



ComEd Grocery Program Impact Evaluation Report

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

Prepared for:

ComEd

FINAL

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Prepared by:

Vaisakh Rajesh
Guidehouse

Alan Tom
Guidehouse

Dustin Bailey
Guidehouse

Submitted to:

ComEd
2011 Swift Drive
Oak Brook, IL 60523

Submitted by:

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

Contact:

Charles Maglione, Partner
703.431.1983
cmaglione@guidehouse.com

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

Nishant Mehta, Associate Director
608.616.5823
nishant.mehta@guidehouse.com

Sagar Phalke, Managing Consultant
303.493.0350
sagar.phalke@guidehouse.com

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1. Introduction

This report presents the results of the impact evaluation of the CY2021 Grocery Program. It summarizes the total energy and demand impacts for the program broken out by relevant measure and program structure details. The appendices provide the impact analysis methodology and details of the total resource cost (TRC) analysis inputs. CY2021 covers January 1, 2021 through December 31, 2021.

2. Program Description

The Grocery Program aims to achieve cost-effective electricity savings for grocery and retail customers with refrigeration systems. The program engages with manufacturers, distributors, and installers of refrigeration and lighting equipment to offer the measures listed in Table 2-2. This program is referred to as the EnergySmart Grocer program in the deemed net-to-gross (NTG) spreadsheet.

To participate in the program, a ComEd customer has the option to undergo a no-cost energy assessment or pre-installation check and an interview completed by the offering implementer, CLEAResult. CLEAResult prepares a savings report based on findings from the assessment, and a CLEAResult account manager discusses the report with the customer. The savings report is generated using an energy savings model and a measure analysis tool developed by CLEAResult called EnergySmart Grocer. Each customer report presents possible efficiency measures for the customer to consider. Once the customer selects the measures to install, the account manager helps the customer select installers, complete incentive processing paperwork, and manage projects to completion. Account managers re-engage with customers after project completion to identify additional opportunities, providing the same level of management and assistance for subsequent projects the customer decides to undertake.

The program had 68 participants and distributed 149 measures in CY2021 (see Table 2-1).

Table 2-1. Number of Participants and Projects

Participation	Total
Total Participants	68
Total Measures	149
Measure Types	13
End Use Types	3

Source: ComEd tracking data and evaluation team analysis

The program included the measures shown in Table 2-2 and Figure 2-1.

Table 2-2. Number of Measures by Type

End Use Type	Research Category	Count
Lighting	Interior LED Lighting	26
Refrigeration	EC Motor	30
Refrigeration	Anti-Sweat Heater Controls	17
Refrigeration	Night Covers	27
Lighting	Exterior LED Lighting	6
Refrigeration	New Refrigerator Case	3
Refrigeration	Evaporator Fan Control	16
Lighting	Open Case LED Lighting	11
Refrigeration	Add Door Retrofit kits	3
Refrigeration	Strip Curtains	6
Lighting	Closed Case LED Lighting	2
ENERGY STAR Appliance	ENERGY STAR Oven	1
Lighting	Occupancy Sensor	1
Total		149

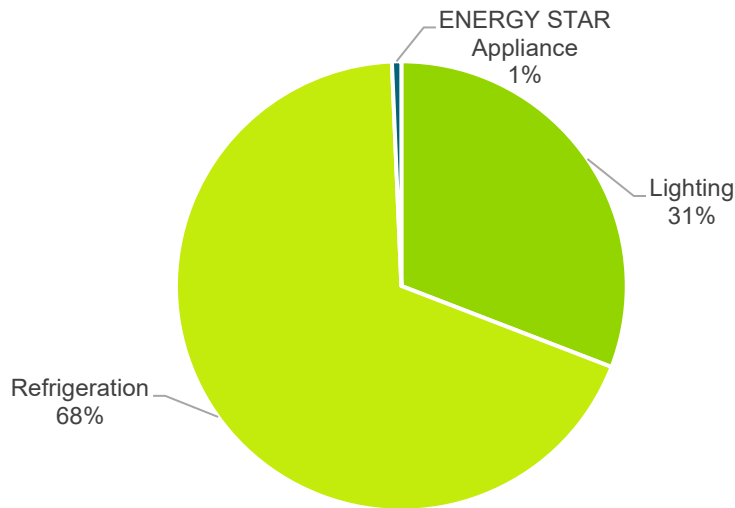
Note: The table is sorted by verified gross savings.

LED – light-emitting diode

EC – electronically commutated

Source: ComEd tracking data and evaluation team analysis

Figure 2-1. Share of Measures Installed by End Type



Source: ComEd tracking data and evaluation team analysis

3. Program Savings Detail

Table 3-1 summarizes the incremental energy and demand savings the Grocery Program achieved in CY2021. The gas savings are only those that ComEd may be able to claim, which excludes savings the gas utilities claim, either via joint or non-joint programs.¹

Table 3-1. Total Annual Incremental Electric Savings

Savings Category	Units	Ex Ante Gross Savings	Program Gross Realization Rate	Verified Gross Savings	Program Net-to-Gross Ratio (NTG)	CY2019 Net Carryover Savings	CY2020 Net Carryover Savings	Verified Net Savings
Electric Energy Savings - Direct	kWh	6,563,967	1.06	6,937,145	0.97	N/A	N/A	6,729,031
Electric Energy Savings - Converted from Gas‡	kWh	510,080	1.00	510,080	0.97	N/A	N/A	494,777
Total Electric Energy Savings	kWh	7,074,047	1.05	7,447,225	0.97	N/A	N/A	7,223,808
Summer Peak§ Demand Savings	kW	682	1.04	709	0.97	N/A	N/A	688

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

‡ Gas savings are converted to kilowatt-hours (kWh) by multiplying therms by 29.31 (which is based on 100,000 Btu/therm and 3,412 Btu/kWh). The evaluation will determine which gas savings will be converted to kWh and counted toward ComEd's electric savings goal while producing the portfolio-wide Summary Report. 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 as defined in paragraph (7) of subsection (g) of this Section be met through savings of fuels other than electricity."

§ The coincident summer peak period is defined as 1:00-5:00 p.m. Central Prevailing Time on non-holiday weekdays, June through August.

The "Verified Net Savings" in row one (Electric Energy Savings – Direct) includes primary kWh savings as a result of measure implementation. It does not include carryover savings, secondary kWh savings from wastewater treatment or electric heating penalties as they don't apply to this program.

Source: ComEd tracking data and evaluation team analysis

¹ The evaluation will determine which gas savings will be counted toward goal while producing the portfolio-wide Summary Report.

4. Cumulative Persisting Annual Savings

Table 4-1 to Table 4-3 and Figure 4-1 show the measure-specific and total verified gross savings for the Grocery Program and the cumulative persisting annual savings (CPAS) for the measures installed in CY2021. The electric CPAS across all measures installed in 2021 is shown in Table 4-1. The CY2021 gas contribution to CPAS (converted to equivalent electricity) is shown in Table 4-2. The combined savings are shown in Table 4-3. The historic rows in each table are the CPAS contribution back to CY2019. The Program Total Electric CPAS and the Program Total Gas CPAS are the sum of the CY2021 contribution and the historic contribution. Figure 4-1 shows the savings across the effective useful life (EUL) of the measures.

Table 4-1. Cumulative Persisting Annual Savings – Electric

End Use Type	Research Category	EUL	CY2021 Verified Gross Savings (kWh)			Lifetime Net Savings (kWh)†	Verified Net kWh Savings								
			NTG*	NTG*	NTG*		2018	2019	2020	2021	2022	2023	2024	2025	2026
Lighting	Interior LED Lighting	15.0	2,564,717	0.97	37,316,637				2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776
Refrigeration	EC Motor	15.0	1,297,747	0.97	18,882,223				1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815
Refrigeration	Anti-Sweat Heater Controls	10.0	1,089,783	0.97	10,570,894				1,057,089	1,057,089	1,057,089	1,057,089	1,057,089	1,057,089	1,057,089
Refrigeration	Night Covers	5.0	736,732	0.97	3,573,150				714,630	714,630	714,630	714,630	714,630	714,630	714,630
Lighting	Exterior LED Lighting	15.0	262,608	0.97	3,820,945				254,730	254,730	254,730	254,730	254,730	254,730	254,730
Refrigeration	New Refrigerator Case	15.0	243,301	0.97	3,540,032				236,002	236,002	236,002	236,002	236,002	236,002	236,002
Refrigeration	Evaporator Fan Control	13.0	216,292	0.97	2,727,446				209,804	209,804	209,804	209,804	209,804	209,804	209,804
Lighting	Open Case LED Lighting	15.0	210,975	0.97	3,069,689				204,646	204,646	204,646	204,646	204,646	204,646	204,646
Refrigeration	Add Door Retrofit kits	15.0	193,823	0.97	2,820,127				188,008	188,008	188,008	188,008	188,008	188,008	188,008
Refrigeration	Strip Curtains	4.0	76,584	0.97	297,145				74,286	74,286	74,286	74,286	74,286	74,286	74,286
Lighting	Closed Case LED Lighting	15.0	31,122	0.97	452,828				30,189	30,189	30,189	30,189	30,189	30,189	30,189
ENERGY STAR Appliance	ENERGY STAR Oven	12.0	13,460	0.97	156,675				13,056	13,056	13,056	13,056	13,056	13,056	13,056
Lighting	Occupancy Sensor\$	8.0	-	0.97	-				-	-	-	-	-	-	-
CY2021 Program Total Electric Contribution to CPAS			6,937,145		87,227,790				6,729,031	6,729,031	6,729,031	6,729,031	6,654,745	5,940,115	
Historic Program Total Electric Contribution to CPAS‡									-	5,560,834	14,811,034	14,794,096	14,762,291	13,766,959	13,541,392
Program Total Electric CPAS									-	5,560,834	14,811,034	21,523,126	21,523,126	21,491,322	20,495,990
CY2021 Program Incremental Expiring Electric Savings§														74,286	714,630
Historic Program Incremental Expiring Electric Savings									16,939	-	31,804	995,332	225,567	-	-
Program Total Incremental Expiring Electric Savings									16,939	-	31,804	995,332	299,853	714,630	-

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Lighting	Interior LED Lighting	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776			
Refrigeration	EC Motor	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815			
Refrigeration	Anti-Sweat Heater Controls	1,057,089	1,057,089	1,057,089	1,057,089								
Refrigeration	Night Covers												
Lighting	Exterior LED Lighting	254,730	254,730	254,730	254,730	254,730	254,730	254,730	254,730	254,730			
Refrigeration	New Refrigerator Case	236,002	236,002	236,002	236,002	236,002	236,002	236,002	236,002	236,002			
Refrigeration	Evaporator Fan Control	209,804	209,804	209,804	209,804	209,804	209,804	209,804	209,804	209,804			
Lighting	Open Case LED Lighting	204,646	204,646	204,646	204,646	204,646	204,646	204,646	204,646	204,646			
Refrigeration	Add Door Retrofit kits	188,008	188,008	188,008	188,008	188,008	188,008	188,008	188,008	188,008			
Refrigeration	Strip Curtains												
Lighting	Closed Case LED Lighting	30,189	30,189	30,189	30,189	30,189	30,189	30,189	30,189	30,189			
ENERGY STAR Appliance	ENERGY STAR Oven	13,056	13,056	13,056	13,056	13,056	13,056	13,056					
Lighting	Occupancy Sensor\$	-	-	-	-	-	-	-	-	-			
CY2021 Program Total Electric Contribution to CPAS		5,940,115	5,940,115	5,940,115	5,940,115	4,883,025	4,883,025	4,869,969	4,660,165	4,660,165			
Historic Program Total Electric Contribution to CPAS‡		13,537,315	10,640,993	8,811,099	7,231,058	6,689,069	6,151,211	6,028,395	1,113,294				
Program Total Electric CPAS		19,477,429	16,581,107	14,751,214	13,171,173	11,572,094	11,034,236	10,898,364	5,773,459	4,660,165			
CY2021 Program Incremental Expiring Electric Savings§											4,660,165		
Historic Program Incremental Expiring Electric Savings		4,077	2,896,322	1,829,894	1,580,041	541,989	537,857	122,816	4,915,101	1,113,294			
Program Total Incremental Expiring Electric Savings		4,077	2,896,322	1,829,894	1,580,041	1,599,079	537,857	135,872	5,124,905	1,113,294	4,660,165		

Note: The green highlighted cell shows program total first-year electric savings. The gray cells are blank, indicating values irrelevant to the CY2021 contribution to CPAS.

* A deemed value. Source: Illinois Stakeholder Advisory Group (SAG) website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

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

‡ Historic savings go back to CY2019.

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

§ kWh savings for the occupancy sensor measure are captured in interior LED lighting measure.

Source: Evaluation team analysis

Table 4-2. Cumulative Persisting Annual Savings – Gas

End Use Type	Research Category	EUL	CY2021 Verified		Lifetime Net Savings (Therms)†	Verified Net Therms Savings								
			Gross Savings (Therms)	NTG* (Therms)		2018	2019	2020	2021	2022	2023	2024	2025	2026
Lighting	Interior LED Lighting	15.0	-	0.97	-				-	-	-	-	-	-
Refrigeration	EC Motor	15.0	-	0.97	-				-	-	-	-	-	-
Refrigeration	Anti-Sweat Heater Controls	10.0	-	0.97	-				-	-	-	-	-	-
Refrigeration	Night Covers	5.0	-	0.97	-				-	-	-	-	-	-
Lighting	Exterior LED Lighting	15.0	-	0.97	-				-	-	-	-	-	-
Refrigeration	New Refrigerator Case	15.0	-	0.97	-				-	-	-	-	-	-
Refrigeration	Evaporator Fan Control	13.0	-	0.97	-				-	-	-	-	-	-
Lighting	Open Case LED Lighting	15.0	-	0.97	-				-	-	-	-	-	-
Refrigeration	Add Door Retrofit kits	15.0	17,403	0.97	253,213				16,881	16,881	16,881	16,881	16,881	16,881
Refrigeration	Strip Curtains	4.0	-	0.97	-				-	-	-	-	-	-
Lighting	Closed Case LED Lighting	15.0	-	0.97	-				-	-	-	-	-	-
ENERGY STAR Appliance	ENERGY STAR Oven	12.0	-	0.97	-				-	-	-	-	-	-
Lighting	Occupancy Sensor	8.0	-	0.97	-				-	-	-	-	-	-
CY2021 Program Total Gas Contribution to CPAS (Therms)			17,403		253,213				16,881	16,881	16,881	16,881	16,881	16,881
CY2021 Program Total Gas Contribution to CPAS (kWh Equivalent)‡						-	-	-	494,777	494,777	494,777	494,777	494,777	494,777
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)§						-	-	2,623	2,623	2,623	2,623	2,623	2,623	2,623
Program Total Gas CPAS (kWh Equivalent)						-	-	2,623	497,400	497,400	497,400	497,400	497,400	497,400
CY2021 Program Incremental Expiring Gas Savings (Therms)										-	-	-	-	-
CY2021 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	Interior LED Lighting	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	EC Motor	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	Anti-Sweat Heater Controls	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	Night Covers	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	Exterior LED Lighting	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	New Refrigerator Case	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	Evaporator Fan Control	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	Open Case LED Lighting	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	Add Door Retrofit kits	16,881	16,881	16,881	16,881	16,881	16,881	16,881	16,881	16,881	-	-	-
Refrigeration	Strip Curtains	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	Closed Case LED Lighting	-	-	-	-	-	-	-	-	-	-	-	-
ENERGY STAR Appliance	ENERGY STAR Oven	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	Occupancy Sensor	-	-	-	-	-	-	-	-	-	-	-	-
CY2021 Program Total Gas Contribution to CPAS (Therms)		16,881	16,881	16,881	16,881	16,881	16,881	16,881	16,881	16,881	-	-	-
CY2021 Program Total Gas Contribution to CPAS (kWh Equivalent)†		494,777	494,777	494,777	494,777	494,777	494,777	494,777	494,777	494,777	-	-	-
Historic Program Total Gas Contribution to CPAS (kWh Equivalent)§		2,623	2,623	2,623	-	-	-	-	-	-	-	-	-
Program Total Gas CPAS (kWh Equivalent)		497,400	497,400	497,400	494,777	494,777	494,777	494,777	494,777	494,777	-	-	-
CY2021 Program Incremental Expiring Gas Savings (Therms)		-	-	-	-	-	-	-	-	-	16,881	-	-
CY2021 Program Incremental Expiring Gas Savings (kWh Equivalent) 		-	-	-	-	-	-	-	-	-	494,777	-	-
Historic Program Incremental Expiring Gas Savings (kWh Equivalent)		-	-	-	2,623	-	-	-	-	-	-	-	-
Program Total Incremental Expiring Gas Savings (kWh Equivalent)		-	-	-	2,623	-	-	-	-	-	494,777	-	-

Note: The green highlighted cell shows program total first-year gas savings in kWh equivalents. The gray cells are blank, indicating no values or do not contribute to calculating CPAS in CY2021.

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

† 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 CY2019.

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

Source: Evaluation team analysis

Table 4-3. Cumulative Persisting Annual Savings – Total

End Use Type	Research Category	EUL	CY2021 Verified Gross Savings			Verified Net kWh Savings (Including Those Converted from Gas Savings)									
			(kWh)	NTG*	Lifetime Net Savings (kWh)†	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Lighting	Interior LED Lighting	15.0	2,564,717	0.97	37,316,637				2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776
Refrigeration	EC Motor	15.0	1,297,747	0.97	18,882,223				1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815
Refrigeration	Anti-Sweat Heater Controls	10.0	1,089,783	0.97	10,570,894				1,057,089	1,057,089	1,057,089	1,057,089	1,057,089	1,057,089	1,057,089
Refrigeration	Night Covers	5.0	736,732	0.97	3,573,150				714,630	714,630	714,630	714,630	714,630	714,630	714,630
Lighting	Exterior LED Lighting	15.0	262,608	0.97	3,820,945				254,730	254,730	254,730	254,730	254,730	254,730	254,730
Refrigeration	New Refrigerator Case	15.0	243,301	0.97	3,540,032				236,002	236,002	236,002	236,002	236,002	236,002	236,002
Refrigeration	Evaporator Fan Control	13.0	216,292	0.97	2,727,446				209,804	209,804	209,804	209,804	209,804	209,804	209,804
Lighting	Open Case LED Lighting	15.0	210,975	0.97	3,069,689				204,646	204,646	204,646	204,646	204,646	204,646	204,646
Refrigeration	Add Door Retrofit kits	15.0	703,903	0.97	10,241,787				682,786	682,786	682,786	682,786	682,786	682,786	682,786
Refrigeration	Strip Curtains	4.0	76,584	0.97	297,145				74,286	74,286	74,286	74,286	74,286	74,286	74,286
Lighting	Closed Case LED Lighting	15.0	31,122	0.97	452,828				30,189	30,189	30,189	30,189	30,189	30,189	30,189
ENERGY STAR Appliance	ENERGY STAR Oven	12.0	13,460	0.97	156,675				13,056	13,056	13,056	13,056	13,056	13,056	13,056
Lighting	Occupancy Sensor\$	8.0	-	0.97	-				-	-	-	-	-	-	-
CY2021 Program Total Contribution to CPAS			7,447,225		94,649,451				7,223,808	7,223,808	7,223,808	7,223,808	7,149,522	6,434,892	
Historic Program Total Contribution to CPAS‡									-	5,560,834	14,813,657	14,796,718	14,764,914	13,769,582	13,544,015
Program Total CPAS									-	5,560,834	14,813,657	22,020,526	22,020,526	21,988,722	20,993,390
CY2021 Program Incremental Expiring Savings§														74,286	714,630
Historic Program Incremental Expiring Savings															
Program Total Incremental Expiring Savings															

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Lighting	Interior LED Lighting	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776	2,487,776			
Refrigeration	EC Motor	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815	1,258,815			
Refrigeration	Anti-Sweat Heater Controls	1,057,089	1,057,089	1,057,089	1,057,089								
Refrigeration	Night Covers												
Lighting	Exterior LED Lighting	254,730	254,730	254,730	254,730	254,730	254,730	254,730	254,730	254,730			
Refrigeration	New Refrigerator Case	236,002	236,002	236,002	236,002	236,002	236,002	236,002	236,002	236,002			
Refrigeration	Evaporator Fan Control	209,804	209,804	209,804	209,804	209,804	209,804	209,804					
Lighting	Open Case LED Lighting	204,646	204,646	204,646	204,646	204,646	204,646	204,646	204,646	204,646			
Refrigeration	Add Door Retrofit kits	682,786	682,786	682,786	682,786	682,786	682,786	682,786	682,786	682,786			
Refrigeration	Strip Curtains												
Lighting	Closed Case LED Lighting	30,189	30,189	30,189	30,189	30,189	30,189	30,189	30,189	30,189			
ENERGY STAR Appliance	ENERGY STAR Oven	13,056	13,056	13,056	13,056	13,056	13,056						
Lighting	Occupancy Sensor§	-	-										
CY2021 Program Total Contribution to CPAS		6,434,892	6,434,892	6,434,892	6,434,892	5,377,802	5,377,802	5,364,746	5,154,943	5,154,943	-	-	-
Historic Program Total Contribution to CPAS†		13,539,938	10,643,615	8,813,722	7,231,058	6,689,069	6,151,211	6,028,395	1,113,294	-	-	-	-
Program Total CPAS		19,974,829	17,078,507	15,248,614	13,665,950	12,066,871	11,529,014	11,393,142	6,268,237	5,154,943	-	-	-
CY2021 Program Incremental Expiring Savings§		-	-	-	-	1,057,089	-	13,056	209,804	-	5,154,943	-	-
Historic Program Incremental Expiring Savings		4,077	2,896,322	1,829,894	1,582,663	541,989	537,857	122,816	4,915,101	1,113,294	-	-	-
Program Total Incremental Expiring Savings		4,077	2,896,322	1,829,894	1,582,663	1,599,079	537,857	135,872	5,124,905	1,113,294	5,154,943	-	-

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 do not contribute to calculating CPAS in CY2021.

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

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

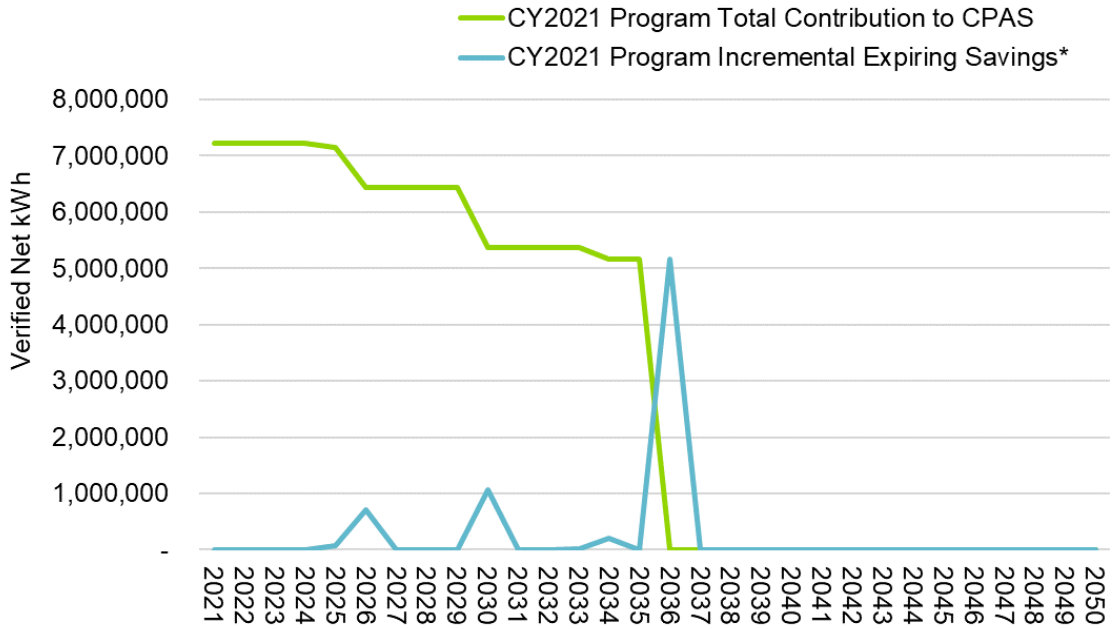
‡ Historic savings go back to CY2019.

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

‡ kWh savings for the occupancy sensor measure are captured in the interior LED lighting measure.

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 included the measures shown in Table 5-1 and Figure 5-1

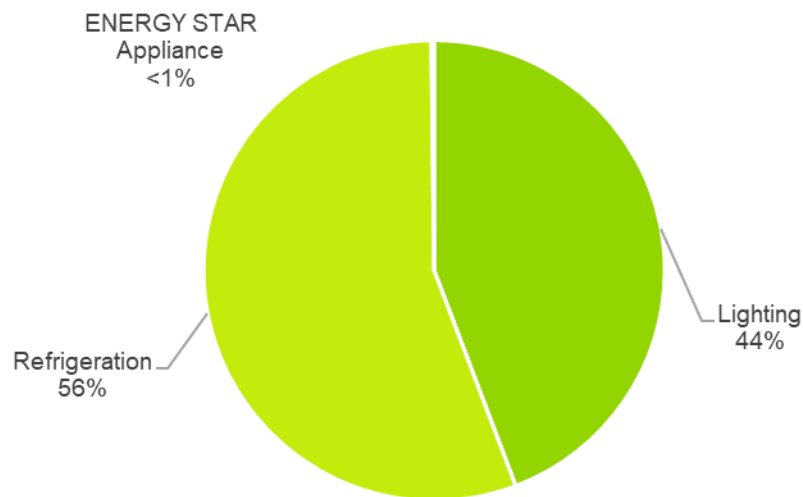
Table 5-1. Number of Measures by Type

End Use Type	Research Category	Count
Lighting	Interior LED Lighting	26
Refrigeration	EC Motor	30
Refrigeration	Anti-Sweat Heater Controls	17
Refrigeration	Night Covers	27
Lighting	Exterior LED Lighting	6
Refrigeration	New Refrigerator Case	3
Refrigeration	Evaporator Fan Control	16
Lighting	Open Case LED Lighting	11
Refrigeration	Add Door Retrofit kits	3
Refrigeration	Strip Curtains	6
Lighting	Closed Case LED Lighting	2
ENERGY STAR Appliance	ENERGY STAR Oven	1
Lighting	Occupancy Sensor	1
Total		149

Note: This is the same table as Table 2-2.

Source: ComEd tracking data and evaluation team analysis

Figure 5-1. Verified Net Savings by Measure – Electric



Source: ComEd tracking data and evaluation team analysis

Measure-level energy and demand savings are provided in the following tables. The evaluation team analyzed savings for the Grocery Program at the strata level using a stratified random sample based on project-level reported savings. The verified savings for each measure are summed by project, with strata-level realization rates extrapolated to determine the final

program-level results. None of the measures produced water savings so secondary energy savings from water reduction measures is zero.

Table 5-2. 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	Interior LED Lighting	2,426,750	1.06	2,564,717	0.97	2,487,776	15.0
Refrigeration	EC Motor	1,227,936	1.06	1,297,747	0.97	1,258,815	15.0
Refrigeration	Anti-Sweat Heater Controls	1,031,159	1.06	1,089,783	0.97	1,057,089	10.0
Refrigeration	Night Covers	697,100	1.06	736,732	0.97	714,630	5.0
Lighting	Exterior LED Lighting	248,481	1.06	262,608	0.97	254,730	15.0
Refrigeration	New Refrigerator Case	230,213	1.06	243,301	0.97	236,002	15.0
Refrigeration	Evaporator Fan Control	204,657	1.06	216,292	0.97	209,804	13.0
Lighting	Open Case LED Lighting	199,626	1.06	210,975	0.97	204,646	15.0
Refrigeration	Add Door Retrofit kits	183,397	1.06	193,823	0.97	188,008	15.0
Refrigeration	Strip Curtains	72,464	1.06	76,584	0.97	74,286	4.0
Lighting	Closed Case LED Lighting	29,448	1.06	31,122	0.97	30,189	15.0
ENERGY STAR Appliance	ENERGY STAR Oven	12,736	1.06	13,460	0.97	13,056	12.0
Lighting	Occupancy Sensor\$	0	N/A	0	0.97	0	8.0
Total		6,563,967	1.06	6,937,145		6,729,031	

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

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

\$ kWh savings for the occupancy sensor measure are captured in the interior LED lighting measure.

Source: ComEd tracking data and evaluation team analysis

Table 5-3. 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	Interior LED Lighting	429.13	1.04	445.78	0.97	432.41
Refrigeration	EC Motor	140.17	1.04	145.61	0.97	141.25
Refrigeration	Anti-Sweat Heater Controls	0.00	N/A	0.00	0.97	0.00
Refrigeration	Night Covers	0.00	N/A	0.00	0.97	0.00
Lighting	Exterior LED Lighting	0.00	N/A	0.00	0.97	0.00
Refrigeration	New Refrigerator Case	26.14	1.04	27.15	0.97	26.34
Refrigeration	Evaporator Fan Control	23.35	1.04	24.25	0.97	23.53
Lighting	Open Case LED Lighting	32.85	1.04	34.12	0.97	33.10
Refrigeration	Add Door Retrofit kits	9.23	1.04	9.59	0.97	9.30
Refrigeration	Strip Curtains	8.27	1.04	8.59	0.97	8.33
Lighting	Closed Case LED Lighting	5.08	1.04	5.27	0.97	5.11
ENERGY STAR Appliance	ENERGY STAR Oven	1.19	1.04	1.23	0.97	1.20
Lighting	Occupancy Sensor	6.95	1.04	7.22	0.97	7.00
Total		682.35	1.04	708.83		687.56

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

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

Source: ComEd tracking data and evaluation team analysis

Table 5-4. Energy Savings by Measure – Gas

End Use Type	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross Realization Rate	Verified Gross Savings (Therms)	NTG*	Verified Net Savings (Therms)	EUL (years)
Lighting	Interior LED Lighting	0	N/A	0	0.97	0	15.0
Refrigeration	EC Motor	0	N/A	0	0.97	0	15.0
Refrigeration	Anti-Sweat Heater Controls	0	N/A	0	0.97	0	10.0
Refrigeration	Night Covers	0	N/A	0	0.97	0	5.0
Lighting	Exterior LED Lighting	0	N/A	0	0.97	0	15.0
Refrigeration	New Refrigerator Case	0	N/A	0	0.97	0	15.0
Refrigeration	Evaporator Fan Control	0	N/A	0	0.97	0	13.0
Lighting	Open Case LED Lighting	0	N/A	0	0.97	0	15.0
Refrigeration	Add Door Retrofit kits	17,403	1.00	17,403	0.97	16,881	15.0
Refrigeration	Strip Curtains	0	N/A	0	0.97	0	4.0
Lighting	Closed Case LED Lighting	0	N/A	0	0.97	0	15.0
ENERGY STAR Appliance	ENERGY STAR Oven	0	N/A	0	0.97	0	12.0
Lighting	Occupancy Sensor	0	N/A	0	0.97	0	8.0
Total Therms		17,403	1.00	17,403		16,881	
Total kWh Converted From Therms†		510,080	1.00	510,080		494,777	

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

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

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

Source: ComEd tracking data and evaluation team analysis

Table 5-5 is combined savings from Table 5-2 and Table 5-4.

Table 5-5. Energy Savings by Measure – Total

End Use Type	Research Category	Ex Ante Gross Savings (kWh)	Verified Gross Realization Rate	Verified Gross Savings (kWh)	NTG*	Verified Net Savings (kWh)
Lighting	Interior LED Lighting	2,426,750	1.06	2,564,717	0.97	2,487,776
Refrigeration	EC Motor	1,227,936	1.06	1,297,747	0.97	1,258,815
Refrigeration	Anti-Sweat Heater Controls	1,031,159	1.06	1,089,783	0.97	1,057,089
Refrigeration	Night Covers	697,100	1.06	736,732	0.97	714,630
Lighting	Exterior LED Lighting	248,481	1.06	262,608	0.97	254,730
Refrigeration	New Refrigerator Case	230,213	1.06	243,301	0.97	236,002
Refrigeration	Evaporator Fan Control	204,657	1.06	216,292	0.97	209,804
Lighting	Open Case LED Lighting	199,626	1.06	210,975	0.97	204,646
Refrigeration	Add Door Retrofit kits	693,476	1.02	703,903	0.97	682,786
Refrigeration	Strip Curtains	72,464	1.06	76,584	0.97	74,286
Lighting	Closed Case LED Lighting	29,448	1.06	31,122	0.97	30,189
ENERGY STAR Appliance	ENERGY STAR Oven	12,736	1.06	13,460	0.97	13,056
Lighting	Occupancy Sensor\$	0	N/A	0	0.97	0
Total†		7,074,047	1.05	7,447,225		7,223,808

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

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

† The total includes the electric equivalent of the total therms.

\$ kWh savings for the occupancy sensor measure are captured in the interior LED lighting measure.

Source: ComEd tracking data and evaluation team analysis

6. Impact Analysis Findings and Recommendations

The evaluation team developed several recommendations based on findings from the CY2021 evaluation.

Finding 1. The calculation fields and input data in the ex ante calculators provided for the sampled projects were hidden and locked. Guidehouse verified lighting calculations by recreating the workbooks using invoice quantities and specification documentation.

Recommendation 1. Submit workbooks that are not password protected to enable accurate verification of savings. If certain columns are kept hidden for simplicity when presenting to the customer, provide guidance on where the major inputs are located in each calculation.

Finding 2. The program calculated demand savings for two open case lighting projects (ESG-136 and ESG-169) using an energy interactive factor of 1.05. Guidehouse calculated verified demand savings for these projects using the demand interactive factor of 1.29 per the ComEd Grocery Offering Workpapers for PY2021, Section 2.6.

Recommendation 2. Use a demand interactive factor of 1.29 to calculate demand savings for open case lighting projects per the ComEd Grocery Offering Workpapers for PY2021, Section 2.6.

Finding 3. The program calculated savings for the closed case lighting measure for projects ESG-178 and ESG-136 without considering the 2.5 feet per door conversion factor. Guidehouse included the conversion factor when calculating verified savings for these projects per the ComEd Grocery Offering Workpapers for PY2021, Section 2.6.

Recommendation 3. Include the 2.5 feet per door conversion factor when calculating savings for this measure per the ComEd Grocery Offering Workpapers for PY2021, Section 2.6.

Finding 4. The program calculated ex ante demand savings for the case lighting measure for projects ESG-169, ESG-177, ESG-201, and ESG-178 using a coincidence factor of 0.82. Guidehouse calculated verified savings for these projects using a coincidence factor of 1.00 per the ComEd Grocery Offering Workpapers for PY2021, Section 2.6.

Recommendation 4. Use a coincidence factor of 1.00 for measures installed in case lighting per the ComEd Grocery Offering Workpapers for PY2021, Section 2.6.

Finding 5. The program calculated ex ante energy savings for projects ESG-176, ESG-179, and ESG-183 using the cooler connected load of 0.195 for anti-sweat heater controls assigned to freezer measures. Guidehouse calculated verified savings for these projects using a freezer connected load of 0.092 per the ComEd Grocery Offering Workpapers for PY2021, Section 1.5.

Recommendation 5. Use the connected load corresponding to the measure type per the ComEd Grocery Offering Workpapers for PY2021, Section 1.5.

Finding 6. The program incorrectly included new lighting equipment savings when calculating ex ante demand savings for projects ESG-139 and ESG-141 for the add doors to open

refrigerated display case measures. The project documentation indicated that new lighting was not installed. Guidehouse calculated verified savings for these projects without considering new lighting equipment savings.

Recommendation 6. Only include savings from implemented measures for projects that include multiple equipment upgrades.

Appendix A. Impact Analysis Methodology

The evaluation team initiated the impact evaluation process by designing a sample of the CY2021 ComEd Grocery Program participants. The team categorized measures by annual energy savings strata whereby each of the three stratum (Large, Medium, and Small) contains approximately one third of total program impacts.

To achieve the 90% confidence interval and 10.0% maximum relative precision, Guidehouse selected 28 participants.

Table A-1. Grocery Program Sample Details

Sample Strata	Population Quantity	Sample Quantity	Average Savings of installed Measures (kWh)
Small (0 kWh-100,000 kWh)	44	11	41,966
Medium (100,000 kWh-200,000 kWh)	16	10	152,404
Large (200,000+ kWh)	8	7	284,876

Source: ComEd tracking data and evaluation team analysis

The team requested the documentation associated with the sampled measures for review. Final ex post values were determined through a detailed review of the sampled measures. The evaluation team developed realization rates for each strata from the ex post savings and weighted this strata realization rate against the total savings in each strata to determine a final program realization rate. The final ex post savings resulted in 90% confidence interval and 3.3% relative precision, which was much better than original sample target.

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

1. Reviewing the savings algorithm inputs in the measure workbook for agreement with the Illinois Technical Reference Manual v9.0 (IL-TRM)² and the IL-TRM Errata, where applicable.
2. Validating the savings algorithm was applied correctly.
3. Cross-checking per-unit savings values in the tracking data with the verified values in the measure workbook or in Guidehouse's calculations if the workbook did not agree with the IL-TRM.
4. Multiplying the verified per-unit savings value by the quantity reported in the implementer's workbook data.

The evaluation team calculated verified net energy and coincident peak demand savings by multiplying the verified gross savings estimates by a NTG value. For the ComEd Grocery Program, the NTG value is deemed as 0.97 through the SAG consensus process.

² In this report, unless stated otherwise, IL-TRM and IL-TRM Errata refers to version 9.0 (v9.0).

The team used the following documents to verify the per-unit savings for each program measure:

- Final ComEd CY2021 tracking data
- IL-TRM for deemed input parameters or secondary evaluation research to verify any custom inputs used in the ex ante calculations
- Implementer savings calculations
- Implementer's W-9s, program applications, measure specifications, and measure invoices for each sample project
- ComEd Grocery Program Workpapers (CLEAResult, November 24, 2020)

Appendix B. Impact Findings Detailed Results

B.1 Savings by Stratum

The Grocery Program sample consisted of 28 sites across three strata. The following tables provide the ex ante and verified energy and gas savings for each strata. The evaluation achieved a relative precision of 3.3% for electric savings.

Table B-1. Energy Savings by Strata

Sample Strata	Sample Size	Ex Ante Gross Savings (kWh)	Verified Gross Realization Rate	Verified Gross Savings (kWh)	NTG*	Verified Net Savings (kWh)
Small	11	1,846,489	1.04	1,919,736	0.97	1,862,144
Medium	10	2,438,469	1.07	2,620,521	0.97	2,541,906
Large	7	2,279,009	1.05	2,396,888	0.97	2,324,981
CY2021 Total	28	6,563,967	1.06	6,937,145		6,729,031

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.
Source: ComEd tracking data and evaluation team analysis

Table B-2. Demand Savings by Strata

Sample Strata	Sample Size	Ex ante Gross Savings (kW)	Verified Gross Realization Rate	Verified Gross Savings (kW)	NTG*	Verified Net Savings (kW)
Small	11	167	1.11	186	0.97	180
Medium	10	295	1.01	298	0.97	289
Large	7	220	1.02	225	0.97	218
CY2021 Total	28	682	1.04	709		688

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.
Source: ComEd tracking data and evaluation team analysis

Table B-3. Therm Savings by Strata

Sample Strata	Sample Size	Ex ante Gross Savings (Therms)	Verified Gross Realization Rate	Verified Gross Savings (Therms)	NTG*	Verified Net Savings (Therms)
Small	11	5,431	1.00	5,431	0.97	5,268
Medium	10	11,972	1.00	11,972	0.97	11,613
Large	7	0	N/A	0	0.97	0
CY2021 Total	28	17,403	1.00	17,403		16,881

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

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.
Source: ComEd tracking data and evaluation team analysis

B.2 Savings by Project

The following tables show the verified energy and gas savings for each sampled project.

Table B-4. CY2021 Energy Savings by Project

Evaluation Site ID	Sample Strata	Ex ante Gross Savings (kWh)	Verified Gross Realization Rate	Verified Gross Savings (kWh)	NTG*	Verified Net Savings (kWh)
ESG-164	Small	33,048	1.00	33,048	0.97	32,057
ESG-136	Small	42,835	1.65	70,660	0.97	68,541
ESG-167	Small	91,224	1.00	91,224	0.97	88,487
ESG-169	Small	68,744	1.02	70,332	0.97	68,222
ESG-135	Small	60,434	1.00	60,434	0.97	58,621
ESG-159	Small	85,498	1.00	85,498	0.97	82,933
ESG-149	Small	76,424	1.00	76,424	0.97	74,131
ESG-177	Medium	196,165	1.00	196,165	0.97	190,280
ESG-156	Medium	181,568	1.00	181,568	0.97	176,121
ESG-137	Medium	163,608	1.00	163,608	0.97	158,700
ESG-140	Medium	198,136	1.00	198,136	0.97	192,192
ESG-150	Medium	154,203	1.00	154,203	0.97	149,577
ESG-151	Medium	145,408	1.00	145,408	0.97	141,046
ESG-175	Large	236,984	1.00	236,984	0.97	229,875
ESG-163	Large	315,629	1.00	315,629	0.97	306,161
ESG-160	Large	294,161	1.00	294,162	0.97	285,337
ESG-157	Large	292,885	1.00	292,885	0.97	284,099
ESG-139	Small	48,179	1.00	48,179	0.97	46,734
ESG-185	Small	77,911	1.00	77,911	0.97	75,573
ESG-190	Small	64,914	1.00	64,914	0.97	62,967
ESG-201	Small	92,299	1.00	92,299	0.97	89,530
ESG-141	Medium	134,097	1.00	134,097	0.97	130,074
ESG-176	Medium	177,916	1.27	226,494	0.97	219,699
ESG-179	Medium	161,819	1.47	237,385	0.97	230,263
ESG-195	Medium	149,896	1.00	149,896	0.97	145,400
ESG-178	Large	353,441	1.05	369,788	0.97	358,694
ESG-183	Large	228,275	1.40	318,491	0.97	308,936
ESG-198	Large	338,840	1.00	338,840	0.97	328,675

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

Source: ComEd tracking data and evaluation team analysis

Table B-5. CY2021 Demand Savings by Project

Evaluation Site ID	Sample Strata	Ex ante Gross Savings (kW)	Verified Gross Realization Rate	Verified Gross Savings (kW)	NTG*	Verified Net Savings (kW)
ESG-164	Small	4	1.00	4	0.97	4
ESG-136	Small	7	1.78	13	0.97	12
ESG-167	Small	0	N/A	0	0.97	0
ESG-169	Small	3	1.21	3	0.97	3
ESG-135	Small	11	1.00	11	0.97	10
ESG-159	Small	10	1.00	10	0.97	9
ESG-149	Small	13	1.00	13	0.97	13
ESG-177	Medium	34	1.02	35	0.97	34
ESG-156	Medium	0	N/A	0	0.97	0
ESG-137	Medium	24	1.00	24	0.97	23
ESG-140	Medium	35	1.00	35	0.97	33
ESG-150	Medium	15	1.00	15	0.97	15
ESG-151	Medium	18	1.00	18	0.97	17
ESG-175	Large	15	1.00	15	0.97	15
ESG-163	Large	12	1.00	12	0.97	12
ESG-160	Large	16	1.00	16	0.97	15
ESG-157	Large	15	1.00	15	0.97	14
ESG-139	Small	3	1.15	3	0.97	3
ESG-185	Small	14	1.00	14	0.97	13
ESG-190	Small	0	N/A	0	0.97	0
ESG-201	Small	5	1.22	6	0.97	6
ESG-141	Medium	6	1.15	7	0.97	7
ESG-176	Medium	14	1.00	14	0.97	14
ESG-179	Medium	10	1.00	10	0.97	10
ESG-195	Medium	26	1.00	26	0.97	25
ESG-178	Large	61	1.07	65	0.97	64
ESG-183	Large	17	1.00	17	0.97	16
ESG-198	Large	59	1.00	59	0.97	57

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

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

Source: ComEd tracking data and evaluation team analysis

Table B-6. CY2021 Therm Savings by Project

Evaluation Site ID	Sample Strata	Ex ante Gross Savings (Therms)	Verified Gross Realization Rate	Verified Gross Savings (Therms)	NTG*	Verified Net Savings (Therms)
ESG-164	Small	0	N/A	0	0.97	0
ESG-136	Small	0	N/A	0	0.97	0
ESG-167	Small	0	N/A	0	0.97	0
ESG-169	Small	0	N/A	0	0.97	0
ESG-135	Small	0	N/A	0	0.97	0
ESG-159	Small	0	N/A	0	0.97	0
ESG-149	Small	0	N/A	0	0.97	0
ESG-177	Medium	0	N/A	0	0.97	0
ESG-156	Medium	0	N/A	0	0.97	0
ESG-137	Medium	0	N/A	0	0.97	0
ESG-140	Medium	0	N/A	0	0.97	0
ESG-150	Medium	0	N/A	0	0.97	0
ESG-151	Medium	0	N/A	0	0.97	0
ESG-175	Large	0	N/A	0	0.97	0
ESG-163	Large	0	N/A	0	0.97	0
ESG-160	Large	0	N/A	0	0.97	0
ESG-157	Large	0	N/A	0	0.97	0
ESG-139	Small	5,307	1.00	5,307	0.97	5,148
ESG-185	Small	0	N/A	0	0.97	0
ESG-190	Small	0	N/A	0	0.97	0
ESG-201	Small	0	N/A	0	0.97	0
ESG-141	Medium	11,972	1.00	11,972	0.97	11,613
ESG-176	Medium	0	N/A	0	0.97	0
ESG-179	Medium	0	N/A	0	0.97	0
ESG-195	Medium	0	N/A	0	0.97	0
ESG-178	Large	0	N/A	0	0.97	0
ESG-183	Large	0	N/A	0	0.97	0
ESG-198	Large	0	N/A	0	0.97	0

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

* A deemed value. Source: Illinois SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

Source: ComEd tracking data and evaluation team analysis

Appendix C. Total Resource Cost Detail

Table C-1 shows the TRC cost-effectiveness analysis inputs available at the time of finalizing this impact evaluation report. This table does not include additional required cost data (e.g., measure costs, program-level incentives, and non-incentive costs). ComEd will provide this data to the evaluation team later.

Table C-1. Total Resource Cost Savings Summary

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	Interior LED Lighting	Each	26	15.0	NO	2,564,717	445.78	0	0	0	-22,978	0.97	0.97	0.97	2,487,776	432	0	0	0	-22,288
Refrigeration	EC Motor	Each	30	15.0	NO	1,297,747	145.61	0	0	0	0	0.97	0.97	0.97	1,258,815	141	0	0	0	0
Refrigeration	Anti-Sweat Heater Controls	Each	17	10.0	NO	1,089,783	0.00	0	0	0	0	0.97	0.97	0.97	1,057,089	0	0	0	0	0
Refrigeration	Night Covers	Each	27	5.0	NO	736,732	0.00	0	0	0	0	0.97	0.97	0.97	714,630	0	0	0	0	0
Lighting	Exterior LED Lighting	Each	6	15.0	NO	262,608	0.00	0	0	0	0	0.97	0.97	0.97	254,730	0	0	0	0	0
Refrigeration	New Refrigerator Case	Each	3	15.0	NO	243,301	27.15	0	0	0	0	0.97	0.97	0.97	236,002	26	0	0	0	0
Refrigeration	Evaporator Fan Control	Each	16	13.0	NO	216,292	24.25	0	0	0	0	0.97	0.97	0.97	209,804	24	0	0	0	0
Lighting	Open Case LED Lighting	Each	11	15.0	NO	210,975	34.12	0	0	0	0	0.97	0.97	0.97	204,646	33	0	0	0	0
Refrigeration	Add Door Retrofit kits	Each	3	15.0	NO	193,823	9.59	17,403	0	0	0	0.97	0.97	0.97	188,008	9	16,881	0	0	0
Refrigeration	Strip Curtains	Each	6	4.0	NO	76,584	8.59	0	0	0	0	0.97	0.97	0.97	74,286	8	0	0	0	0
Lighting	Closed Case LED Lighting	Each	2	15.0	NO	31,122	5.27	0	0	0	0	0.97	0.97	0.97	30,189	5	0	0	0	0
ENERGY STAR Appliance	ENERGY STAR Oven	Each	1	12.0	NO	13,460	1.23	0	0	0	0	0.97	0.97	0.97	13,056	1	0	0	0	0
Lighting	Occupancy Sensor\$	Each	1	8.0	NO	0	7.22	0	0	0	0	0.97	0.97	0.97	0	7	0	0	0	0
Total				13.0		6,937,145	709	17,403	0	0	-22,978				6,729,031	688	16,881	0	0	-22,288

* 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.

† Early replacement (ER) measures are flagged as YES, otherwise a NO is indicated in the column.

\$ kWh for this measure savings is captured in the interior LED lighting measure.

Source: ComEd tracking data and evaluation team analysis