

ComEd CY2018-CY2021 Summary Impact Evaluation Report

Energy Efficiency/Demand Response Plan:
Program Year CY2018-CY2021
(1/1/2018-12/31/2021)

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ComEd

FINAL

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1. Introduction

This report presents the results of the impact evaluation of ComEd's fifth plan (Plan 5)¹ slate of energy efficiency programs offered under the Energy Efficiency Portfolio Standard (EEPS) umbrella. It presents a summary of the energy and demand impacts for the portfolio and each program and some detail on cost effectiveness. The report fulfills the Illinois Public Utilities Act (PUA) requirement for a review of the 4-year results of the broader net program impacts from January 1, 2018 (the start of CY2018) to December 31, 2021 (the end of CY2021).

In Plan 5, ComEd implemented 63 programs as listed in Table 1-1. The list contains 22 programs in the business sector (including both private and public programs), 14 programs in the residential sector, 11 programs in the income eligible sector, and 16 pilot programs. This report is a summary of the energy and demand savings from programs for which final impact evaluation reports with net savings have been submitted to ComEd and the ICC. This included 45 CY2018 programs, 42 CY2019 programs, 42 CY2020 programs, and 43 CY2021 programs.

This report contains savings that ComEd was eligible to claim toward their goals including direct electricity savings, reduction in water usage that produces secondary kWh savings from water supply and wastewater treatment, and gas savings in therms converted to kWh. The electricity savings account for electric heating penalties, where applicable.

Seven programs had savings from measures that were sold in one program year but installed in a subsequent year, referred to as carryover savings. The programs are Lighting Discounts, Product Discounts (Lighting Discounts – IE), Business Instant Discounts, UIC-ERC Income Eligible Kits, Food Bank LED Distribution, Elementary Education Kits, and Small Business Kits.

Table 1-1 also notes 10 programs that ComEd implemented in coordination with Nicor Gas Company, Peoples Gas Light and Coke Company ("PGL") and North Shore Gas Company ("NSG").

¹ The 4-year energy efficiency and demand response plan filings required by Section 8-103 of Illinois Public Utilities Act ("Act"), FEJA Statute: 220 ILCS 5/8-103B generally referred to herein as "Plan" or "Plan 5".

Table 1-1. ComEd CY2018-CY2021 Energy Efficiency Programs

Sector	CY2018	CY2019	CY2020	CY2021	Combined Report with Gas Utility
All	Voltage Optimization	Voltage Optimization	Voltage Optimization	Voltage Optimization	
Business					
Business	Business Instant Discounts	Business Instant Discounts	Business Instant Discounts	Business Instant Discounts	
Business	Operational Efficiency / Facility Assessments	Facility Assessments	Facility Assessments	Facility Assessments	
Business	Incentives - Standard	Incentives - Standard	Incentives - Standard	Incentives - Standard	
Business	Incentives - Custom	Incentives - Custom	Incentives - Custom	Incentives - Custom	
Business	Industrial Systems Optimization	Industrial Systems	Industrial Systems	Industrial Systems	
Business	Street Lighting	LED Streetlighting	LED Streetlighting	LED Streetlighting	
Business	Non-residential New Construction	Non-residential New Construction	Non-residential New Construction	Non-residential New Construction	Nicor Gas & PGL-NSG
Business	Retro-commissioning	Retro-commissioning	Retro-commissioning	RetroCommissioning	Nicor Gas & PGL-NSG
Business	Small Business (Private Sector)	Small Business (Private Sector)	Small Business (Private/Public Sector)	Small Business	
Business	Strategic Energy Management	Strategic Energy Management	Strategic Energy Management	Strategic Energy Management	
Business - Third Party		Agriculture	Agriculture	Agriculture	
Business - Third Party		Business Grocery	Business Grocery	Business Grocery	
Business - Third Party		Nonprofit Retrofits	Nonprofit Retrofits	Nonprofit Retrofits	
Business - Third Party		Business Telecomm	Business Telecomm	Business Telecomm	
Business - Third Party	Rural Small Business Kits	Rural Small Business Kits	Rural Small Business Kits	Small Business Kits	
Business	Energy Advisor Monitoring-Based Commissioning	Virtual Commissioning	Virtual Commissioning	Virtual Commissioning	
Business	Public Housing Authority				Joint w/Nicor Gas
Business	Air Care Plus				
Business	Data Centers				
Business			Public Buildings in Distressed Communities	Public Buildings in Distressed Communities	
Business	Public Small Facilities (PSF)	Public Small Facilities (PSF)			
Business			Industrial Energy Management	Industrial Energy Management	

(Continued on page 3)

Sector	CY2018	CY2019	CY2020	CY2021	Combined Report with Gas Utility
Residential					
Residential	Appliance Rebates	Appliance Rebates	Appliance Rebates	Appliance Rebates	
Residential	Lighting Discounts	Lighting Discounts	Lighting Discounts	Lighting Discounts	
Residential	Multi-Family Market Rate	Multi-Family Assessments	Multi-Family Assessments	Multi-Family Assessments	Joint w/Nicor Gas & PGL-N
Residential	Home Energy Reports	Residential Behavior	Residential Behavior	Residential Behavior	
Residential	Heating and Cooling (HVAC) Rebates	Residential HVAC	Residential HVAC	Residential HVAC	
Residential	Home Energy Assessment	Single-Family Assessment	Single-Family Assessment	Single-Family Assessment	Joint w/Nicor Gas & PGL-N
Third Party-Residential	Elementary Education Kits	Elementary Energy Education	Elementary Energy Education	Elementary Energy Education	Joint w/Nicor Gas & PGL-N
Residential	Holiday Light Exchange				
Residential	Fridge and Freezer Recycling				
Residential	Middle School Take-Home Kits				
Residential	New Construction	New Construction			Joint w/Nicor Gas & PGL-N
Residential		Fridge & Freezer Recycling	Fridge & Freezer Recycling		
Residential	Weatherization - Market Rate	Weatherization			
Income Eligible					
Income Eligible	Affordable Housing New Construction	Affordable Housing New Construction	Affordable Housing New Construction	Affordable Housing New Construction	Joint w/Nicor
Income Eligible	Multi-Family Retrofits	Multi-Family Retrofits	Multi-Family Retrofits	Multi-Family Retrofits	
Income Eligible	Multi-Family IHWAP	Multi-Family IHWAP	Multi-Family IHWAP	Multi-Family IHWAP	
Income Eligible	Single Family Retrofit - CBA	Single Family Retrofit - CBA	Single Family Retrofit - CBA	Single-Family Retrofits (CBA)	Joint w/PGL-NSG
Income Eligible	Single Family Retrofit - IHWAP	Single Family Retrofit - IHWAP	Single Family Retrofit - IHWAP	Single-Family Retrofits (IHWAP)	Joint w/Nicor Gas & PGL-N
Third Party-Income Eligible	Food Bank LED Distribution	Food Bank LED Distribution	Food Bank LED Distribution	Food Bank-LED Distribution	
Third Party-Income Eligible	UIC ERC Low Income Kits	UIC ERC Low Income Kits	UIC ERC Low Income Kits	UIC-ERC Income Eligible Kits	
Income Eligible	Retail (Lighting) Discounts - Income Eligible	Product Discount - Retail (Lighting) Discounts	Product Discount - Retail (Lighting) Discounts	Product Discount - Retail (Lighting) Discounts	
Income Eligible		Product Discount - Appliance Rebate	Product Discount - Appliance Rebate	Product Discount - Appliance Rebate	
Income Eligible		Public Housing Authority	Public Housing Authority	Public Housing Retrofits	
Third Party-Income Eligible		Manufactured Housing Retrofit	Manufactured Housing Retrofit		

(Continued on page 4)

Sector	CY2018	CY2019	CY2020	CY2021	Combined Report with Gas Utility
Pilots					
Pilot	Smart Building Operations		Building Operator Certification	Building Operator Certification	
Pilot	Ductless Heat Pump and Building Envelope	Ductless Heat Pump and Building Envelope Pilot			
Pilot			ENERGY STAR Retail Products Platform	ENERGY STAR Retail Products Platform	
Pilot			Upstream Commercial Food Service Equipme	Upstream Commercial Food Service Equipment	
Pilot		IE Senior Design Pilot	IE Senior Design Pilot		
Pilot	HVAC SAVE				
Pilot	Nest Seasonal Savings (Cooling Season)				
Pilot	Variable Speed Drive Energy Savings in Refrigeration Condensers				
Pilot	Nest Seasonal Savings (Heating Season)				
Pilot	Total Connected Savings Wi-Fi Thermostat Optimization (Cooling Season)				
Pilot	Total Connected Savings Wi-Fi Thermostat Optimization (Heating Season)				
Pilot		IE Program Design Pilot			
Pilot				SEM Water Savings	
Pilot				Water Infrastructure Leak Reduction	
Pilot				Efficient Choice	
Pilot				Electric Homes New Construction	

Note: Table contains only programs where Guidehouse submitted impact reports to ComEd. The design of ComEd's programs evolved over Plan 5, reflected in changes in program names in some rows of the table.

Source: ComEd tracking data and Guidehouse evaluation reports

2. Portfolio Savings

The evaluation calculated incremental annual savings presented in Section 2.1 below and cumulative persisting annual savings (CPAS) presented in Section 2.2 below.

2.1 Annual Savings

Table 2-1 summarizes the incremental energy savings the ComEd portfolio achieved from CY2018-CY2021 programs. This table includes direct electric savings (includes electric heating penalties, where applicable), secondary electric savings from water supply and wastewater treatment plants, carryover savings, and gas savings converted to electricity that ComEd can claim according to Section 8-103B(b-25) of the Illinois Public Utilities Act, which states “In no event shall more than 10% of each year's applicable annual incremental goal as defined in paragraph (7) of subsection (g) of this Section be met through savings of fuels other than electricity.” The terms and calculation approaches are defined in Section 2.2.

Table 2-1. Total Annual Electric Savings

Savings Category	CY2018 Energy Savings (kWh)	CY2019 Energy Savings (kWh)	CY2020 Energy Savings (kWh)	CY2021 Energy Savings (kWh)	Total (kWh)
Ex Ante Gross Savings	1,997,582,827	1,828,540,528	1,894,065,696	1,909,615,119	7,629,804,170
Portfolio Gross Realization Rate	0.97	1.01	1.05	1.04	1.02
Verified Gross Savings	1,929,684,673	1,854,684,490	1,985,103,241	1,987,273,672	7,756,746,076
Portfolio Net-to-Gross Ratio (NTG)	0.91	0.86	0.87	0.88	0.88
Verified Net Savings	1,765,460,187	1,597,848,450	1,724,332,392	1,739,836,125	6,827,477,154
Legacy Savings†	4,558,842,920	4,087,238,480	3,537,033,300	3,144,029,600	15,327,144,300
Gas Savings Eligible for Claiming (Therms)	7,399,442	7,278,424	9,480,216	11,097,315	35,255,396
Gas Savings Counted Toward Goal (Therms)	3,218,045	3,486,215	3,486,215	3,754,385	13,944,860
Gas Savings Counted Toward Goal (kWh)‡	94,320,888	102,180,962	102,180,962	110,041,036	408,723,848
Total Net Savings (Electric + Gas Savings Counted)	1,859,781,075	1,700,029,412	1,826,513,354	1,849,877,162	7,236,201,003
Historic Portfolio Total Savings (Electric + Gas Savings Counted)§		1,726,757,624	3,312,523,570	4,663,796,144	9,703,077,338
Grand Total Net Savings (Plus Legacy & Historic Savings)	6,418,623,995	7,514,025,516	8,676,070,224	9,657,702,906	32,266,422,641
CPAS Statutory Goal	6,130,857,720	7,152,667,340	8,174,476,960	9,274,887,320	30,732,889,340
CPAS Achieved as Percent of Goal	104.7%	105.1%	106.1%	104.1%	105.0%
Applicable Annual Incremental Goal (AAIG)	943,208,880	1,021,809,620	1,021,809,620	1,100,410,360	4,087,238,480
Applicable Annual Incremental Savings Achieved‡§	1,230,975,155	1,095,401,522	1,162,044,708	981,632,682	4,470,054,066
AAIG Achieved as Percent of Goal	130.5%	107.2%	113.7%	89.2%	109.4%

† Estimated by multiplying statutory annual CPAS Legacy Savings percent by ComEd Baseline - 2014-2016 Average Annual Sales Less Exempt Customers MWh value of 78,600,740 for the year.

‡ Gas savings are converted to kWh by multiplying therms by 29.31 (which is based on 100,000 Btu/therm and 3,412 Btu/kWh).

§ Historical savings go back to CY2018.

|| Estimated by multiplying statutory annual CPAS Goal percent by ComEd Baseline - 2014-2016 Average Annual Sales Less Exempt Customers MWh value of 78,600,740.

‡§ Estimated as new incremental savings from program year after offsetting incremental expiring savings in the year.

Source: ComEd tracking data and evaluation team analysis

Table 2-2. Total Annual Peak Demand Savings

Savings Category	CY2018 Peak Demand Savings (kW)*	CY2019 Peak Demand Savings (kW)*	CY2020 Peak Demand Savings (kW)*	CY2021 Peak Demand Savings (kW)*	Total (kW)
Ex Ante Gross Savings	120,090	186,719	265,171	260,884	832,863
Portfolio Gross Realization Rate	2.12	1.45	1.23	1.24	1.41
Verified Gross Savings	254,573	270,988	325,144	323,281	1,173,986
Portfolio Net-to-Gross Ratio (NTG)	0.77	0.83	0.88	0.88	0.84
Verified Net Savings	194,790	223,932	286,903	285,345	990,970

Note: Guidehouse calculated the portfolio NTG ratio by dividing the total net savings by the total verified gross 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 the PJM requirement.

Table 2-3 through Table 2-6 summarize savings from the sectors by program year.

Table 2-3. CY2018 Total Annual Incremental Savings

Savings Type	Portfolio	Ex Ante Gross Savings	Verified Gross Realization Rate	Verified Gross Savings	NTG*	Verified Net Savings
Energy (kWh)	Business	1,126,726,829	0.98	1,107,836,631	0.81	895,388,763
Energy (kWh)	Residential	661,814,775	0.98	648,191,485	0.63	690,875,559
Energy (kWh)	Income Eligible	108,248,619	0.98	106,214,978	1.00	106,214,978
Energy (kWh)	Third Party					
Energy (kWh)	Pilots	1,411,604	1.01	1,427,530	1.00	6,966,837
Energy (kWh)	Voltage Optimization	99,381,000	0.66	66,014,049	1.00	66,014,049
Energy (kWh)	Total	1,997,582,827	0.97	1,929,684,673	0.91	1,765,460,187
Peak Demand (kW)	Business	95,163	1.66	157,758	0.79	124,516
Peak Demand (kW)	Residential	18,167	4.66	84,643	0.65	54,778
Peak Demand (kW)	Income Eligible	6,702	1.80	12,038	1.00	12,038
Peak Demand (kW)	Third Party					
Peak Demand (kW)	Pilots	59	2.29	134	1.00	3,459
Peak Demand (kW)	Voltage Optimization	-	-	-	1.00	-
Peak Demand (kW)	Total	120,090	2.12	254,573	0.77	194,790

Note: Voltage Optimization and Third Party programs did not start producing verified savings until CY2019 and CY2020, respectively.
 Source: ComEd tracking data and evaluation team analysis.

Table 2-4. CY2019 Total Annual Incremental Savings

Savings Type	Portfolio	Ex Ante Gross Savings	Verified Gross Realization Rate	Verified Gross Savings	NTG*	Verified Net Savings
Energy (kWh)	Business	1,068,951,810	0.99	1,057,164,123	0.84	891,643,699
Energy (kWh)	Residential	401,750,183	1.09	435,932,664	0.66	344,617,048
Energy (kWh)	Income Eligible	161,244,577	1.10	177,394,136	1.00	177,394,136
Energy (kWh)	Third Party					
Energy (kWh)	Pilots	293,457	0.52	152,064	1.00	152,064
Energy (kWh)	Voltage Optimization	196,300,500	0.94	184,041,503	1.00	184,041,503
Energy (kWh)	Total	1,828,540,528	1.01	1,854,684,490	0.86	1,597,848,450
Peak Demand (kW)	Business	150,026	1.01	151,154	0.83	124,705
Peak Demand (kW)	Residential	22,984	2.82	64,841	0.68	44,235
Peak Demand (kW)	Income Eligible	13,670	1.68	22,972	1.00	22,972
Peak Demand (kW)	Third Party					
Peak Demand (kW)	Pilots	38	0.98	38	1.00	38
Peak Demand (kW)	Voltage Optimization	-	-	31,983	1.00	31,983
Peak Demand (kW)	Total	186,718	1.45	270,988	0.83	223,932

Source: ComEd tracking data and evaluation team analysis

Table 2-5. CY2020 Total Annual Incremental Savings

Savings Type	Portfolio	Ex Ante Gross Savings	Verified Gross Realization Rate	Verified Gross Savings	NTG*	Verified Net Savings
Energy (kWh)	Business	1,070,542,927	1.01	1,084,918,011	0.85	922,921,492
Energy (kWh)	Residential	366,346,423	1.11	408,126,189	0.60	324,159,470
Energy (kWh)	Income Eligible	76,520,796	1.13	86,443,396	0.89	77,313,232
Energy (kWh)	Third Party	163,986,281	1.14	187,325,135	0.97	181,998,086
Energy (kWh)	Pilots	86,832	26.42	2,294,194	0.80	1,943,796
Energy (kWh)	Voltage Optimization	216,582,437	1.00	215,996,316	1.00	215,996,316
Energy (kWh)	Total	1,894,065,696	1.05	1,985,103,241	0.87	1,724,332,392
Peak Demand (kW)	Business	178,008	1.03	183,290	0.85	156,318
Peak Demand (kW)	Residential	13,810	4.21	58,109	0.62	49,465
Peak Demand (kW)	Income Eligible	2,780	4.21	11,703	0.89	10,458
Peak Demand (kW)	Third Party	24,137	1.10	26,597	0.95	25,266
Peak Demand (kW)	Pilots	12	26.75	310	0.80	261
Peak Demand (kW)	Voltage Optimization	46,424	0.97	45,134	1.00	45,134
Peak Demand (kW)	Total	265,171	1.23	325,144	0.88	286,903

Source: ComEd tracking data and evaluation team analysis

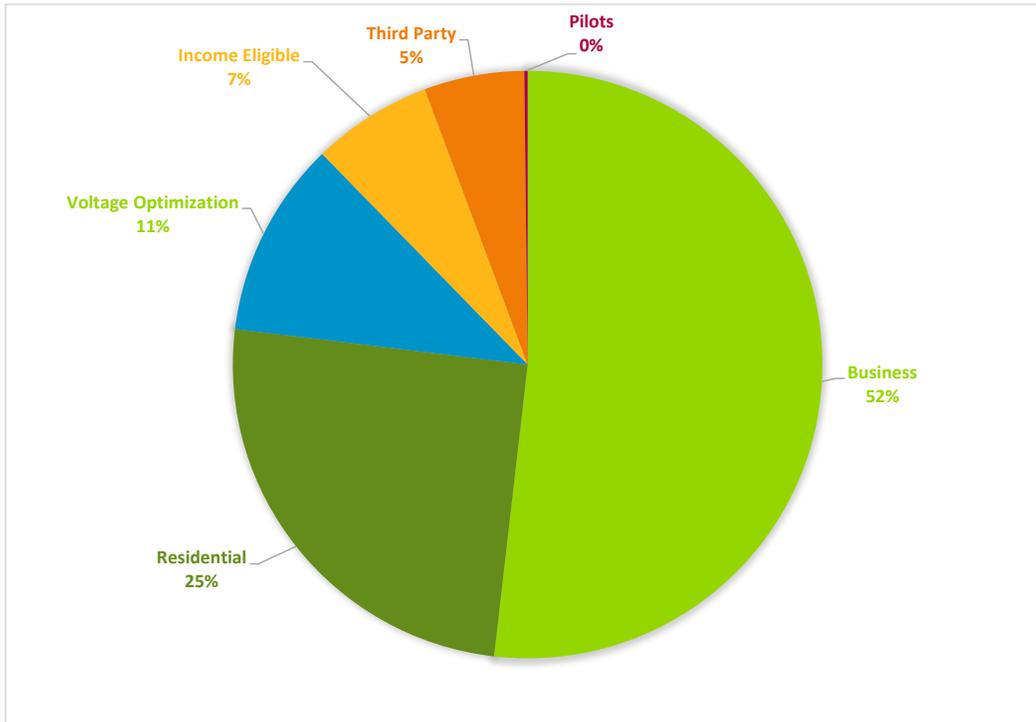
Table 2-6. CY2021 Total Annual Incremental Savings

Savings Type	Portfolio	Ex Ante Gross Savings	Verified Gross Realization Rate	Verified Gross Savings	NTG*	Verified Net Savings
Energy (kWh)	Business	983,638,462	1.02	1,005,607,575	0.82	828,139,608
Energy (kWh)	Residential	372,218,710	1.09	407,343,808	0.61	354,758,879
Energy (kWh)	Income Eligible	101,397,627	1.01	102,191,586	0.88	89,630,395
Energy (kWh)	Third Party	180,444,666	1.10	198,707,224	0.97	193,096,858
Energy (kWh)	Pilots	1,381,823	1.79	2,471,737	0.81	3,258,645
Energy (kWh)	Voltage Optimization	270,533,831	1.00	270,951,740	1.00	270,951,740
Energy (kWh)	Total	1,909,615,119	1.04	1,987,273,672	0.88	1,739,836,125
Peak Demand (kW)	Business	160,762	1.05	168,350	0.82	137,594
Peak Demand (kW)	Residential	18,823	3.24	61,027	0.62	56,327
Peak Demand (kW)	Income Eligible	3,781	3.83	14,479	0.88	12,782
Peak Demand (kW)	Third Party	25,156	1.06	26,695	0.97	25,796
Peak Demand (kW)	Pilots	53	3.67	196	0.75	311
Peak Demand (kW)	Voltage Optimization	52,308	1.00	52,535	1.00	52,535
Peak Demand (kW)	Total	260,884	1.24	323,281	0.88	285,345

Source: ComEd tracking data and evaluation team analysis

Over the four year period, the Business programs produced 52% of the portfolio net savings, Residential programs contributed 25%, Voltage Optimization contributed 11%, Income Eligible programs contributed 7%, Third Party programs contributed 5%, and Pilot programs contributed less than half of one percent (see Figure 2-1).

Figure 2-1. Annual Incremental Electric Savings by Sector (4-Year Total)



Source: ComEd tracking data and evaluation team analysis

2.2 Cumulative Persisting Annual Savings (CPAS)

Per Section 8-103B of the Illinois Public Utilities Act, ComEd’s energy efficiency goals are expressed in CPAS, which is the sum of the electric energy savings achieved in a given year from all measures installed in that year and in previous years, but no earlier than January 1, 2012, that are still operational and providing savings in that year.

2.2.1 Gas Savings

The gas savings attributed to ComEd’s programs are only those not claimed by the Illinois gas utilities so that there is no double-counting. Some of the gas savings that ComEd can claim are from programs jointly implemented with the gas utilities, and some are from ComEd-only programs that produce gas savings along with electric savings. 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 incremental goal (AAIG) as defined in paragraph (7) of subsection (g) of this Section be met through savings of fuels other than electricity." FEJA specifies that ComEd shall prioritize other fuels (which from CY2018 to CY2021 are from gas) for the Income Eligible population first to the extent practicable, but can use other fuels from other sectors to achieve its target. Table 2-9 provides the 4-year summary of the CPAS gas savings and equivalent kWh counted towards ComEd’s goals.

2.2.2 Legacy Savings

FEJA specifies legacy savings, which are CPAS from energy efficiency measures implemented by ComEd from January 1, 2012 to December 31, 2017, that are still providing savings in the

applicable year. These savings were deemed in the FEJA process and the evaluation applied the deemed legacy savings toward ComEd verified CPAS as shown in Table 2-10.²

2.2.3 Historical Savings

FEJA requires that historical savings be included in CPAS. This means that the CPAS tables shown in this report include savings from measures installed in 2018 through 2021 that have not reached the end of their effective useful life (EUL). It also means that the CPAS tables account for expiring savings. The evaluation applied the historical contribution to CPAS (electric kWh plus counted gas converted to kWh) toward ComEd verified total CPAS for Plan 5.

2.2.4 Expiring Savings

FEJA specifies that each year ComEd's programs must replace energy savings for measures that have reached the end of their measure lives before any progress towards achievement of its applicable annual incremental goal (AAIG) may be counted. The evaluation calculated incremental expiring savings using the following equation.

Equation 2-1. Incremental Expiring Savings

$$\text{Incremental Expiring Savings} = \text{CPAS } Y_{n-1} - \text{CPAS } Y_n$$

The grand total incremental expiring savings is estimated as annual incremental expiring savings plus the legacy incremental expiring savings in the year and historical expiring savings since CY2018.

2.2.5 Total Savings

Table 2-7 presents the CPAS from direct energy savings. Table 2-8 presents total gas savings (in Therms and kWh) produced by the ComEd programs without taking the 10% limit into account. Table 2-9 presents total gas savings (in Therms and kWh) after taking the 10% limit into account. Table 2-10 presents the combined gas and electric savings (just counting gas savings under the 10% limit). The portfolio total CPAS contribution in CY2018 was 1,859,781 MWh, in CY2019 was 1,700,029 MWh, in CY2020 was 1,826,513 MWh, and in CY2021 was 1,849,877 MWh. The overall CPAS contribution over the four year evaluation period was 7,236,201 MWh.

The grand total savings counted towards ComEd goal on annual basis was the CPAS contribution from electric and gas converted to electric savings, plus the historic savings and the legacy savings. The grand total savings in CY2018 was 6,418,624 MWh, in CY2019 was 7,514,026 MWh, in CY2020 was 8,676,070 MWh, and in CY2021 was 9,657,703 MWh.

² Legacy savings are estimated by multiplying statutory annual CPAS Legacy Savings percent by ComEd Baseline - 2014-2016 Average Annual Sales Less Exempt Customers MWh value of 78,600,740.

Table 2-7. CPAS – Electric

Portfolio Summary	Verified Net kWh Savings										
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
Portfolio Total Electric Contribution to CPAS	1,765,460,187	1,597,848,450	1,724,332,392	1,739,836,126	1,709,615,898	1,676,431,577	1,623,672,013	1,446,711,586	1,398,915,973	1,378,609,281	
Historic Portfolio Total Electric Contribution to CPAS*		1,632,436,736	3,116,032,678	4,365,269,463	4,241,476,783	4,094,238,218	3,697,989,609	3,503,861,701	3,292,571,532	3,041,216,688	
Portfolio Total Electric CPAS†	1,765,460,187	3,230,285,186	4,840,365,070	6,105,105,588	5,951,092,681	5,770,669,795	5,321,661,622	4,950,573,287	4,691,487,505	4,419,825,969	
Portfolio Incremental Expiring Electric Savings‡					30,220,228	33,184,321	52,759,564	176,960,428	47,795,613	20,306,692	
Historic Portfolio Incremental Expiring Electric Savings§		133,023,450	114,252,509	475,095,608	123,792,679	147,238,566	396,248,609	194,127,908	211,290,168	251,354,844	
Portfolio Total Incremental Expiring Electric Savings		133,023,450	114,252,509	475,095,608	154,012,907	180,422,886	449,008,172	371,088,336	259,085,781	271,661,536	

Portfolio Summary	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Portfolio Total Electric Contribution to CPAS	1,225,910,841	1,194,026,240	1,154,833,125	898,255,305	793,778,907	697,156,267	667,293,561	644,563,418	94,020,214	91,401,805	79,013,583
Historic Portfolio Total Electric Contribution to CPAS*	2,639,918,911	2,422,565,934	1,889,726,233	1,590,516,217	1,370,911,260	1,088,857,895	621,370,548	115,686,948	90,782,572	68,434,216	39,927,951
Portfolio Total Electric CPAS†	3,865,829,752	3,616,592,174	3,044,559,358	2,488,771,522	2,164,690,167	1,786,014,162	1,288,664,109	760,250,367	184,802,786	159,836,021	118,941,534
Portfolio Incremental Expiring Electric Savings‡	152,698,441	31,884,601	39,193,114	256,577,821	104,476,398	96,622,640	29,862,706	22,730,142	550,543,204	2,618,410	12,388,222
Historic Portfolio Incremental Expiring Electric Savings§	401,297,777	217,352,977	532,839,702	299,210,016	219,604,957	282,053,365	467,487,347	505,683,600	24,904,377	22,348,356	28,506,265
Portfolio Total Incremental Expiring Electric Savings	553,996,218	249,237,578	572,032,816	555,787,837	324,081,355	378,676,005	497,350,053	528,413,742	575,447,580	24,966,765	40,894,487

Portfolio Summary	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Portfolio Total Electric Contribution to CPAS	71,244,428	69,125,320	4,536,309	4,536,309	4,507,278	2,101,706	2,025,203	443,970	443,970	443,970	443,970	443,970
Historic Portfolio Total Electric Contribution to CPAS*	36,046,852	28,958,993	28,628,475	18,220,864	5,168,834	670,910	-	-	-	-	-	-
Portfolio Total Electric CPAS†	107,291,280	98,084,312	33,164,784	22,757,173	9,676,112	2,772,616	2,025,203	443,970	443,970	443,970	443,970	443,970
Portfolio Incremental Expiring Electric Savings‡	7,769,155	2,119,108	64,589,011	-	29,031	2,405,573	76,502	1,581,233	-	-	-	-
Historic Portfolio Incremental Expiring Electric Savings§	3,881,100	7,087,859	330,518	10,407,611	13,052,031	4,497,924	670,910	-	-	-	-	-
Portfolio Total Incremental Expiring Electric Savings	11,650,254	9,206,967	64,919,529	10,407,611	13,081,061	6,903,496	747,412	1,581,233	-	-	-	-

Note: The gray cells are blank, indicating values irrelevant to the contribution to CPAS, but are rather counted in the historic savings that goes back to 2018.

* Historic savings go back to CY2018.

† Portfolio Total Electric CPAS is the sum of electric contribution to CPAS plus historic CPAS.

‡ 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.

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

Source: Evaluation team analysis

Table 2-8. CPAS – Gas

Portfolio Summary	Verified Net Therms Savings									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Portfolio Total Gas Contribution to CPAS (Therms)	7,399,442	7,278,424	9,480,216	11,097,315	11,097,315	11,070,883	11,063,557	11,059,347	10,883,087	10,827,774
Portfolio Total Gas Contribution to CPAS (kWh Equivalent)*	216,877,650	213,330,599	277,865,129	325,262,291	325,262,291	324,487,592	324,272,856	324,149,452	318,983,283	317,362,052
Historic Portfolio Total Gas Contribution to CPAS (kWh Equivalent)†		174,037,589	386,997,809	663,608,709	660,492,752	654,083,990	647,948,524	636,234,858	633,245,187	629,391,419
Portfolio Total Gas CPAS (kWh Equivalent)‡	216,877,650	387,368,187	664,862,938	988,871,000	985,755,043	978,571,583	972,221,380	960,384,310	952,228,470	946,753,471
Portfolio Incremental Expiring Gas Savings (Therms)					-	26,431	7,326	4,210	176,260	55,313
Portfolio Incremental Expiring Gas Savings (kWh Equivalent)§					-	774,699	214,736	123,404	5,166,170	1,621,231
Historic Portfolio Incremental Expiring Gas Savings (kWh Equivalent)		42,840,061	370,378	1,254,229	3,115,957	6,408,761	6,135,467	11,713,666	2,989,671	3,853,768
Portfolio Total Incremental Expiring Gas Savings (kWh Equivalent)#		42,840,061	370,378	1,254,229	3,115,957	7,183,460	6,350,203	11,837,070	8,155,840	5,474,999

Portfolio Summary	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
	Portfolio Total Gas Contribution to CPAS (Therms)	10,825,205	10,798,809	10,742,592	9,803,329	3,875,535	3,871,465	3,864,187	3,782,171	1,501,084	1,493,737
Portfolio Total Gas Contribution to CPAS (kWh Equivalent)*	317,286,752	316,513,096	314,865,381	287,335,562	113,591,926	113,472,629	113,259,336	110,855,423	43,996,762	43,781,421	43,045,780
Historic Portfolio Total Gas Contribution to CPAS (kWh Equivalent)†	546,232,395	512,123,206	360,082,687	257,561,584	254,536,072	191,427,684	168,355,317	45,670,514	41,857,243	40,521,623	36,029,850
Portfolio Total Gas CPAS (kWh Equivalent)‡	863,519,147	828,636,302	674,948,068	544,897,147	368,127,998	304,900,313	281,614,652	156,525,937	85,854,005	84,303,044	79,075,629
Portfolio Incremental Expiring Gas Savings (Therms)	2,569	26,396	56,217	939,264	5,927,794	4,070	7,277	82,017	2,281,087	7,347	25,099
Portfolio Incremental Expiring Gas Savings (kWh Equivalent)§	75,300	773,656	1,647,715	27,529,818	173,743,637	119,297	213,293	2,403,913	66,858,660	215,342	735,641
Historic Portfolio Incremental Expiring Gas Savings (kWh Equivalent)	83,159,024	34,109,190	152,040,518	102,521,103	3,025,512	63,108,388	23,072,368	122,684,802	3,813,271	1,335,620	4,491,774
Portfolio Total Incremental Expiring Gas Savings (kWh Equivalent)#	83,234,324	34,882,846	153,688,234	130,050,921	176,769,149	63,227,685	23,285,661	125,088,715	70,671,932	1,550,961	5,227,415

Portfolio Summary	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
	Portfolio Total Gas Contribution to CPAS (Therms)	1,451,906	1,451,906	154,997	146,182	146,182	146,182	146,182	-	-	-	-
Portfolio Total Gas Contribution to CPAS (kWh Equivalent)*	42,555,353	42,555,353	4,542,958	4,284,607	4,284,607	4,284,607	4,284,607	-	-	-	-	-
Historic Portfolio Total Gas Contribution to CPAS (kWh Equivalent)†	22,678,927	12,257,537	12,225,951	12,225,951	5,895,804	2,914,303	-	-	-	-	-	-
Portfolio Total Gas CPAS (kWh Equivalent)‡	65,234,279	54,812,890	16,768,909	16,510,558	10,180,412	7,198,910	4,284,607	-	-	-	-	-
Portfolio Incremental Expiring Gas Savings (Therms)	16,732	-	1,296,909	8,814	-	-	-	146,182	-	-	-	-
Portfolio Incremental Expiring Gas Savings (kWh Equivalent)§	490,427	-	38,012,394	258,351	-	-	-	4,284,607	-	-	-	-
Historic Portfolio Incremental Expiring Gas Savings (kWh Equivalent)	13,350,923	10,421,390	31,587	-	6,330,146	2,981,502	2,914,303	-	-	-	-	-
Portfolio Total Incremental Expiring Gas Savings (kWh Equivalent)#	13,841,350	10,421,390	38,043,981	258,351	6,330,146	2,981,502	2,914,303	4,284,607	-	-	-	-

Note: The gray cells are blank, indicating values irrelevant to the contribution to CPAS, but are rather counted in the historic savings that goes back to 2018.

* kWh equivalent savings are calculated by multiplying therm savings by 29.31.

† Historic savings go back to CY2018.

‡ Portfolio Total Gas CPAS (kWh Equivalent) is the sum of equivalent kWh CPAS and historic equivalent kWh CPAS.

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

|| Historic incremental expiring savings are equal to Historic CPAS Y_{n-1} - Historic CPAS Y_n.

kWh equivalent portfolio total incremental savings are calculated by multiplying therm savings by 29.31.

Source: Evaluation team analysis

Below is the gas savings which were counted towards ComEd CPAS goal.

Table 2-9. CPAS from Gas Counting Toward ComEd Goal

Sector	Verified Net Therms Savings									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Portfolio Total Gas Contribution to CPAS (Therms)	3,218,045	3,486,215	3,486,215	3,754,385	3,754,385	3,748,246	3,740,919	3,740,666	3,726,094	3,670,700
Portfolio Total Gas Contribution to CPAS (kWh Equivalent)*	94,320,888	102,180,962	102,180,962	110,041,036	110,041,036	109,861,081	109,646,346	109,638,933	109,211,810	107,588,220
Historic Portfolio Total Gas Contribution to CPAS (kWh Equivalent)†		94,320,888	196,490,892	298,526,682	298,380,591	298,041,437	294,676,564	287,291,550	287,230,260	286,457,055
Portfolio Total Gas CPAS (kWh Equivalent)‡	94,320,888	196,501,850	298,671,854	408,567,718	408,421,627	407,902,518	404,322,910	396,930,483	396,442,069	394,045,275
Portfolio Incremental Expiring Gas Savings (Therms)					-	6,140	7,326	253	14,573	55,394
Portfolio Incremental Expiring Gas Savings (kWh Equivalent)§					-	179,955	214,736	7,413	427,123	1,623,589
Historic Portfolio Incremental Expiring Gas Savings (kWh Equivalent)		-	10,958	145,172	146,091	339,154	3,364,872	7,385,014	61,291	773,205
Portfolio Total Incremental Expiring Gas Savings (kWh Equivalent)#		-	10,958	145,172	146,091	519,109	3,579,608	7,392,427	488,414	2,396,794

Sector	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Portfolio Total Gas Contribution to CPAS (Therms)	3,670,700	3,670,602	3,649,977	3,032,774	3,007,699	3,003,629	2,996,352	2,996,352	1,501,084	1,493,737	1,468,638
Portfolio Total Gas Contribution to CPAS (kWh Equivalent)*	107,588,220	107,585,337	106,980,831	88,890,601	88,155,657	88,036,360	87,823,066	87,823,066	43,996,762	43,781,421	43,045,780
Historic Portfolio Total Gas Contribution to CPAS (kWh Equivalent)†	272,512,233	255,971,890	201,745,447	201,563,168	198,537,656	135,909,071	114,926,894	45,670,514	41,857,243	40,521,623	36,029,850
Portfolio Total Gas CPAS (kWh Equivalent)‡	380,100,453	363,557,227	308,726,278	290,453,770	286,693,313	223,945,430	202,749,960	133,493,581	85,854,005	84,303,044	79,075,629
Portfolio Incremental Expiring Gas Savings (Therms)	-	98	20,625	617,203	25,075	4,070	7,277	-	1,495,268	7,347	25,099
Portfolio Incremental Expiring Gas Savings (kWh Equivalent)§	-	2,883	604,506	18,090,230	734,944	119,297	213,293	-	43,826,304	215,342	735,641
Historic Portfolio Incremental Expiring Gas Savings (kWh Equivalent)	13,944,822	16,540,343	54,226,443	182,279	3,025,512	62,628,586	20,982,177	69,256,379	3,813,271	1,335,620	4,491,774
Portfolio Total Incremental Expiring Gas Savings (kWh Equivalent)#	13,944,822	16,543,226	54,830,949	18,272,508	3,760,456	62,747,883	21,195,470	69,256,379	47,639,575	1,550,961	5,227,415

Sector	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Portfolio Total Gas Contribution to CPAS (Therms)	1,451,906	1,451,906	154,997	146,182	146,182	146,182	146,182	-	-	-	-	-
Portfolio Total Gas Contribution to CPAS (kWh Equivalent)*	42,555,353	42,555,353	4,542,958	4,284,607	4,284,607	4,284,607	4,284,607	-	-	-	-	-
Historic Portfolio Total Gas Contribution to CPAS (kWh Equivalent)†	22,678,927	12,257,537	12,225,951	12,225,951	5,895,804	2,914,303	-	-	-	-	-	-
Portfolio Total Gas CPAS (kWh Equivalent)‡	65,234,279	54,812,890	16,768,909	16,510,558	10,180,412	7,198,910	4,284,607	-	-	-	-	-
Portfolio Incremental Expiring Gas Savings (Therms)	16,732	-	1,296,909	8,814	-	-	-	146,182	-	-	-	-
Portfolio Incremental Expiring Gas Savings (kWh Equivalent)§	490,427	-	38,012,394	258,351	-	-	-	4,284,607	-	-	-	-
Historic Portfolio Incremental Expiring Gas Savings (kWh Equivalent)	13,350,923	10,421,390	31,587	-	6,330,146	2,981,502	2,914,303	-	-	-	-	-
Portfolio Total Incremental Expiring Gas Savings (kWh Equivalent)#	13,841,350	10,421,390	38,043,981	258,351	6,330,146	2,981,502	2,914,303	4,284,607	-	-	-	-

Note: The gray cells are blank, indicating values irrelevant to the contribution to CPAS, but are rather counted in the historic savings that goes back to 2018.

* kWh equivalent savings are calculated by multiplying therm savings by 29.31.

† Historic savings go back to CY2018.

‡ Portfolio Total Gas CPAS (kWh Equivalent) is the sum of equivalent kWh CPAS and historic equivalent kWh CPAS.

§ Incremental expiring savings are equal to $CPAS_{Y_{n-1}} - CPAS_{Y_n}$.

|| Historic incremental expiring savings are equal to $Historic\ CPAS_{Y_{n-1}} - Historic\ CPAS_{Y_n}$.

Portfolio Total Incremental Expiring Gas Savings (kWh Equivalent) is the sum of portfolio incremental equivalent kWh counted and historic portfolio incremental expiring equivalent kWh savings counted. kWh equivalent portfolio total incremental savings are calculated by multiplying therm savings by 29.31.

Source: Evaluation team analysis

Below is the total CPAS (electric plus gas converted to kWh) counted towards ComEd CPAS goal.

Table 2-10. Total CPAS Counting Toward ComEd Goal

Portfolio Summary	Verified Net kWh Savings (Including Those Converted from Gas Savings)									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Portfolio Total Contribution to CPAS (kWh)	1,859,781,075	1,700,029,412	1,826,513,354	1,849,877,162	1,819,656,934	1,786,292,659	1,733,318,359	1,556,350,519	1,508,127,783	1,486,197,502
Historic Portfolio Total Contribution to CPAS*		1,726,757,624	3,312,523,570	4,663,796,144	4,539,857,374	4,392,279,654	3,992,666,173	3,791,153,251	3,579,801,792	3,327,673,743
Legacy Savings (kWh)†	4,558,842,920	4,087,238,480	3,537,033,300	3,144,029,600	2,751,025,900	2,436,622,940	2,200,820,720	1,965,018,500	1,807,817,020	1,650,615,540
Portfolio Total CPAS (kWh)‡	6,418,623,995	7,514,025,516	8,676,070,224	9,657,702,906	9,110,540,208	8,615,195,253	7,926,805,253	7,312,522,270	6,895,746,595	6,464,486,785
Portfolio Incremental Expiring Savings§					30,220,228	33,364,275	52,974,300	176,967,840	48,222,736	21,930,281
Historic Portfolio Incremental Expiring Savings		133,023,450	114,263,467	475,240,780	123,938,771	147,577,720	399,613,481	201,512,922	211,351,459	252,128,049
Legacy Incremental Expiring Savings	628,805,920	471,604,440	550,205,180	393,003,700	393,003,700	314,402,960	235,802,220	235,802,220	157,201,480	157,201,480
Portfolio Grand Total Incremental Expiring Savings#	628,805,920	604,627,890	664,468,647	868,244,480	547,162,699	495,344,955	688,390,000	614,282,983	416,775,675	431,259,810

Portfolio Summary	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Portfolio Total Contribution to CPAS (kWh)	1,333,499,061	1,301,611,577	1,261,813,956	987,145,906	881,934,564	785,192,626	755,116,627	732,386,485	138,016,977	135,183,225	122,059,363
Historic Portfolio Total Contribution to CPAS*	2,912,431,144	2,678,537,824	2,091,471,680	1,792,079,385	1,569,448,916	1,224,766,966	736,297,442	161,357,463	132,639,815	108,955,839	75,957,801
Legacy Savings (kWh)†	1,414,813,320	1,336,212,580	-	-	-	-	-	-	-	-	-
Portfolio Total CPAS (kWh)‡	5,660,743,525	5,316,361,981	3,353,285,636	2,779,225,291	2,451,383,480	2,009,959,592	1,491,414,069	893,743,947	270,656,792	244,139,065	198,017,163
Portfolio Incremental Expiring Savings§	152,698,441	31,887,484	39,797,621	274,668,050	105,211,342	96,741,937	30,075,999	22,730,142	594,369,508	2,833,751	13,123,863
Historic Portfolio Incremental Expiring Savings	415,242,599	233,893,319	587,066,144	299,392,294	222,630,469	344,681,950	488,469,524	574,939,979	28,717,648	23,683,975	32,998,039
Legacy Incremental Expiring Savings	235,802,220	78,600,740	-	-	-	-	-	-	-	-	-
Portfolio Grand Total Incremental Expiring Savings#	803,743,260	344,381,544	626,863,765	574,060,345	327,841,811	441,423,888	518,545,523	597,670,121	623,087,156	26,517,727	46,121,901

Portfolio Summary	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Portfolio Total Contribution to CPAS (kWh)	113,799,781	111,680,672	9,079,267	8,820,916	8,791,885	6,386,313	6,309,810	443,970	443,970	443,970	443,970	443,970
Historic Portfolio Total Contribution to CPAS*	58,725,779	41,216,530	40,854,426	30,446,815	11,064,638	3,585,213	-	-	-	-	-	-
Legacy Savings (kWh)†	-	-	-	-	-	-	-	-	-	-	-	-
Portfolio Total CPAS (kWh)‡	172,525,559	152,897,202	49,933,693	39,267,731	19,856,524	9,971,526	6,309,810	443,970	443,970	443,970	443,970	443,970
Portfolio Incremental Expiring Savings§	8,259,582	2,119,108	102,601,405	258,351	29,031	2,405,573	76,502	5,865,840	-	-	-	-
Historic Portfolio Incremental Expiring Savings	17,232,022	17,509,249	362,104	10,407,611	19,382,177	7,479,425	3,585,213	-	-	-	-	-
Legacy Incremental Expiring Savings	-	-	-	-	-	-	-	-	-	-	-	-
Portfolio Grand Total Incremental Expiring Savings#	25,491,604	19,628,357	102,963,510	10,665,962	19,411,207	9,884,998	3,661,715	5,865,840	-	-	-	-

Note: The CPAS contributions show program total annual electric savings (including direct electric savings and those converted from gas). The gray cells are blank, indicating values irrelevant to the contribution to CPAS, but are rather counted in the historic savings that goes back to 2018.

* Historic savings go back to CY2018.

† Legacy savings are cumulative persisting annual savings from energy efficiency measures implemented from January 1, 2012 - December 31, 2017, as deemed by FEJA.

‡ Portfolio Total CPAS is the sum of the yearly contribution to CPAS plus historic total savings and legacy savings.

§ Incremental expiring savings are equal to CPAS Y_{n-1} - CPAS Y_n

|| Historic incremental expiring savings are equal to Historic CPAS Y_{n-1} - Historic CPAS Y_n .

Portfolio total incremental expiring savings are equal to current year total incremental expiring savings plus historic total incremental expiring savings and legacy incremental expiring savings.

Source: Evaluation team analysis

2.3 Weighted Average Measure Life

Table 2-11 shows the calculated weighted average measure life (WAML) for the CY2018 through CY2021 programs excluding and including Voltage Optimization.

Table 2-11. WAML and Verified Gross Savings by Program Year

Portfolio	CY2018 First Year Verified Gross Savings (kWh)	CY2019 First Year Verified Gross Savings (kWh)	CY2020 First Year Verified Gross Savings (kWh)	CY2021 First Year Verified Gross Savings (kWh)	CY2018 WAML	CY2019 WAML	CY2020 WAML	CY2021 WAML
Grand Total (without Voltage Optimization)	2,268,655,478	1,836,017,937	1,969,844,164	1,951,112,654	9.9	11.0	11.2	11.6
Grand Total (with Voltage Optimization)	2,334,669,527	2,020,059,440	2,185,840,480	2,222,064,394	10.1	11.3	11.6	12.0

Note: Verified Gross Savings include both electric savings and converted kWh equivalents from gas counted towards goal, and secondary electric energy (kWh) savings from water supply and wastewater treatment plants for measures claimed by ComEd.

Source: Evaluation team analysis

3. Savings by Measure Category

Lighting measures contributed the most energy and peak demand savings to the overall Plan 5 portfolio by a substantial margin as shown in the end-use type categories in Table 3-1, Table 3-2, Figure 3-1 and Figure 3-2. Lighting measures contributed 63% of the portfolio net electric savings from CY2018 through CY2021. Voltage Optimization followed with 11% of net electric savings, Residential Behavior program contributed 8%, HVAC measures 4%.

Table 3-1. Energy Savings by Measure Category – Electric Only

Sector	CY2018 Verified Net Savings (kWh)	CY2019 Verified Net Savings (kWh)	CY2020 Verified Net Savings (kWh)	CY2021 Verified Net Savings (kWh)	Total Verified Net Savings (kWh)	Percent Portfolio Savings (%)
Lighting	1,109,650,755	1,035,161,190	1,103,684,180	1,039,580,872	4,288,076,997	63%
Voltage Optimization	66,014,049	184,041,503	215,996,316	270,951,740	737,003,608	11%
Other	133,258,619	140,066,481	165,751,077	171,503,230	610,579,407	9%
Behavior	282,575,188	55,129,576	79,014,639	105,968,421	522,687,824	8%
HVAC	88,328,128	71,108,500	53,968,414	58,516,360	271,921,402	4%
Compressed Air	21,423,623	30,218,665	40,382,432	31,733,687	123,758,407	2%
Refrigeration	22,153,949	33,489,246	22,403,354	25,941,401	103,987,950	2%
Consumer Electronics	13,574,641	9,092,442	28,328,316	26,954,420	77,949,819	1%
Appliances	28,481,235	39,540,849	14,803,665	8,685,995	91,511,743	1%
Grand Total	1,765,460,187	1,597,848,450	1,724,332,392	1,739,836,126	6,827,477,155	100%

Note: The verified savings in this table include secondary electric energy (kWh) savings from water supply and wastewater treatment plants for measures claimed by ComEd. The verified savings account for electric heating penalties, where applicable.

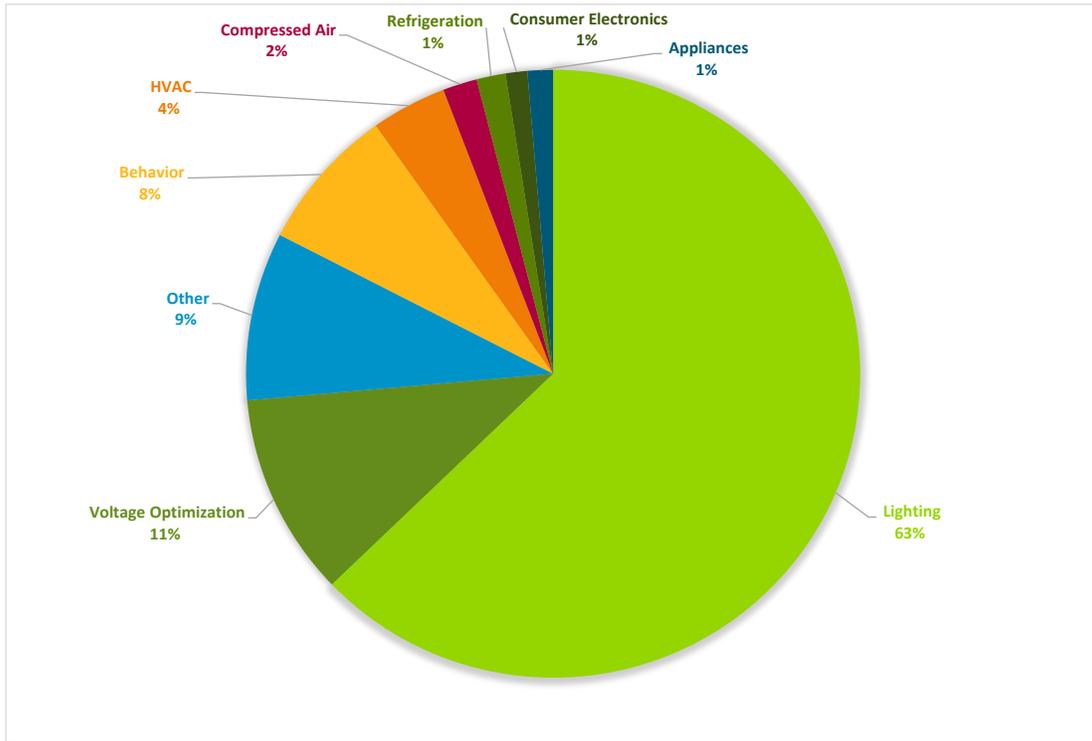
Source: Evaluation team analysis

Table 3-2. Summer Peak Demand Savings by Measure Category

Sector	CY2018 Verified Net Savings (kW)	CY2019 Verified Net Savings (kW)	CY2020 Verified Net Savings (kW)	CY2021 Verified Net Savings (kW)	Total Verified Net Savings (kW)	Percent Portfolio Savings (%)
Lighting	151,428	150,194	191,615	176,579	669,816	68%
Voltage Optimization	-	31,983	45,134	52,535	129,652	13%
HVAC	15,594	13,295	9,854	13,113	51,856	5%
Other	13,340	13,075	12,555	12,801	51,771	5%
Behavior	3,328	-	13,638	18,290	35,256	4%
Compressed Air	4,274	5,880	6,924	4,902	21,980	2%
Refrigeration	1,801	3,085	2,291	2,795	9,972	1%
Consumer Electronics	1,461	870	2,837	2,972	8,140	1%
Appliances	3,564	5,550	2,054	1,358	12,526	1%
Grand Total	194,790	223,932	286,903	285,345	990,969	100%

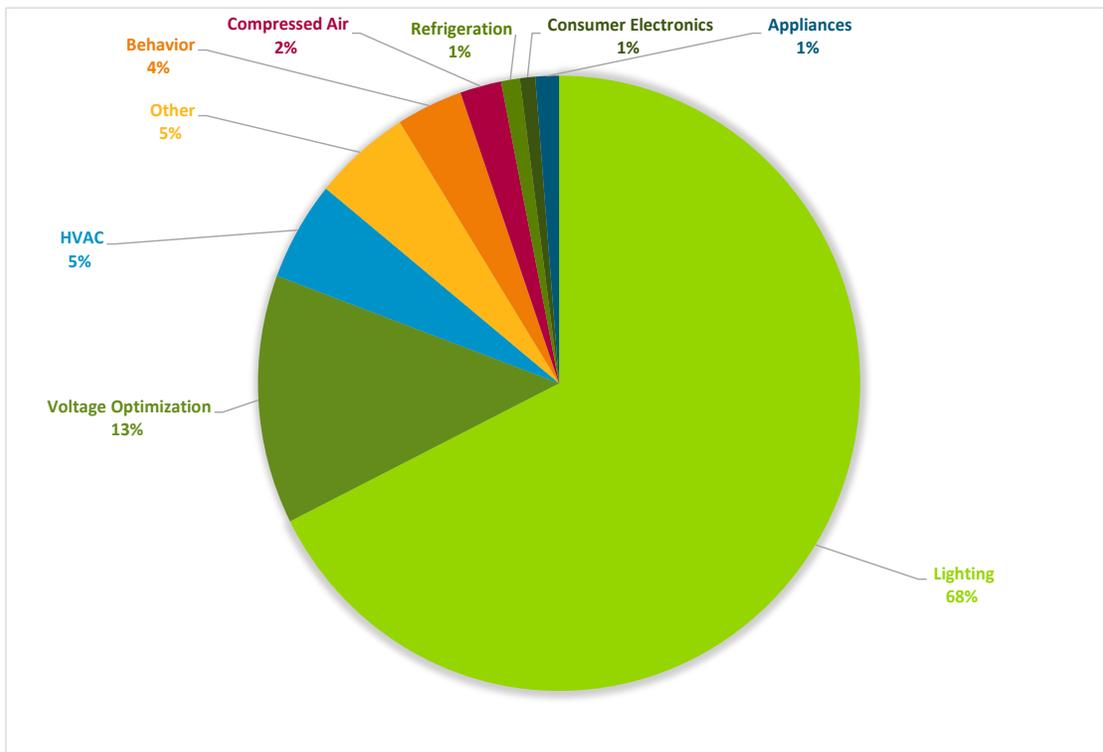
Source: Evaluation team analysis

Figure 3-1. Net Energy Savings by End-use Type – Electric Only



Source: Evaluation team analysis

Figure 3-2. Net Peak Demand Savings by End-use Type



Source: Evaluation team analysis