Combined Utility Affordable Housing New Construction Program Impact Evaluation Report

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

Prepared for:
ComEd
Nicor Gas
Peoples Gas
North Shore Gas

FINAL

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1. Introduction

This report presents impact evaluation results from the CY2020 combined utility Affordable Housing New Construction (AHNC) Program. It summarizes the total energy and demand impacts for the program broken out by relevant measures and program structure details. The appendices provide the impact analysis methodology and total resource cost (TRC) inputs details. CY2020 includes projects closed between January 1, 2020 and December 31, 2020.

2. Program Description

The AHNC Program provides technical assistance and incentives for energy efficient construction and major renovation of multifamily affordable housing. The program is referred to as "Affordable Housing New Construction" in the NTG spreadsheet. The program targets affordable housing developers and owners 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 has two participation levels: major renovation and new multifamily. The program is implemented by Slipstream and is jointly offered by ComEd, Nicor Gas, Peoples Gas, and North Shore Gas.

In CY2020, the AHNC Program had 13 total projects and distributed 13 measure types to 837 eligible residential units, as Table 2-1, Figure 2-1, and Figure 2-2 show. All projects were served by ComEd and either Nicor Gas or Peoples Gas. No CY2020 projects were served by North Shore Gas.

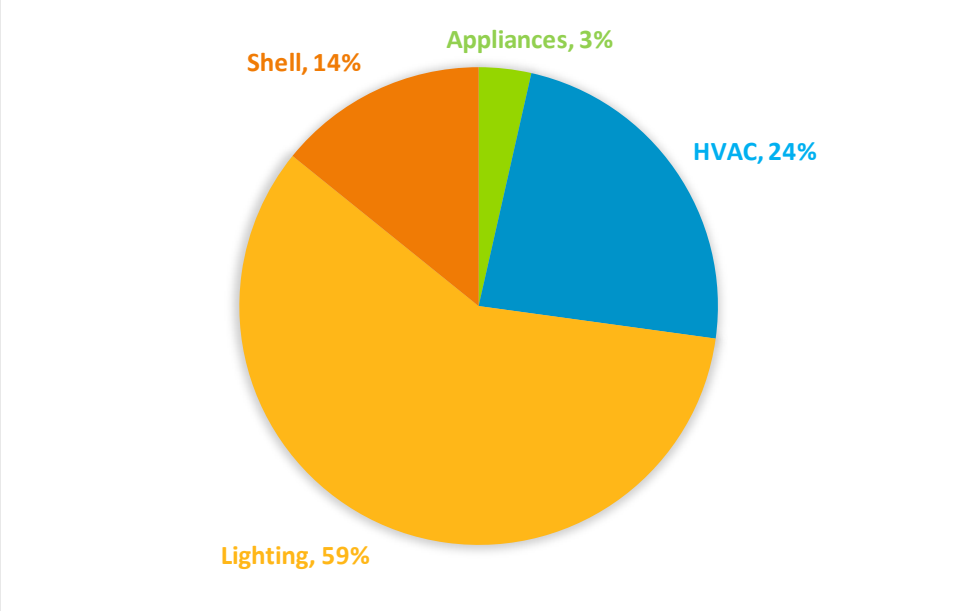
Table 2-1. CY2020 Volumetric Findings Detail

Participation	Quantity	Units
Participants (ComEd)	13	Projects
Participants (Nicor Gas)	6	Projects
Participants (Peoples Gas)	7	Project
Number of Affordable Units (ComEd)	837	Residential units
Number of Affordable Units (Nicor Gas)	298	Residential units
Number of Affordable Units (Peoples Gas)	539	Residential units
Shell: Windows	74,457	SF*
Shell: Reduced Infiltration	161,191	CFM50†
Shell: Reduced Thermal Bridging	540,743	SF
HVAC	899	HVAC Systems
Lighting	12,668	Lamps/Fixtures
Appliances	1641	Appliances‡
Hot Water	21	Water heaters

*Includes combination of wall area and attic area
† Cubic feet per minute at 50 pascal
‡Includes combination of measures (dishwashers, clothes washers, clothes dryers, refrigerators)

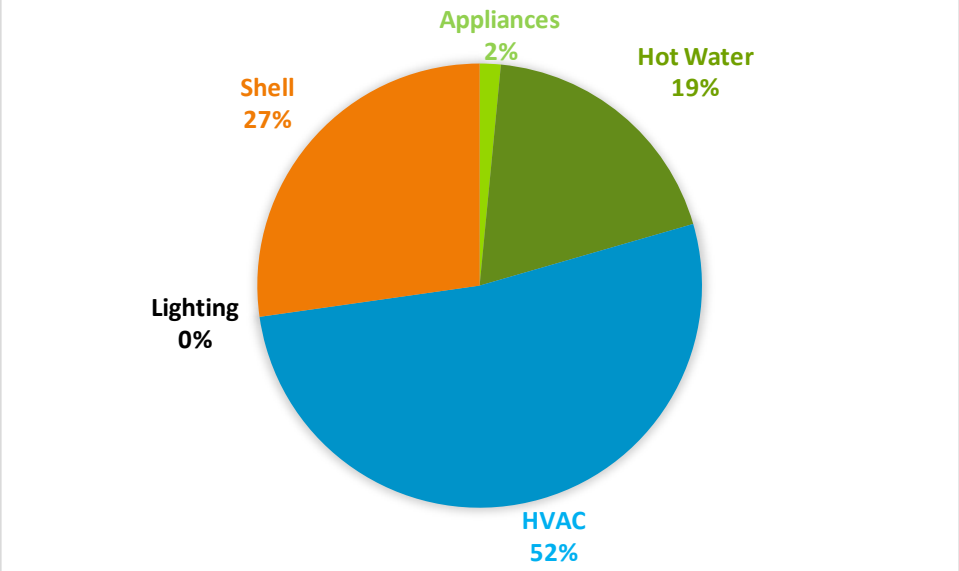
Source: Utility tracking data and evaluation team analysis

Figure 2-1. Distribution of Measures by Ex Ante Electric Savings



Source: ComEd tracking data and evaluation team analysis

Figure 2-2. Distribution of Measures by Ex Ante Gas Savings



Source: ComEd tracking data and evaluation team analysis

3. Program Savings Detail

Table 3-1 summarizes the incremental energy and demand savings the AHNC Program achieved in CY2020. The gas utilities are claiming all the gas savings from this program. Table 3-2 shows gas savings for the three gas utilities.

Table 3-1. CY2020 Total Annual Incremental Electric Savings

Savings Category	Energy Savings (kWh)	Summer Peak* Demand Savings (kW)
Electricity		
Ex Ante Gross Savings§	1,768,409	179
Program Gross Realization Rate	0.94	1.12
Verified Gross Savings	1,669,264	200
Program Net-to-Gross Ratio (NTG)	1.00	1.00
Verified Net Savings	1,669,264	200
Converted from Gas†		
Ex Ante Gross Savings	0	NA
Program Gross Realization Rate	0.00	NA
Verified Gross Savings	0	NA
Program Net-to-Gross Ratio (NTG)	0.00	NA
Verified Net Savings	0	NA
Total Electric Plus Gas		
Ex Ante Gross Savings	1,768,409	179
Program Gross Realization Rate	0.94	1.12
Verified Gross Savings	1,669,264	200
Program Net-to-Gross Ratio (NTG)	1.00	1.00
Verified Net Savings	1,669,264	200

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.

† The gas utilities are claiming all the gas savings for this program.

§The program ex ante gross savings shown in this table matches the program's ex ante value from eTrack, which is calculated from project-level (AH00XX) savings. Guidehouse calculates verified savings at the measure level (M1-M13) from the implementer's work books. Due to rounding issues, the total ex ante savings from measure-level data is 1,768,410 kWh, which is the value that will appear in the CY2020 Summary Report.

Source: ComEd tracking data and evaluation team analysist

Table 3-2. CY2020 Total Annual Incremental Therm Savings

Savings Category	Nicor Gas (Therms)*	Peoples Gas (Therms)†	North Shore Gas (Therms)§
Natural Gas			
Ex Ante Gross Savings	59,951	75,139	0
Program Gross Realization Rate	1.00	1.00	0
Verified Gross Savings	59,807	75,345	0
Program Net-to-Gross Ratio (NTG)	1.00	1.00	0
Verified Net Savings	59,807	75,345	0

* Nicor Gas tracked ex ante gross savings of 54,670 therms were adjusted to *exclude* electric interactive effects. Ex ante gross savings are based on measure calculators and project files provided by the implementer.

† Peoples Gas ex ante gross savings *do not include* electric interactive effects. Ex ante gross savings are based on measure calculators and project files provided by the implementer.

§ North Shore Gas reported no savings in 2020.

Source: Measure calculators and project files provided by the implementer 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 AHNC Program and the cumulative persisting annual savings (CPAS) for measures installed in CY2020. Figure 4-1 shows the savings across the useful life of the measures. The electric CPAS across all measures installed in 2020 is 1,669,264 kWh (Table 4-1). There was no CY2020 gas contribution to CPAS converted to equivalent electricity but there was historical gas savings that ComEd may be able to claim, which are shown in Table 4-2. Adding the historic gas consumption to the electric contributions produces the full history of savings in Table 4-3. The historic rows in each table are the CPAS contribution back to CY2018.

Table 4-1. Cumulative Persisting Annual Savings (CPAS) – Electric

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	2027
High-Performance Interior Lighting	10.0	747,564	1.00	6,333,986			747,564	689,682	689,682	689,682	689,682	689,682	689,682	689,682
High-Performance HVAC Equipment	18.6	357,619	1.00	6,651,712			357,619	357,619	357,619	357,619	357,619	357,619	357,619	357,619
Reduced Infiltration	15.0	195,685	1.00	2,935,277			195,685	195,685	195,685	195,685	195,685	195,685	195,685	195,685
High-Performance Exterior Lighting	10.0	171,875	1.00	1,718,755			171,875	171,875	171,875	171,875	171,875	171,875	171,875	171,875
Efficient Appliances	12.6	62,603	1.00	788,793			62,603	62,603	62,603	62,603	62,603	62,603	62,603	62,603
Reduced Thermal Bridging	25.0	36,450	1.00	911,243			36,450	36,450	36,450	36,450	36,450	36,450	36,450	36,450
Efficient Ventilation	15.0	34,799	1.00	521,989			34,799	34,799	34,799	34,799	34,799	34,799	34,799	34,799
High-Performance Fans	19.0	25,404	1.00	482,678			25,404	25,404	25,404	25,404	25,404	25,404	25,404	25,404
Interior Lighting Controls	8.0	18,676	1.00	149,409			18,676	18,676	18,676	18,676	18,676	18,676	18,676	18,676
High-Performance Windows	25.0	18,433	1.00	460,817			18,433	18,433	18,433	18,433	18,433	18,433	18,433	18,433
Advanced HVAC Controls	8.0	156	1.00	1,250			156	156	156	156	156	156	156	156
High-Performance Water Heating Equipment	13.3		1.00											
Hot Water Conservation	9.0		1.00											
otal Electric Contribution to CPAS		1,669,264		20,955,910			1,669,264	1,611,382	1,611,382	1,611,382	1,611,382	1,611,382	1,611,382	1,611,382
Total Electric Contribution to CPAS‡					1,935,089	4,227,324	4,227,324	3,930,832	3,930,832	3,930,832	3,930,832	3,930,832	3,930,832	3,199,400
ctric CPAS					1,935,089	4,227,324	5,896,588	5,542,214	5,542,214	5,542,214	5,542,214	5,542,214	5,542,214	4,810,782
ncremental Expiring Electric Savings§								57,882	-	-	-	-	-	-
Incremental Expiring Electric Savings‡§							-	296,492	-	-	-	-	-	731,432
remental Expiring Electric Savings§							-	354,374	-	-	-	-	-	731,432

Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
High-Performance Interior Lighting	689,682	689,682	68,968									
High-Performance HVAC Equipment	357,619	357,619	357,619	357,619	357,619	357,619	357,619	357,619	357,619	357,619	357,619	214,571
Reduced Infiltration	195,685	195,685	195,685	195,685	195,685	195,685	195,685	195,685				
High-Performance Exterior Lighting	171,875	171,875	171,875									
Efficient Appliances	62,603	62,603	62,603	62,603	62,603	37,562						
Reduced Thermal Bridging	36,450	36,450	36,450	36,450	36,450	36,450	36,450	36,450	36,450	36,450	36,450	36,450
Efficient Ventilation	34,799	34,799	34,799	34,799	34,799	34,799	34,799	34,799				
High-Performance Fans	25,404	25,404	25,404	25,404	25,404	25,404	25,404	25,404	25,404	25,404	25,404	25,404
Interior Lighting Controls	18,676											
High-Performance Windows	18,433	18,433	18,433	18,433	18,433	18,433	18,433	18,433	18,433	18,433	18,433	18,433
Advanced HVAC Controls	156											
High-Performance Water Heating Equipment												
Hot Water Conservation												
otal Electric Contribution to CPAS	1,611,382	1,592,550	971,836	730,993	730,993	705,951	668,390	668,390	437,905	437,905	437,905	294,858
Total Electric Contribution to CPAS‡	3,199,400	2,224,592	1,955,311	1,889,972	1,886,423	1,839,777	1,560,572	1,279,919	1,279,919	1,253,492	978,169	388,090
ctric CPAS	4,810,782	3,817,142	2,927,147	2,620,964	2,617,415	2,545,729	2,228,962	1,948,309	1,717,825	1,691,397	1,416,074	682,948
ncremental Expiring Electric Savings§	-	18,832	620,714	240,844	-	25,041	37,562	-	230,484	-	-	143,048
ncremental Expiring Electric Savings‡§	731,432	974,807	269,281	65,340	3,549	46,645	279,205	280,653	-	26,427	275,323	590,079
remental Expiring Electric Savings§	731,432	993,640	889,995	306,183	3,549	71,686	316,767	280,653	230,484	26,427	275,323	733,126

End Use Type	Research Category	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Lighting	High-Performance Interior Lighting												
HVAC	High-Performance HVAC Equipment												
Shell	Reduced Infiltration												
Lighting	High-Performance Exterior Lighting												
Appliances	Efficient Appliances												
Shell	Reduced Thermal Bridging	36,450	36,450	36,450	36,450	36,450	36,450						
HVAC	Efficient Ventilation												
HVAC	High-Performance Fans												
Lighting	Interior Lighting Controls												
Shell	High-Performance Windows	18,433	18,433	18,433	18,433	18,433	18,433						
HVAC	Advanced HVAC Controls												
Hot Water	High-Performance Water Heating Equipment												
Hot Water	Hot Water Conservation												
CY2020 Program Total Electric Contribution to CPAS		54,882	54,882	54,882	54,882	54,882	54,882	-	-	-	-	-	-
Historic Program Total Electric Contribution to CPAS‡		388,090	388,090	388,090	388,090	343,961	-	-	-	-	-	-	-
Program Total Electric CPAS		442,972	442,972	442,972	442,972	398,843	54,882	-	-	-	-	-	-
CY2020 Program Incremental Expiring Electric Savings§		239,975	-	-	-	-	-	54,882	-	-	-	-	-
Historic Program Incremental Expiring Electric Savings‡§		-	-	-	-	44,129	343,961	-	-	-	-	-	-
Program Total Incremental Expiring Electric Savings§		239,975	-	-	-	44,129	343,961	54,882	-	-	-	-	-

Note: The green highlighted cell shows program total first-year electric savings. The gray cells are blank, indicating values irrelevant to the CY2020 contribution to CPAS.

*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
Lighting	High-Performance Interior Lighting	10.0		1.00										
HVAC	High-Performance HVAC Equipment	18.6		1.00										
Shell	Reduced Infiltration	15.0		1.00										
Lighting	High-Performance Exterior Lighting	10.0		1.00										
Appliances	Efficient Appliances	12.6		1.00										
Shell	Reduced Thermal Bridging	25.0		1.00										
HVAC	Efficient Ventilation	15.0		1.00										
HVAC	High-Performance Fans	19.0		1.00										
Lighting	Interior Lighting Controls	8.0		1.00										
Shell	High-Performance Windows	25.0		1.00										
HVAC	Advanced HVAC Controls	8.0		1.00										
Hot Water	High-Performance Water Heating Equipment	13.3		1.00										
Hot Water	Hot Water Conservation	9.0		1.00										
CY2020 Program Total Gas Contribution to CPAS (Therms)			-		-			-	-	-	-	-	-	-
CY2020 Program Total Gas Contribution to CPAS (kWh Equivalent)‡						-	-	-	-	-	-	-	-	-
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)‡§						-	672,456	672,456	672,456	672,456	672,456	672,456	672,456	672,456
Program Total Gas CPAS (kWh Equivalent)‡						-	672,456	672,456	672,456	672,456	672,456	672,456	672,456	672,456
CY2020 Program Incremental Expiring Gas Savings (Therms)‖									-	-	-	-	-	-
CY2020 Program Incremental Expiring Gas Savings (kWh Equivalent)‡‖									-	-	-	-	-	-
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)‡§‖								-	-	-	-	-	-	-
Program Total Incremental Expiring Gas Savings (kWh Equivalent)‡‖								-	-	-	-	-	-	-

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Lighting	High-Performance Interior Lighting												
HVAC	High-Performance HVAC Equipment												
Shell	Reduced Infiltration												
Lighting	High-Performance Exterior Lighting												
Appliances	Efficient Appliances												
Shell	Reduced Thermal Bridging												
HVAC	Efficient Ventilation												
HVAC	High-Performance Fans												
Lighting	Interior Lighting Controls												
Shell	High-Performance Windows												
HVAC	Advanced HVAC Controls												
Hot Water	High-Performance Water Heating Equipment												
Hot Water	Hot Water Conservation												
CY2020 Program Total Gas Contribution to CPAS (Therms)		-	-	-	-	-	-	-	-	-	-	-	-
CY2020 Program Total Gas Contribution to CPAS (kWh Equivalent)‡		-	-	-	-	-	-	-	-	-	-	-	-
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)‡§		672,456	663,969	587,588	587,588	587,588	15,899	-	-	-	-	-	-
Program Total Gas CPAS (kWh Equivalent)‡		672,456	663,969	587,588	587,588	587,588	15,899	-	-	-	-	-	-
CY2020 Program Incremental Expiring Gas Savings (Therms)||		-	-	-	-	-	-	-	-	-	-	-	-
CY2020 Program Incremental Expiring Gas Savings (kWh Equivalent)‡|		-	-	-	-	-	-	-	-	-	-	-	-
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)‡		-	8,487	76,381	-	-	571,690	15,899	-	-	-	-	-
Program Total Incremental Expiring Gas Savings (kWh Equivalent)‡||		-	8,487	76,381	-	-	571,690	15,899	-	-	-	-	-

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 Y_n.

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	High-Performance Interior Lighting	10.0	747,564	1.00	6,333,986			747,564	689,682	689,682	689,682	689,682	689,682	689,682
HVAC	High-Performance HVAC Equipment	18.6	357,619	1.00	6,651,712			357,619	357,619	357,619	357,619	357,619	357,619	357,619
Shell	Reduced Infiltration	15.0	195,685	1.00	2,935,277			195,685	195,685	195,685	195,685	195,685	195,685	195,685
Lighting	High-Performance Exterior Lighting	10.0	171,875	1.00	1,718,755			171,875	171,875	171,875	171,875	171,875	171,875	171,875
Appliances	Efficient Appliances	12.6	62,603	1.00	788,793			62,603	62,603	62,603	62,603	62,603	62,603	62,603
Shell	Reduced Thermal Bridging	25.0	36,450	1.00	911,243			36,450	36,450	36,450	36,450	36,450	36,450	36,450
HVAC	Efficient Ventilation	15.0	34,799	1.00	521,989			34,799	34,799	34,799	34,799	34,799	34,799	34,799
HVAC	High-Performance Fans	19.0	25,404	1.00	482,678			25,404	25,404	25,404	25,404	25,404	25,404	25,404
Lighting	Interior Lighting Controls	8.0	18,676	1.00	149,409			18,676	18,676	18,676	18,676	18,676	18,676	18,676
Shell	High-Performance Windows	25.0	18,433	1.00	460,817			18,433	18,433	18,433	18,433	18,433	18,433	18,433
HVAC	Advanced HVAC Controls	8.0	156	1.00	1,250			156	156	156	156	156	156	156
Hot Water	High-Performance Water Heating Equipment	13.3	-	1.00	-									
Hot Water	Hot Water Conservation	9.0	-	1.00	-									
CY2020 Program Total Contribution to CPAS			1,669,264		20,955,910			1,669,264	1,611,382	1,611,382	1,611,382	1,611,382	1,611,382	1,611,382
Historic Program Total Contribution to CPAS‡						1,935,089	4,899,780	4,899,780	4,603,288	4,603,288	4,603,288	4,603,288	4,603,288	4,603,288
Program Total CPAS						1,935,089	4,899,780	6,569,044	6,214,670	6,214,670	6,214,670	6,214,670	6,214,670	6,214,670
CY2020 Program Incremental Expiring Savings§									57,882	-	-	-	-	-
Historic Program Incremental Expiring Savings‡§								-	296,492	-	-	-	-	-
Program Total Incremental Expiring Savings§								-	354,374	-	-	-	-	-

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Lighting	High-Performance Interior Lighting	689,682	689,682	68,968									
HVAC	High-Performance HVAC Equipment	357,619	357,619	357,619	357,619	357,619	357,619	357,619	357,619	357,619	357,619	357,619	214,571
Shell	Reduced Infiltration	195,685	195,685	195,685	195,685	195,685	195,685	195,685	195,685				
Lighting	High-Performance Exterior Lighting	171,875	171,875	171,875									
Appliances	Efficient Appliances	62,603	62,603	62,603	62,603	62,603	37,562						
Shell	Reduced Thermal Bridging	36,450	36,450	36,450	36,450	36,450	36,450	36,450	36,450	36,450	36,450	36,450	36,450
HVAC	Efficient Ventilation	34,799	34,799	34,799	34,799	34,799	34,799	34,799	34,799				
HVAC	High-Performance Fans	25,404	25,404	25,404	25,404	25,404	25,404	25,404	25,404	25,404	25,404	25,404	25,404
Lighting	Interior Lighting Controls	18,676											
Shell	High-Performance Windows	18,433	18,433	18,433	18,433	18,433	18,433	18,433	18,433	18,433	18,433	18,433	18,433
HVAC	Advanced HVAC Controls	156											
Hot Water	High-Performance Water Heating Equipment												
Hot Water	Hot Water Conservation												
CY2020 Program Total Contribution to CPAS		1,611,382	1,592,550	971,836	730,993	730,993	705,951	668,390	668,390	437,905	437,905	437,905	294,858
Historic Program Total Contribution to CPAS‡		3,871,856	2,888,562	2,542,899	2,477,560	2,474,011	1,855,676	1,560,572	1,279,919	1,279,919	1,253,492	978,169	388,090
Program Total CPAS		5,483,238	4,481,112	3,514,735	3,208,552	3,205,003	2,561,627	2,228,962	1,948,309	1,717,825	1,691,397	1,416,074	682,948
CY2020 Program Incremental Expiring Savings§		-	18,832	620,714	240,844	-	25,041	37,562	-	230,484	-	-	143,048
Historic Program Incremental Expiring Savings‡§		731,432	983,294	345,663	65,340	3,549	618,335	295,104	280,653	-	26,427	275,323	590,079
Program Total Incremental Expiring Savings§		731,432	1,002,127	966,376	306,183	3,549	643,376	332,666	280,653	230,484	26,427	275,323	733,126

End Use Type	Research Category	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Lighting	High-Performance Interior Lighting												
HVAC	High-Performance HVAC Equipment												
Shell	Reduced Infiltration												
Lighting	High-Performance Exterior Lighting												
Appliances	Efficient Appliances												
Shell	Reduced Thermal Bridging	36,450	36,450	36,450	36,450	36,450	36,450						
HVAC	Efficient Ventilation												
HVAC	High-Performance Fans												
Lighting	Interior Lighting Controls												
Shell	High-Performance Windows	18,433	18,433	18,433	18,433	18,433	18,433						
HVAC	Advanced HVAC Controls												
Hot Water	High-Performance Water Heating Equipment												
Hot Water	Hot Water Conservation												
CY2020 Program Total Contribution to CPAS		54,882	54,882	54,882	54,882	54,882	54,882	-	-	-	-	-	-
Historic Program Total Contribution to CPAS‡		388,090	388,090	388,090	388,090	343,961	-	-	-	-	-	-	-
Program Total CPAS		442,972	442,972	442,972	442,972	398,843	54,882	-	-	-	-	-	-
CY2020 Program Incremental Expiring Savings§		239,975	-	-	-	-	-	54,882	-	-	-	-	-
Historic Program Incremental Expiring Savings‡§		-	-	-	-	44,129	343,961	-	-	-	-	-	-
Program Total Incremental Expiring Savings§		239,975	-	-	-	44,129	343,961	54,882	-	-	-	-	-

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.

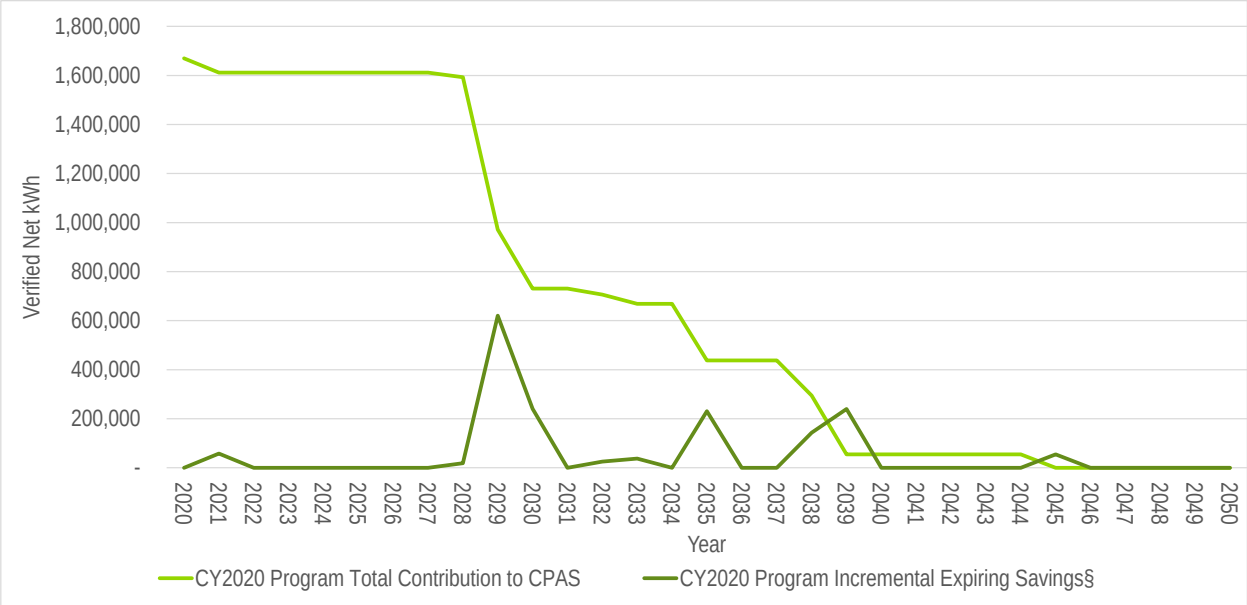
† Lifetime savings are the sum of CPAS savings through the EUL.

‡ 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



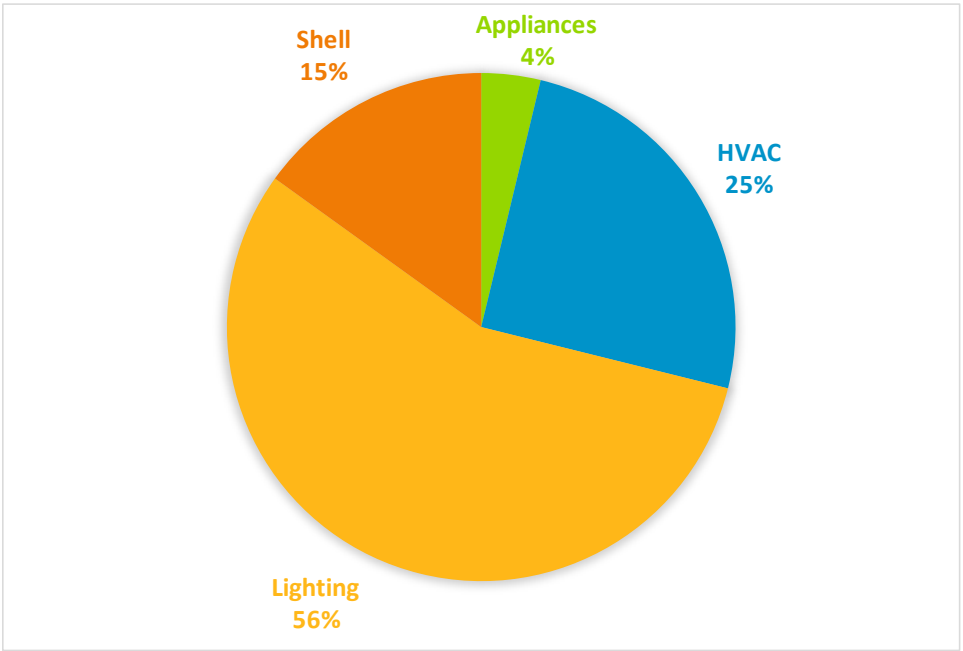
§ Expiring savings are equal to CPAS Y_{n-1} - CPAS Y_n.

Source: Evaluation team analysis

5. Program Savings by Measure

The program includes 13 measures, as the following tables show. The lighting and HVAC measures contributed the most savings (see Figure 5-1).

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	High-Performance Interior Lighting	835,289	0.89	747,564	1.00	747,564	10.0
HVAC	High-Performance HVAC Equipment	357,618	1.00	357,619	1.00	357,619	18.6
Shell	Reduced Infiltration	195,839	1.00	195,685	1.00	195,685	15.0
Lighting	High-Performance Exterior Lighting	180,980	0.95	171,875	1.00	171,875	10.0
Appliances	Efficient Appliances	62,603	1.00	62,603	1.00	62,603	12.6
Shell	Reduced Thermal Bridging	36,447	1.00	36,450	1.00	36,450	25.0
HVAC	Efficient Ventilation	34,799	1.00	34,799	1.00	34,799	15.0
HVAC	High-Performance Fans	25,404	1.00	25,404	1.00	25,404	19.0
Lighting	Interior Lighting Controls	20,762	0.90	18,676	1.00	18,676	8.0
Shell	High-Performance Windows	18,511	1.00	18,433	1.00	18,433	25.0
HVAC	Advanced HVAC Controls	156	1.00	156	1.00	156	8.0
Hot Water	High-Performance Water Heating Equipment	-	NA	0	1.00	0	13.3
Hot Water	Hot Water Conservation	-	NA	0	1.00	0	9.0
	Total	1,768,409	0.94	1,669,264	NA	1,669,264	13.2

NA = not applicable (refers to a piece of data that cannot be produced or does not apply)
Note: The savings in this table do not include secondary electric energy (kWh) savings from water supply and wastewater treatment plants for measures claimed by ComEd as this project was verified per IL TRM v6. The savings account for electric heating penalties, where applicable.
*A deemed value. Source found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.
†The program ex ante gross savings shown in this table matches the program's ex ante value from eTrack, which is calculated from project-level (AH00XX) savings. Guidehouse calculates verified savings at the measure level (M1-M13) from the implementer's work books. Due to rounding issues, the total ex ante savings from measure-level data is 1,768,410 kWh, which is the value that will appear in the CY2020 Summary Report.
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	High-Performance Interior Lighting	49.31	1.45	71.51	1.00	71.51
HVAC	High-Performance HVAC Equipment	50.45	1.00	50.43	1.00	50.43
Shell	Reduced Infiltration	37.07	1.00	37.04	1.00	37.04
Lighting	High-Performance Exterior Lighting	10.21	0.91	9.27	1.00	9.27
Appliances	Efficient Appliances	8.16	1.00	8.17	1.00	8.17
Shell	Reduced Thermal Bridging	6.44	1.00	6.42	1.00	6.42
HVAC	Efficient Ventilation	7.58	1.00	7.59	1.00	7.59
HVAC	High-Performance Fans	3.10	0.99	3.06	1.00	3.06
Lighting	Interior Lighting Controls	1.62	0.87	1.41	1.00	1.41
Shell	High-Performance Windows	5.25	0.99	5.18	1.00	5.18
HVAC	Advanced HVAC Controls	0.05	1.00	0.05	1.00	0.05
Hot Water	High-Performance Water Heating Equipment	0.00	NA	0.00	1.00	0.00
Hot Water	Hot Water Conservation	0.00	NA	0.00	1.00	0.00
	Total	179.24	1.12	200.12	NA	200.12

NA = not applicable (refers to a piece of data that cannot be produced or does not apply)
*A deemed value. Source found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.
Source: ComEd tracking data and evaluation team analysis

The AHNC Program includes measures that save water, specifically efficient appliances (dishwashers, clothes washers) and hot water conservation measures (low flow aerators). However, because projects were reviewed under the Illiois Reference Manual (TRM) version that was effective when the project application was received per agreed-upon program evaluation rules, all projects in CY2020 were reviewed under TRM v6.0, which did not specify secondary water savings. Thus the verified water savings is zero. Table 5-3 shows the ex ante secondary measure-level water savings. No electricity savings from water conservation are included in the electricity savings shown in the previous tables in this section.

Table 5-3. 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)
Lighting	High-Performance Interior Lighting	0	0	NA	0	1.00	0
HVAC	High-Performance HVAC Equipment	0	0	NA	0	1.00	0
Shell	Reduced Infiltration	0	0	NA	0	1.00	0
Lighting	High-Performance Exterior Lighting	0	0	NA	0	1.00	0
Appliances	Efficient Appliances	460,094	0	NA	0	1.00	0
Shell	Reduced Thermal Bridging	0	0	NA	0	1.00	0
HVAC	Efficient Ventilation	0	0	NA	0	1.00	0
HVAC	High-Performance Fans	0	0	NA	0	1.00	0
Lighting	Interior Lighting Controls	0	0	NA	0	1.00	0
Shell	High-Performance Windows	0	0	NA	0	1.00	0
HVAC	Advanced HVAC Controls	0	0	NA	0	1.00	0
Hot Water	High-Performance Water Heating Equipment	0	0	NA	0	1.00	0
Hot Water	Hot Water Conservation	1,855,875	0	NA	0	1.00	0
	Total	2,315,969	0	NA	0	NA	0

NA = not applicable (refers to a piece of data that cannot be produced or does not apply)
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.
*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 5-4. CY2020 Natural Gas Energy Savings by Measure – Nicor Gas

End Use Type	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate	Verified Gross Savings (Therms)	NTG*	Verified Net Savings (Therms)
Lighting	High-Performance Interior Lighting	-		-	1.00	-
HVAC	High-Performance HVAC Equipment	27,164	1.00	27,164	1.00	27,164
Shell	Reduced Infiltration	12,279	1.00	12,218	1.00	12,218
Lighting	High-Performance Exterior Lighting	-		-	1.00	-
Appliances	Efficient Appliances	458	1.00	458	1.00	458
Shell	Reduced Thermal Bridging	3,432	1.00	3,432	1.00	3,432
HVAC	Efficient Ventilation	7,852	1.00	7,852	1.00	7,852
HVAC	High-Performance Fans	-		-	1.00	-
Lighting	Interior Lighting Controls	-		-	1.00	-
Shell	High-Performance Windows	1,854	0.96	1,771	1.00	1,771
HVAC	Advanced HVAC Controls	67	1.00	67	1.00	67
Hot Water	High-Performance Water Heating Equipment	5,019	1.00	5,019	1.00	5,019
Hot Water	Hot Water Conservation	1,826	1.00	1,826	1.00	1,826
	Total†	59,951	1.00	59,807		59,807

*A deemed value. Source found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.
† The ex ante and ex post savings exclude the electric interactive effects on the total therms.

Source: Nicor Gas tracking data and evaluation team analysis

Table 5-5. CY2020 Natural Gas Energy Savings by Measure – Peoples Gas

End Use Type	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate	Verified Gross Savings (Therms)	NTG*	Verified Net Savings (Therms)
Lighting	High-Performance Interior Lighting	-		-	1.00	-
HVAC	High-Performance HVAC Equipment	26,245	1.00	26,245	1.00	26,245
Shell	Reduced Infiltration	11,929	1.00	11,929	1.00	11,929
Lighting	High-Performance Exterior Lighting	-		-	1.00	-
Appliances	Efficient Appliances	1,606	1.00	1,606	1.00	1,606
Shell	Reduced Thermal Bridging	3,768	1.00	3,768	1.00	3,768
HVAC	Efficient Ventilation	9,229	1.00	9,229	1.00	9,229
HVAC	High-Performance Fans	-		-	1.00	-
Lighting	Interior Lighting Controls	6	0.00	-	1.00	-
Shell	High-Performance Windows	3,542	1.00	3,554	1.00	3,554
HVAC	Advanced HVAC Controls	-		-	1.00	-
Hot Water	High-Performance Water Heating Equipment	11,082	1.00	11,111	1.00	11,111
Hot Water	Hot Water Conservation	7,731	1.02	7,903	1.00	7,903
	Total†	75,139	1.00	75,345		75,345

*A deemed value. Source found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.
† The total excludes the electric interactive effects on the total therms.
Source: Peoples Gas tracking data and evaluation team analysis

6. Impact Analysis Findings and Recommendations

6.1 Impact Parameter Estimates

The implementer provided project savings calculations and documentation for the evaluation team's review. Project documentation included program forms and applications; architectural, landscape, mechanical, and plumbing drawings; and appliance, lighting, HVAC, and window specifications. The implementer also provided photos and reports from site visits and testing results. The evaluation team analyzed all documentation and verified that savings and measure counts reported in the project calculators aligned with the provided project documentation and program tracking data.

Natural gas ex ante gross savings reported by Nicor Gas included electric interactive effects. Guidehouse removed electric interactive effects from Nicor Gas ex ante savings for the analysis. Verified natural gas savings are also shown with electric interactive effects removed. Ex ante gross savings are based on measure calculators and project files provided by the implementer.

The evaluation team applied algorithms outlined in the TRM v6.0, which was the version effective when the project applications were received, to calculate AHNC Program verified gross savings. The team verified that these algorithms and appropriate deemed input parameters were applied correctly and validated any custom parameters through project documentation and actual equipment specifications. The evaluation team calculated verified net savings by multiplying the verified gross savings by the net-to-gross (NTG) ratio approved through a consensus process managed through the Illinois SAG.

Table 6-1. Savings Parameters

Gross Savings Input Parameters	Value	Units	Deemed or Evaluated?	Source*
Quantity	Varies	No. of measures	Evaluated	Tracking Database
NTG	100	%	Deemed	Illinois SAG Consensus
Hours of Use	Varies	Hours/year	Deemed	TRM – Sections vary
Gross Savings per Unit, Deemed Measures	Varies	kWh	Deemed	TRM – Sections vary
Gross Savings per Unit, Non-Deemed Measures	Varies	kWh	Evaluated	Project Documentation
EUL	Varies	Years	Mixture	TRM – Sections vary

*TRM is the Illinois Statewide Technical Reference Manual from http://www.ilsag.info/technical-reference-manual.html. Project application date determined the applicable TRM version used[1]. The NTG values can be found on the Illinois SAG website: https://www.ilsag.info/ntg_2020/.

Source: Evaluation team analysis

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 measure-level realization rates and program savings percentages presented in Table 6-2 give context to the team's recommendations.

Table 6-2. Measure-Level Savings and Realization Rates

End Use Type	Research Category	ComEd Realization Rate	ComEd Percentage of Verified Net Savings (kWh)	Nicor Realization Rate	Nicor Percentage of Verified Net Savings (Therms)	People's Gas Realization Rate	People's Gas Percentage of Verified Net Savings (Therms)
Lighting	Lighting: Interior Lighting	0.89	45%	NA	0%	NA	0%
HVAC	HVAC: High Performance Equipment	1.00	21%	1.00	45%	1.00	35%
Shell	Shell: Reduced Infiltration	1.00	12%	1.00	20%	1.00	16%
Lighting	Lighting: Exterior Lighting	0.95	10%	NA	0%	NA	0%
Appliances	Appliances	1.00	4%	1.00	1%	1.00	2%
Shell	Shell: Reduced Thermal Bridging	1.00	2%	1.00	6%	1.00	5%
HVAC	HVAC: Ventilation	1.00	2%	1.00	13%	1.00	12%
HVAC	HVAC: Fans	1.00	2%	NA	0%	NA	0%
Lighting	Lighting: Controls	0.90	1%	NA	0%	NA	0%
Shell	Shell: Windows	1.00	1%	0.96	3%	1.00	5%
HVAC	HVAC: Controls	1.00	<1%	1.00	0%	NA	0%
Hot Water	Hot Water: High Performance Equipment	NA	0%	1.00	8%	1.00	15%
Hot Water	Hot Water: Conservation	NA	0%	1.00	3%	1.02	10%

Source: Evaluation team analysis

6.2.1 ComEd

The program-wide electric energy realization rate is 0.94, and the electric demand realization rate is 1.12. The evaluation team developed several recommendations based on findings from

[1] All CY2020 projects referenced TRM v6, as project applications were received in 2018.

the CY2020 evaluation. These findings suggest ways to improve the measure-level realization rates.

Finding 1. The demand savings for tenant space interior lighting was not included in the original savings estimates due to a workbook cell reference error. Correcting the cell error increased interior lighting demand savings by 62%.

Recommendation 1. The evaluation team recommends that the implementer consider conducting additional quality assurance/quality control (QA/QC) steps on final analyses workbooks to ensure demand savings are claimed correctly.

Finding 2. The baseline wattage for omnidirectional fixtures was calculated incorrectly.

- The TRM v6.0 includes two baseline wattage values for omnidirectional fixtures: one for fixtures installed in 2019 or earlier, and one for fixtures installed in 2020 or later.
- Through a review of project inspection notes and dates, the evaluation team identified several projects (AH0024, AH0037, AH0062, AH0039, AH0064, AH0072) that used the 2019 or earlier baseline value instead of the 2020 value.
- Changing the baseline wattage for these six projects to the 2020 values reduced the energy and demand savings for interior lighting by approximately 10%.

Recommendation 2. The evaluation team recommends that the implementer review and confirm baseline TRM values are updated based on lighting install dates as determined through site inspections, ensuring savings are calculated using correct TRM methodologies.

Finding 3. In many cases, exterior lighting was assumed to be directional or specialty lighting. Based on a review of installed fixtures, the evaluation team identified instances where omnidirectional lighting was mislabeled as directional or specialty lighting. The team relabeled and analyzed fixtures as omnidirectional where appropriate, resulting in a baseline wattage change per the TRM v6.0. This change reduces overall exterior lighting savings by approximately 5% for 10 projects (AH0004, AH0028, AH0039, AH0050, AH0061, AH0062, AH0063, AH0064, AH0072) (including the effects of the baseline wattage change identified in Finding 2).

Recommendation 3. The evaluation team recommends that the implementer institute a QC process to review and confirm installed lighting products match the correct fixture type selections.

Finding 4. Occupancy sensor savings for all Other common space (spaces other than corridors, stairs, or lobby spaces) were calculated based on the incremental savings of vacancy sensors compared to occupancy sensors. This approach does not accurately account for spaces where vacancy sensors are code-required by IECC section C405.2.1, nor does it give credit for spaces where occupancy sensors were installed but not required. The evaluation team incorporated code requirements into the analysis, decreasing the savings for four projects (AH0050, AH0061, AH0063, AH0064) and increasing the savings for one project (AH0062). Overall, accounting for code-required occupancy sensors reduced the occupancy sensor savings by approximately 10%.

Recommendation 4. The evaluation team recommends that the implementer compare the installed vacancy or occupancy sensor in each space to the code-required control type for that area to calculate savings.

Finding 5. High performance window savings were slightly reduced (by less than 1%) due to window area miscalculations of operable or fixed windows for projects AH0004, AH0024, and AH0038.

Recommendation 5. The evaluation team recommends that the implementer conduct additional QA/QC steps to ensure window area calculations are accurate.

Finding 6. The savings for reduced infiltration were slightly reduced by less than 1% due to a miscalculation in the building shell area for one building in project AH0072. The area inadvertently included the floor area between the upper and lower floor as shell area.

Recommendation 6. The evaluation team recommends that the implementer conduct additional QA/QC steps to ensure building shell area calculations are accurate.

6.2.2 Nicor Gas

The Nicor Gas realization rate is 1.00 (electric interactive heating penalties excluded in ex ante and ex post). The evaluation team identified some measure savings decreases that did not have a significant impact to the realization rate. The team developed two recommendations based on findings from the CY2020 evaluation.

Finding 1. High performance window savings were slightly reduced to 94% of reported savings due to window area miscalculations of operable or fixed windows for project AH0004.

Recommendation 1. The evaluation team recommends that the implementer conduct additional QA/QC steps to ensure window area calculations are accurate.

Finding 2. The savings for reduced infiltration were slightly reduced (by less than 1%) due to an error in the building shell area for one building in project AH0072. The area inadvertently included the floor area between the upper and lower floor as shell area.

Recommendation 2. The evaluation team recommends that the implementer conduct additional QA/QC steps to ensure building shell area calculations are accurate.

6.2.3 Peoples Gas

The Peoples Gas realization rate is 1.00 (electric interactive heating penalties excluded in ex ante and ex post). The evaluation team identified some measure savings increases, but these increases were not sufficient to impact the overall realization rate. The team developed the following recommendation based on findings from the CY2020 evaluation.

Finding 1. High performance window savings were slightly increased (by less than 1%) due to miscalculations of operable or fixed window areas for project AH0024. Savings for high performance water heating equipment and hot water conservation were increased to 101% and 112% of reported savings, respectively, due to a discrepancy with documented volume and efficiency values.

Recommendation 1. Conduct additional QA/QC steps to ensure window area calculations and water-related inputs are accurate.

Appendix A. Impact Analysis Methodology

The evaluation team determined verified gross savings for each program measure by:

- Reviewing the savings algorithm inputs in the project files for agreement with the TRM v6.0 and Errata.
- Validating savings algorithms were applied correctly for the installed measures.
- The team prioritized project-specific documentation[2] to inform savings calculations where the TRM advises using actual values. For variables where project documentation did not provide this information, the evaluation team relied on defaults from the TRM.
- Cross-checking per-unit savings values in the project files with the verified values in the measure workbook or in the team's calculations if the workbook did not agree with the TRM v6.0.
- Multiplying the verified per-unit savings value by the quantity reported in the project files.

The team calculated verified net energy and demand (coincident peak and overall) savings by multiplying the verified gross savings estimates by a deemed NTG ratio of 1.0. For CY2020, the AHNC Program's NTG estimate was defined by a consensus process through the Illinois SAG.

Guidehouse relied on the following documents to verify the per-unit savings for each program measure. If a discrepancy was identified across project documentation, the evaluation team relied on the project site visit report for the final value.

- Measure calculators provided by the implementer:
    - AH0004_Spring Hill_Calc_v2-08 QC.xlsm
    - AH0015_Final Eval_v2-08.xlsm
    - AH0024_Calc_v2-08_North.xlsm
    - AH0024_Calc_v2-08_South.xlsm
    - AH0024_Summary_Final Verification.xlsx
    - AH0028_Calc_v2-08.xlsm
    - AH0035_Final Eval_v2-08.xlsm
    - AH0037_Calc_v2-08_QC.xlsm
    - AH0039_Calc_v2-08_FINAL.xlsm
    - AH0050_Final Eval_v2-08_QC.xlsm
    - AH0061_Calc_v2-08_CY2020_EOY Evaluation.xlsm
    - AH0062_Calc_v2-08 Evals North.xlsm
    - AH0062_Calc_v2-08 Evals South.xlsm
    - AH0062_Calc_v2-08 Evals SUMMARY.xlsx

[2] Project documentation included program forms and applications; architectural, landscape, mechanical, and plumbing drawings; equipment specifications; site visit photos; and testing results.

  - AH0063_Calc_v2-08_CY2020_EOY Evaluation.xlsm
  - AH0064_Calc_v2-08.xlsm
  - AH0072_2926_Calc_v2-08_EOY Evaluation
  - AH0072_3003_Calc_v2-08_EOY Evaluation
  - AH0072_3024_Calc_v2-08_EOY Evaluation
  - AH0072_3067_Calc_v2-08_EOY Evaluation
  - AH0072_3169_Calc_v2-08_EOY Evaluation
  - AH0072_Calc_SUMMARY.xlsm
- Assortment of project-specific files provided by the implementer. Each project file contained the following individual reference documents:
  - Project plans and specifications
  - Project site visit reports and documentation
  - Incentive agreements
  - Photographs
- TRM for deemed input parameters or secondary evaluation research to verify any custom inputs used in the ex ante calculations. Project application date determined the TRM version used:
  - v5 = Applications dated June 1, 2016 – December 31, 2017
  - v6 = Applications dated January 1, 2018 – December 31, 2018
  - v7 = Applications dated January 1, 2019 – December 31, 2019
  - v8 = for future project applications dated after January 1, 2020
- International Energy Conservation Code version in effect at time of project permitting

Appendix B. Total Resource Cost Detail

Table B-1Table B-1 shows the TRC cost-effectiveness analysis inputs for ComEd 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) is not included in this table and will be provided to the evaluation team later.

Table B-1. Total Resource Cost Savings Summary - ComEd

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 (kW)	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	High-Performance Interior Lighting	Lamps	12,141	10.0	No	747,564	71.50	0	0	0	0	1.00	1.00	1.00	747,564	71.50	0	0	0	0
HVAC	High-Performance HVAC Equipment	Units	899	18.6	No	357,619	50.43	0	0	0	0	1.00	1.00	1.00	357,619	50.43	0	0	0	0
Shell	Reduced Infiltration	CFM50	161,191	15.0	No	195,685	37.04	0	0	0	0	1.00	1.00	1.00	195,685	37.04	0	0	0	0
Lighting	High-Performance Exterior Lighting	Lamps	527	10.0	No	171,875	9.57	0	0	0	0	1.00	1.00	1.00	171,875	9.57	0	0	0	0
Appliances	Efficient Appliances	Units	1,641	12.6	No	62,603	8.20	0	0	0	0	1.00	1.00	1.00	62,603	8.20	0	0	0	0
Shell	Reduced Thermal Bridging	SF	540,743	25.0	No	36,450	6.42	0	0	0	0	1.00	1.00	1.00	36,450	6.42	0	0	0	0
HVAC	Efficient Ventilation	Units	26	15.0	No	34,799	7.59	0	0	0	0	1.00	1.00	1.00	34,799	7.59	0	0	0	0
HVAC	High-Performance Fans	Each	701	19.0	No	25,404	3.06	0	0	0	0	1.00	1.00	1.00	25,404	3.06	0	0	0	0
Lighting	Interior Lighting Controls	Watts	10,714	8.0	No	18,676	1.59	0	0	0	0	1.00	1.00	1.00	18,676	1.59	0	0	0	0
Shell	High-Performance Windows	SF	74,457	25.0	No	18,433	5.22	0	0	0	0	1.00	1.00	1.00	18,433	5.22	0	0	0	0
HVAC	Advanced HVAC Controls	Unit	1	8.0	No	156	0.05	0	0	0	0	1.00	1.00	1.00	156	0.05	0	0	0	0
Hot Water	High-Performance Water Heating Equipment	Units	21	13.3	No	0	0.00	0	0	0	0	1.00	1.00	1.00	0	0.00	0	0	0	0
Hot Water	Hot Water Conservation	Units	1,161	9.0	No	0	0.00	0	0	0	0	1.00	1.00	1.00	0	0.00	0	0	0	0
	Total			13.2		1,669,264	200.65	0	0	0	0	NA	NA	NA	1,669,264	200.65	0	0	0	0

Note: The savings in this table do not include secondary electric energy (kWh) savings from water supply and wastewater treatment plants because, projects were reviewed under the TRM version that was effective when the project application was received per agreed-upon program evaluation rules. All projects in CY2020 were reviewed under TRM v6.0, which did not specify secondary water savings.

*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.

† 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.

Source: ComEd tracking data and evaluation team analysis

Table B-2 shows the TRC cost-effectiveness analysis inputs for Nicor Gas 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) is not included in this table and will be provided to the evaluation team later.

Table B-2. Total Resource Cost Savings Summary – Nicor Gas

End Use Type	Research Category	Units	Quantity	EUL (years)*	ER Flag†	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	NTG	Verified Net Savings (Therms)
Lighting	High-Performance Interior Lighting	Lamps	12,141	10	No	-	-	1.00	-
HVAC	High-Performance HVAC Equipment	Units	899	18.6	No	27,164	27,164	1.00	27,164
Shell	Reduced Infiltration	CFM50	161,191	15	No	12,279	12,218	1.00	12,218
Lighting	High-Performance Exterior Lighting	Lamps	527	10	No	-	-	1.00	-
Appliances	Efficient Appliances	Units	1,641	12.6	No	458	458	1.00	458
Shell	Reduced Thermal Bridging	SF	540,743	25	No	3,432	3,432	1.00	3,432
HVAC	Efficient Ventilation	Units	26	15	No	7,852	7,852	1.00	7,852
HVAC	High-Performance Fans	Each	701	19	No	-	-	1.00	-
Lighting	Interior Lighting Controls	Watts	10,714	8	No	-	-	1.00	-
Shell	High-Performance Windows	SF	74,457	25	No	1,854	1,771	1.00	1,771
HVAC	Advanced HVAC Controls	Unit	1	8	No	67	67	1.00	67
Hot Water	High-Performance Water Heating Equipment	Units	21	13.3	No	5,019	5,019	1.00	5,019
Hot Water	Hot Water Conservation	Units	1,161	9	No	1,826	1,826	1.00	1,826
				17.2		59,951	59,807		59,807

*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.

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

Source: Evaluation team analysis of tracking data

Table B-3 shows the TRC cost-effectiveness analysis inputs for Peoples Gas 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) is not included in this table and will be provided to the evaluation team later.

Table B-3. Total Resource Cost Savings Summary – Peoples Gas

End Use Type	Research Category	Units	Quantity	EUL (years)*	ER Flag†	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	NTG	Verified Net Savings (Therms)
Lighting	High-Performance Interior Lighting	Lamps	12,141	10	No	-	-	1.00	-
HVAC	High-Performance HVAC Equipment	Units	899	18.6	No	26,245	26,245	1.00	26,245
Shell	Reduced Infiltration	CFM50	161,191	15	No	11,929	11,929	1.00	11,929
Lighting	High-Performance Exterior Lighting	Lamps	527	10	No	-	-	1.00	-
Appliances	Efficient Appliances	Units	1,641	12.6	No	1,606	1,606	1.00	1,606
Shell	Reduced Thermal Bridging	SF	540,743	25	No	3,768	3,768	1.00	3,768
HVAC	Efficient Ventilation	Units	26	15	No	9,229	9,229	1.00	9,229
HVAC	High-Performance Fans	Each	701	19	No	-	-	1.00	-
Lighting	Interior Lighting Controls	Watts	10,714	8	No	6	-	1.00	-
Shell	High-Performance Windows	SF	74,457	25	No	3,542	3,554	1.00	3,554
HVAC	Advanced HVAC Controls	Unit	1	8	No	-	-	1.00	-
Hot Water	High-Performance Water Heating Equipment	Units	21	13.3	No	11,082	11,111	1.00	11,111
Hot Water	Hot Water Conservation	Units	1,161	9	No	7,731	7,903	1.00	7,903
				16.3		75,139	75,345		75,345

*The total of the EUL column is the WAML and is calculated as the sum product of EUL and measure savings divided by total program savings.
† ER measures are flagged as YES; otherwise a NO is indicated in the column.
Source: Evaluation team analysis of tracking data