Net Savings (kWh)†	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Program Total CPAS	22,410,491	187,172,422	84,997,375	84,997,375	84,997,375	84,997,375	84,997,375	84,997,375	71,653,481	51,515,451	33,564,747	17,091,862	4,302,814
CY2022 Program Incremental Expiring Savings§			0	0	0	0	0	0	0	0	0	0	6,454,221
Historic Program Incremental Expiring Savings			0	0	0	0	0	0	13,343,894	20,138,030	17,950,704	16,472,885	6,334,826
Program Total Incremental Expiring Savings#			0	0	0	0	0	0	13,343,894	20,138,030	17,950,704	16,472,885	12,789,047
	Verified Gross	Lifetime Net Savings											
Savings Category	Savings (kWh)	(kWh)†	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
CY2022 Program Total Contribution to CPAS	22,410,491	187,172,422	0	0	0	0	0	0	0	0	0	0	0
Historic Program Total Contribution to CPAS‡			0	0	0	0	0	0	0	0	0	0	0
Program Total CPAS	22,410,491	187,172,422	0	0	0	0	0	0	0	0	0	0	0
CY2022 Program Incremental Expiring Savings§			4,302,814	0	0	0	0	0	0	0	0	0	0
Historic Program Incremental Expiring Savings			0	0	0	0	0	0	0	0	0	0	0
Program Total Incremental Expiring Savings#			4,302,814	0	0	0	0	0	0	0	0	0	0

Source: Evaluation team analysis

[†] 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.



## Table 3. CPAS – Gas

CPAS Verified Net Therms Savings													
	Verified Gross	Lifetime Net											
Savings Category	Savings (Therms)	Savings (Therms)†	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
CY2022 Program Total Gas Contribution to CPAS (Therms)	8,382	70,008	2016	2019	2020	2021	4,023	4,023	4,023	4,023	4,023	4,023	4,023
CY2022 Program Total Gas Contribution to CPAS (Merrits)  CY2022 Program Total Gas Contribution to CPAS (kWh Equivalent)  **Total Gas Contribution to CPAS (kWh	245,683	70,006					117,928	117,928	117,928	117,928	117,928	117.928	117.928
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)§	243,003		981.763	2,500,239	3,713,955	4,940,022	4,940,022	4,940,022	4,940,022	4,940,022	4,940,022	4,940,022	4,940,022
Program Total Gas CPAS (kWh Equivalent)	245,683	0	981,763	2,500,239	3,713,955	4,940,022	5,057,950	5,057,950	5,057,950	5,057,950	5,057,950	5,057,950	5,057,950
CY2022 Program Incremental Expiring Gas Savings (Therms)	243,003	0	901,703	2,300,239	3,7 13,933	4,940,022	3,037,930	0,007,900	0,037,930	0.037	0.037	0,037,930	3,037,930
CY2022 Program Incremental Expiring Gas Savings (Therms)  CY2022 Program Incremental Expiring Gas Savings (kWh Equivalent)								0	0	0	0	0	0
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)#							0	0	0	0	0	0	0
							0	0	0	0	0	0	0
Program Total Incremental Expiring Gas Savings (kWh Equivalent)*†	Verified Gross	Lifetime Net					U	0	0	0	0	0	0
	Verified Gross Savings	Savings											
Savings Category	(Therms)	(Therms)†	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
CY2022 Program Total Gas Contribution to CPAS (Therms)	8,382	70,008	4,023	4,023	4,023	4,023	4,023	4,023	4,023	4,023	4,023	4,023	1,609
CY2022 Program Total Gas Contribution to CPAS (kWh Equivalent)‡	245,683		117,928	117,928	117,928	117,928	117,928	117,928	117,928	117,928	117,928	117,928	47,171
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)§			4,940,022	4,940,022	4,940,022	4,940,022	4,940,022	4,940,022	4,350,965	3,047,174	1,711,554	490,427	0
Program Total Gas CPAS (kWh Equivalent)	245,683	0	5,057,950	5,057,950	5,057,950	5,057,950	5,057,950	5,057,950	4,468,893	3,165,102	1,829,482	608,355	47,171
CY2022 Program Incremental Expiring Gas Savings (Therms)			0	0	0	0	0	0	0	0	0	0	2,414
CY2022 Program Incremental Expiring Gas Savings (kWh Equivalent)			0	0	0	0	0	0	0	0	0	0	70,757
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)#			0	0	0	0	0	0	589,058	1,303,791	1,335,620	1,221,127	490,427
Program Total Incremental Expiring Gas Savings (kWh Equivalent)*+			0	0	0	0	0	0	589,058	1,303,791	1,335,620	1,221,127	561,184
	Verified Gross	Lifetime Net											
	Savings	Savings	22.42	2244	22.42	22.42	2211	22.45	22.42	00.47	00.40	00.40	2252
Savings Category	(Therms)	(Therms)†	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
CY2022 Program Total Gas Contribution to CPAS (Therms)	8,382	70,008	0	0	0	0	0	0	0	0	0	0	0
CY2022 Program Total Gas Contribution to CPAS (kWh Equivalent)‡	245,683		0	0	0	0	0	0	0	0	0	0	0
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)§	0.45,000	•	0	•	U			•	·	·	0		0
Program Total Gas CPAS (kWh Equivalent)	245,683	0		0	0	0	0	0	0	0	0	0	0
CY2022 Program Incremental Expiring Gas Savings (Therms)			1,609	0	0	0	0	0	0	0	0	0	0
CY2022 Program Incremental Expiring Gas Savings (kWh Equivalent)			47,171	0	0	0	0	0	0	0	0	0	0
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)#			0	0	0	0	0	0	0	0	0	0	0
Program Total Incremental Expiring Gas Savings (kWh Equivalent)*†			47,171	0	0	0	0	0	0	0	0	0	0

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

[‡] kWh equivalent savings are calculated by multiplying therm 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

		С	PAS Verified No	et kWh Savings									
		Lifetime Net	The vermed it	ot kriii odriligo									,
	Verified Gross	Savings											
Savings Category	Savings (kWh)	(kWh)†	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
CY2022 Program Total Contribution to CPAS	22,656,175	189,224,370					10,874,964	10,874,964	10,874,964	10,874,964	10,874,964	10,874,964	10,874,964
Historic Program Total Contribution to CPAS‡			23,221,586	43,476,897	62,117,229	79,180,362	79,180,362	79,180,362	79,180,362	79,180,362	79,180,362	79,180,362	79,180,362
Program Total CPAS	22,656,175	189,224,370	23,221,586	43,476,897	62,117,229	79,180,362	90,055,326	90,055,326	90,055,326	90,055,326	90,055,326	90,055,326	90,055,326
CY2022 Program Incremental Expiring Savings§								0	0	0	0	0	0
Historic Program Incremental Expiring Savings							0	0	0	0	0	0	0
Program Total Incremental Expiring Savings#							0	0	0	0	0	0	0
		Lifetime Net											Ī
	Verified Gross	Savings											
Savings Category	Savings (kWh)	(kWh)†	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
CY2022 Program Total Contribution to CPAS	22,656,175	189,224,370	10,874,964	10,874,964	10,874,964	10,874,964	10,874,964	10,874,964	10,874,964	10,874,964	10,874,964	10,874,964	4,349,986
Historic Program Total Contribution to CPAS‡			79,180,362	79,180,362	79,180,362	79,180,362	79,180,362	79,180,362	65,247,410	43,805,589	24,519,265	6,825,253	0
Program Total CPAS	22,656,175	189,224,370	90,055,326	90,055,326	90,055,326	90,055,326	90,055,326	90,055,326	76,122,374	54,680,553	35,394,229	17,700,217	4,349,986
CY2022 Program Incremental Expiring Savings§			0	0	0	0	0	0	0	0	0	0	6,524,978
Historic Program Incremental Expiring Savings			0	0	0	0	0	0	13,932,952	21,441,821	19,286,324	17,694,012	6,825,253
Program Total Incremental Expiring Savings#			0	0	0	0	0	0	13,932,952	21,441,821	19,286,324	17,694,012	13,350,231
		Lifetime Net											
	Verified Gross	Savings											
Savings Category	Savings (kWh)	(kWh)†	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
CY2022 Program Total Contribution to CPAS	22,656,175	189,224,370	0	0	0	0	0	0	0	0	0	0	0
Historic Program Total Contribution to CPAS‡			0	0	0	0	0	0	0	0	0	0	0
Program Total CPAS	22,656,175	189,224,370	0	0	0	0	0	0	0	0	0	0	0
CY2022 Program Incremental Expiring Savings§			4,349,986	0	0	0	0	0	0	0	0	0	0
Historic Program Incremental Expiring Savings			0	0	0	0	0	0	0	0	0	0	0
Program Total Incremental Expiring Savings#			4,349,986	0	0	0	0	0	0	0	0	0	0

Source: Evaluation team analysis

[†] 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.