



ComEd Multi-Family Assessments Impact Evaluation Report

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

Prepared for:

ComEd
FINAL

March 30, 2021

Prepared by:

Jake Fuller
Swapnil Kulkarni
EcoMetric Consulting

Sagar Phalke
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

This report was prepared by Guidehouse for ComEd. The work presented in this report represents Guidehouse's professional judgment based on the information available at the time this report was prepared. Use of this report by any other party for whatever purpose should not, and does not, absolve such party from using due diligence in verifying the report's contents. Neither Guidehouse nor any of its subsidiaries or affiliates assumes any liability or duty of care to such parties, and hereby disclaims any such liability.

Table of Contents

1. Introduction	1
2. Program Description.....	1
3. Program Savings Detail	2
4. Cumulative Persisting Annual Savings.....	3
5. Program Savings by Measure	8
6. Impact Analysis Findings and Recommendations.....	13
6.1 Impact Parameter Estimates	13
6.2 Other Impact Findings and Recommendations.....	14
6.2.1 LED Lighting – Exit Signs.....	14
6.2.2 LED Lighting – IU Interior Fixture	14
6.2.3 LED Lighting – Interior	14
6.2.4 HVAC – IU Programmable Thermostats	15
6.2.5 Hot Water – Aerators and Showerheads.....	15
6.2.6 Hot Water – IU Pipe Insulation.....	15
Appendix A. Impact Analysis Methodology.....	17
Appendix B. Impact Analysis Detail	18
Appendix C. Total Resource Cost Detail.....	31

List of Tables and Figures

Figure 2-1. Share of Measures Installed by Type.....	2
Figure 4-1. Cumulative Persisting Annual Savings.....	8
Figure 5-1. Verified Net Savings by End Use – Electric.....	9
Table 2-1. CY2020 Volumetric Findings Detail.....	1
Table 3-1. CY2020 Total Annual Incremental Electric Savings.....	3
Table 4-1. Cumulative Persisting Annual Savings (CPAS) – Electric.....	5
Table 5-1. CY2020 Energy Savings by Measure – Electric	10
Table 5-2. CY2020 Summer Peak Demand Savings by Measure	11
Table 5-3. Secondary Energy Savings from Water Reduction by Measure – Electric.....	12
Table 6-1. Savings Parameters.....	13
Table 6-2. End Use-Level Savings and Realization Rates	14
Table B-1. Verified Measure Per Unit Impact Detail – Electric.....	18
Table C-1. Total Resource Cost Savings Summary	32

1. Introduction

This report presents results from the CY2020 impact evaluation of ComEd's Multi-Family Assessments 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) inputs. CY2020 covers January 1, 2020 through December 31, 2020.

2. Program Description

The Multi-Family Assessments Program serves as a “one stop shop” to multi-family building owners and managers to generate electricity and natural gas savings throughout the property. The program is jointly implemented by ComEd and Nicor Gas, and ComEd, Peoples Gas, and North Shore Gas companies. Franklin Energy is the implementation contractor for the joint program. Because this is a joint program, all therm savings are claimed by the gas utilities and are reported in the Peoples Gas, North Shore Gas, and Nicor Gas evaluation reports.

In CY2020, the program provided assessment services and installed various energy-saving measures. These measures included LEDs in tenant units and common areas, water-saving devices, programmable thermostats, advanced thermostats, and pipe insulation.

The program had 681 participants in CY2020 and distributed 68,804 measures, as Table 2-1 and Figure 2-1 show.

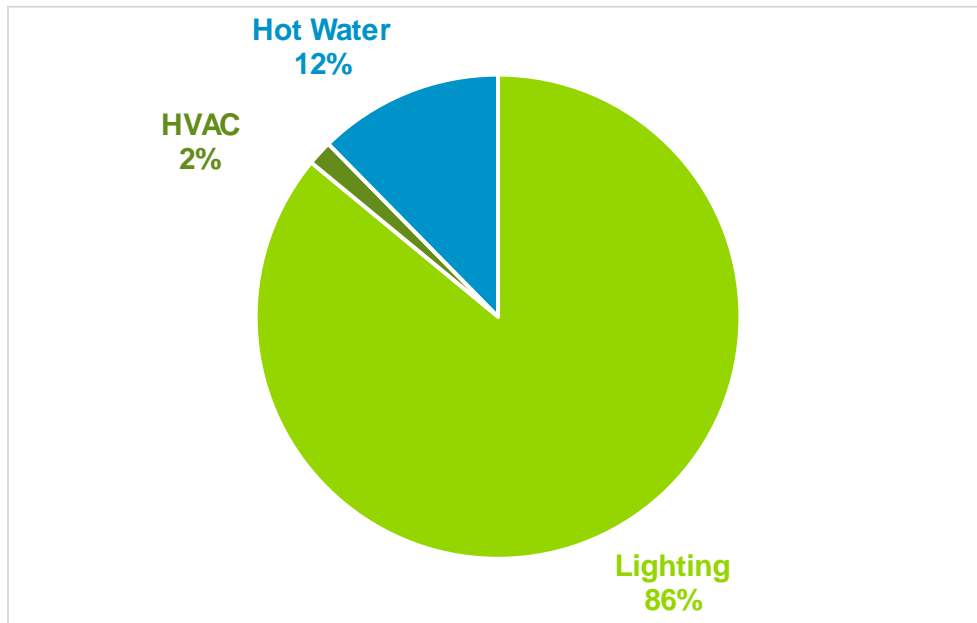
Table 2-1. CY2020 Volumetric Findings Detail

Participation	Direct Install	Prescriptive	Total
Participants*	368	313	681
Total Measures	37,120	31,684	68,804
Installed Projects	6,097	324	6,421

*Participants includes distinct ComEd account numbers.

Source: ComEd tracking data and evaluation team analysis

Figure 2-1. Share of Measures Installed by Type



Source: ComEd tracking data and evaluation team analysis

3. Program Savings Detail

Table 3-1 summarizes the incremental energy and demand savings the Multi-Family Assessments Program achieved in CY2020. The program had an overall realization rate of 0.99 and 1.01 for the energy savings and demand savings, respectively.

Table 3-1. CY2020 Total Annual Incremental Electric Savings

Savings Category	Energy Savings (kWh)	Summer Peak* Demand Savings (kW)
Electricity		
Ex Ante Gross Savings	10,717,612	1,181
Program Gross Realization Rate	0.99	1.01
Verified Gross Savings	10,647,892	1,188
Program Net-to-Gross Ratio (NTG)	Varies	Varies
Verified Net Savings	9,336,002	1,061
Converted from Gas†		
Ex Ante Gross Savings	NA	NA
Program Gross Realization Rate	NA	NA
Verified Gross Savings	NA	NA
Program Net-to-Gross Ratio (NTG)	NA	NA
Verified Net Savings	NA	NA
Total Electric Plus Gas		
Ex Ante Gross Savings	10,717,612	1,181
Program Gross Realization Rate	0.99	1.01
Verified Gross Savings	10,647,892	1,188
Program Net-to-Gross Ratio (NTG)	Varies	Varies
Verified Net Savings	9,336,002	1,061

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.

† Gas savings 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 determines which gas savings are 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."

Source: ComEd tracking data and evaluation team analysis

4. Cumulative Persisting Annual Savings

Table 4-1 and Figure 4-1 show the measure-specific and total verified gross savings for the Multi-Family Assessments Program and the cumulative persisting annual savings (CPAS) for the measures installed in CY2020. The electric CPAS across all measures installed in 2020 is 9,336,002 kWh (Table 4-1). Figure 4-1 shows the savings across the effective useful life (EUL) of the measures. The historic rows are the CPAS contribution back to CY2018. The Program Total Electric CPAS row is the sum of the CY2020 contribution and the historic contribution.

ComEd did not claim any converted gas savings for this program in CY2020; as such, electric CPAS is equivalent to total CPAS.

All verified kWh savings throughout this report account for the electric heating penalty incurred by ComEd for lighting measures implemented in buildings with an electric heating system. CPAS also accounts for midlife savings adjustments to LED lighting measures with T12

baselines, screw-based omni-directional lamps, specialty decorative, and directional lamps, as required by the Illinois Statewide Technical Reference Manual (TRM v8.0) and the Energy Independence and Security Act (EISA 2007) baseline adjustment requirements.

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

End Use Type	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	
Lighting	LED Exterior HID	11.6	1,770,232	0.83	17,072,886			1,469,293	1,469,293	1,469,293	1,469,293	1,469,293	1,469,293	1,469,293	1,469,293
Lighting	LED Exit Sign	5.0	1,517,759	0.83	6,298,701			1,259,740	1,259,740	1,259,740	1,259,740	1,259,740	1,259,740	1,259,740	1,259,740
Lighting	LED 24/7 CA Interior T8	5.7	1,389,842	0.96	7,610,358			1,334,248	1,334,248	1,334,248	1,334,248	1,334,248	1,334,248	939,118	
Lighting	LED 24/7 Garage HID	5.7	1,166,929	0.83	5,524,478			968,551	968,551	968,551	968,551	968,551	968,551	681,721	
Lighting	LED 24/7 Garage T8	5.7	1,058,929	0.96	5,798,381			1,016,572	1,016,572	1,016,572	1,016,572	1,016,572	1,016,572	715,520	
Lighting	LED 24/7 Garage T12	5.7	600,454	0.96	2,923,594			576,436	534,719	489,339	489,339	489,339	489,339	344,424	
Lighting	LED 24/7 CA Interior T12	5.7	491,660	0.96	2,386,962			471,994	437,043	399,023	399,023	399,023	399,023	280,855	
Lighting	LED CA Interior T8	15.0	413,283	0.96	5,951,278			396,752	396,752	396,752	396,752	396,752	396,752	396,752	396,752
Lighting	LED CA Interior Omidirectional Incandescent	3.4	376,683	0.67	848,328			252,378	252,378	252,378	91,195				
Lighting	LED CA Interior T12	15.0	299,483	0.96	3,858,150			287,504	287,504	287,504	287,504	250,470	245,767	245,767	
Lighting	LED IU Interior Omidirectional	10.0	295,578	0.67	1,267,439			198,037	198,037	198,037	198,037	79,215	79,215	79,215	
HVAC	Advanced Thermostat	11.0	260,746	NA††	2,868,202			260,746	260,746	260,746	260,746	260,746	260,746	260,746	260,746
Lighting	LED CA Interior Decorative Incandescent	2.9	221,032	0.82	517,847			181,246	181,246	155,354					
Lighting	LED IU Interior Decorative	10.0	156,225	0.82	942,846			128,104	128,104	128,104	128,104	71,738	71,738	71,738	
Hot Water	Low Flow Showerhead (Electric)	10.0	152,959	1.03	1,575,482			157,548	157,548	157,548	157,548	157,548	157,548	157,548	157,548
Lighting	LED CA Interior Omidirectional CFL	3.4	107,600	0.67	242,327			72,092	72,092	72,092	26,050				
Lighting	LED CA Interior Directional Incandescent	4.2	103,814	0.82	349,781			85,127	85,127	85,127	85,127	9,271			
Lighting	LED CA Exterior Omidirectional Incandescent	4.6	44,801	0.67	127,845			30,016	30,016	30,016	30,016	7,779			
Lighting	LED IU Interior Fixture	15.0	30,245	0.82	246,523			24,801	24,801	24,801	24,801	13,393	13,393	13,393	
HVAC	IU Programmable Thermostat	8.0	27,529	0.86	189,402			23,675	23,675	23,675	23,675	23,675	23,675	23,675	23,675
Lighting	LED Garage HID	14.7	26,543	0.83	323,891			22,031	22,031	22,031	22,031	22,031	22,031	22,031	22,031
Hot Water	Low Flow Showerhead (Gas)	10.0	23,521	1.03	242,269			24,227	24,227	24,227	24,227	24,227	24,227	24,227	24,227
Lighting	LED CA Exterior Decorative Incandescent	4.0	19,042	0.82	61,689			15,614	15,614	15,614	14,845				
Lighting	LED CA Exterior Directional Incandescent	5.8	16,933	0.82	69,112			13,885	13,885	13,885	13,885	7,498	6,073		
Lighting	LED CA Exterior Omidirectional CFL	4.6	14,363	0.67	44,729			9,623	9,623	9,623	9,623	6,235			
Hot Water	Faucet Aerator - Kitchen (Electric)	10.0	12,233	1.03	126,003			12,600	12,600	12,600	12,600	12,600	12,600	12,600	12,600
Lighting	LED CA Interior Decorative CFL	2.9	11,948	0.82	27,992			9,797	9,797	8,398					
Hot Water	Low Flow Faucet Aerator (Gas)	10.0	6,632	1.03	68,305			6,831	6,831	6,831	6,831	6,831	6,831	6,831	6,831
Lighting	LED CA Exterior Directional CFL	5.8	5,975	0.82	28,464			4,899	4,899	4,899	4,899	4,899	3,968		
Lighting	LED CA Interior Directional CFL	4.2	4,529	0.82	15,604			3,714	3,714	3,714	3,714	749			
HVAC	IU Reprogram Thermostat	2.0	4,471	0.86	7,691			3,845	3,845						
Hot Water	Faucet Aerator - Bathroom (Electric)	10.0	3,645	1.03	37,544			3,754	3,754	3,754	3,754	3,754	3,754	3,754	3,754
Lighting	LED Garage Exterior T8	11.6	3,073	0.96	34,275			2,950	2,950	2,950	2,950	2,950	2,950	2,950	2,950
Lighting	LED Garage Omidirectional Incandescent	5.6	2,567	0.67	8,015			1,720	1,720	1,720	1,720	688	447		
Hot Water	CA Pipe Insulation	15.0	2,066	0.83	25,719			1,715	1,715	1,715	1,715	1,715	1,715	1,715	1,715
Hot Water	IU Pipe Insulation	15.0	1,680	0.83	20,914			1,394	1,394	1,394	1,394	1,394	1,394	1,394	1,394
Lighting	LED Garage T12	14.7	1,574	0.96	21,208			1,511	1,511	1,511	1,503	1,418	1,418	1,418	1,418
Lighting	LED Garage Omidirectional CFL	5.6	534	0.67	2,023			358	358	358	358	358	233		
Lighting	LED CA Exterior Decorative CFL	4.0	284	0.82	920			233	233	233	221				
Lighting	LED IU Exterior Decorative	6.9	253	0.82	1,165			207	207	207	207	116	116	104	
Lighting	LED Garage T8	14.7	241	0.96	3,407			232	232	232	232	232	232	232	232
CY2020 Program Total Electric Contribution to CPAS			10,647,892		67,771,746			9,336,002	9,259,334	9,144,797	8,773,033	8,305,048	5,767,751	2,795,381	
Historic Program Total Electric Contribution to CPAS†						11,768,297	17,484,846	17,434,115	14,222,928	14,222,928	14,078,258	12,487,291	11,470,576	8,022,020	
Program Total Electric CPAS						11,768,297	17,484,846	26,770,117	23,482,262	23,367,725	22,851,291	20,792,339	17,238,327	10,817,402	
CY2020 Program Incremental Expiring Electric Savings§									76,668	114,537	371,764	467,985	2,537,297	2,972,370	
Historic Program Incremental Expiring Electric Savings†§								50,731	3,211,187	-	144,670	1,590,966	1,016,715	3,448,556	
Program Total Incremental Expiring Electric Savings§								50,731	3,287,855	114,537	516,434	2,058,951	3,554,012	6,420,926	

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Lighting	LED Exterior HID	1,469,293	1,469,293	1,469,293	1,469,293	910,668							
Lighting	LED Exit Sign												
Lighting	LED 24/7 CA Interior T8												
Lighting	LED 24/7 Garage HID												
Lighting	LED 24/7 Garage T8												
Lighting	LED 24/7 Garage T12												
Lighting	LED 24/7 CA Interior T12												
Lighting	LED CA Interior T8	396,752	396,752	396,752	396,752	396,752	396,752	396,752	396,752				
Lighting	LED CA Interior Omnidirectional Incandescent												
Lighting	LED CA Interior T12	245,767	245,767	245,767	245,767	245,767	245,767	245,767	245,767				
Lighting	LED IU Interior Omnidirectional	79,215	79,215	79,215									
HVAC	Advanced Thermostat	260,746	260,746	260,746	260,746								
Lighting	LED CA Interior Decorative Incandescent												
Lighting	LED IU Interior Decorative	71,738	71,738	71,738									
Hot Water	Low Flow Showerhead (Electric)	157,548	157,548	157,548									
Lighting	LED CA Interior Omnidirectional CFL												
Lighting	LED CA Interior Directional Incandescent												
Lighting	LED CA Exterior Omnidirectional Incandescent												
Lighting	LED IU Interior Fixture	13,393	13,393	13,393	13,393	13,393	13,393	13,393	13,393				
HVAC	IU Programmable Thermostat	23,675											
Lighting	LED Garage HID	22,031	22,031	22,031	22,031	22,031	22,031	22,031	15,456				
Hot Water	Low Flow Showerhead (Gas)	24,227	24,227	24,227									
Lighting	LED CA Exterior Decorative Incandescent												
Lighting	LED CA Exterior Directional Incandescent												
Lighting	LED CA Exterior Omnidirectional CFL												
Hot Water	Faucet Aerator - Kitchen (Electric)	12,600	12,600	12,600									
Lighting	LED CA Interior Decorative CFL												
Hot Water	Low Flow Faucet Aerator (Gas)	6,831	6,831	6,831									
Lighting	LED CA Exterior Directional CFL												
Lighting	LED CA Interior Directional CFL												
HVAC	IU Reprogram Thermostat												
Hot Water	Faucet Aerator - Bathroom (Electric)	3,754	3,754	3,754									
Lighting	LED Garage Exterior T8	2,950	2,950	2,950	2,950	1,828							
Lighting	LED Garage Omnidirectional Incandescent												
Hot Water	CA Pipe Insulation	1,715	1,715	1,715	1,715	1,715	1,715	1,715	1,715				
Hot Water	IU Pipe Insulation	1,394	1,394	1,394	1,394	1,394	1,394	1,394	1,394				
Lighting	LED Garage T12	1,418	1,418	1,418	1,418	1,418	1,418	1,418	995				
Lighting	LED Garage Omnidirectional CFL												
Lighting	LED CA Exterior Decorative CFL												
Lighting	LED IU Exterior Decorative												
Lighting	LED Garage T8	232	232	232	232	232	232	232	163				
CY2020 Program Total Electric Contribution to CPAS		2,795,277	2,771,602	2,771,602	2,415,688	1,595,196	682,700	682,700	675,633	-	-	-	-
Historic Program Total Electric Contribution to CPAS†		6,330,349	2,892,546	1,107,111	777,087	753,982	741,202	698,058					
Program Total Electric CPAS		9,125,626	5,664,148	3,878,713	3,192,775	2,349,178	1,423,902	1,380,759	675,633	-	-	-	-
CY2020 Program Incremental Expiring Electric Savings\$		104	23,675	-	355,914	820,492	912,496	-	7,067	675,633	-	-	-
Historic Program Incremental Expiring Electric Savings†\$		1,691,671	3,437,803	1,785,435	330,024	23,105	12,780	43,144	698,058	-	-	-	-
Program Total Incremental Expiring Electric Savings\$		1,691,775	3,461,478	1,785,435	685,938	843,597	925,276	43,144	705,125	675,633	-	-	-

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 EUL.

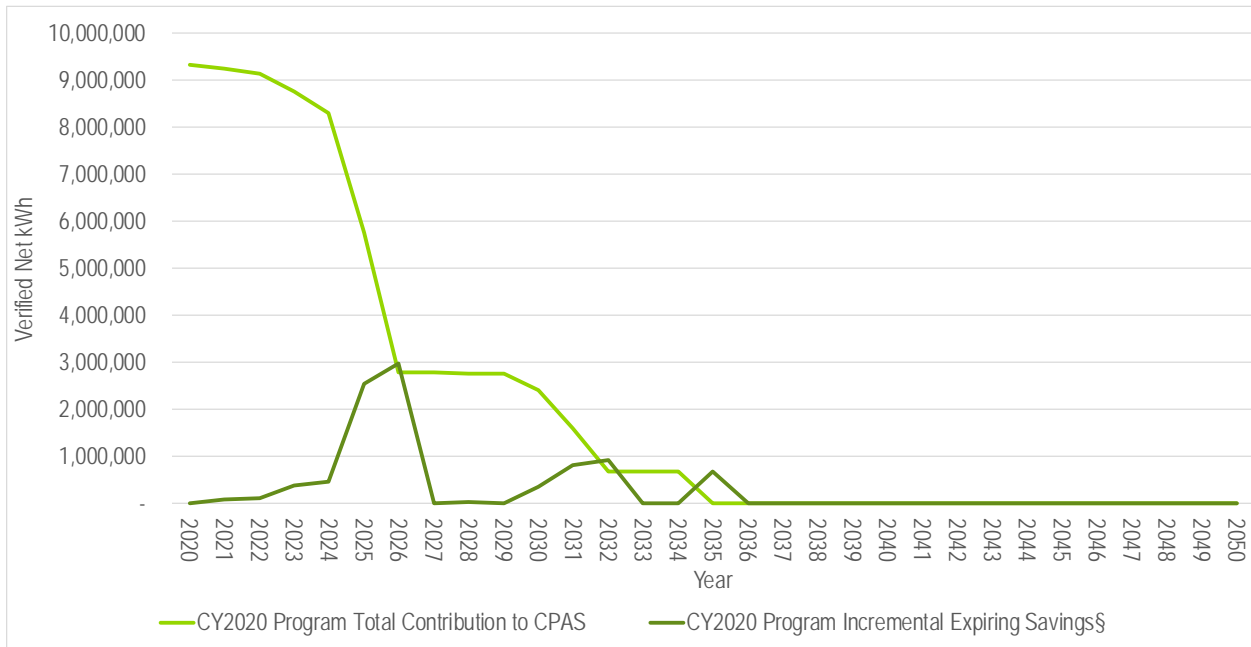
‡ Historic savings go back to CY2018.

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

†† Algorithm 5.3.16 of TRM v8.0 yields net savings and does not require a net-to-gross (NTG) adjustment.

Source: *Evaluation team analysis*

Figure 4-1. Cumulative Persisting Annual Savings



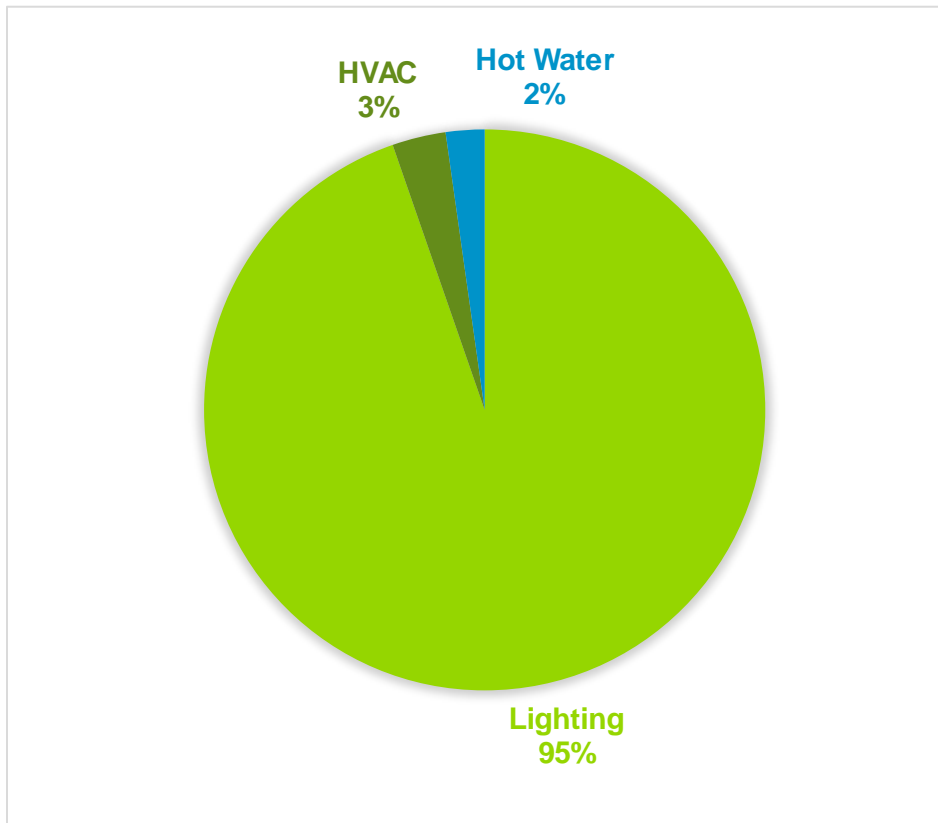
§Expiring savings are equal to CPAS Y_{n-1} - CPAS Y_n + Expiring Savings Y_{n-1} .

Source: Evaluation team analysis

5. Program Savings by Measure

The program includes 41 measures as the following tables show. In CY2020, the LED Exterior HID and LED Exit Sign measures contributed substantial savings. Overall, the lighting end use accounted for the majority of the program’s verified energy savings (see Figure 5-1) with 95% of verified net savings. The HVAC and hot water end use account for the remaining 3% and 2% of verified net savings, respectively.

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	LED Exterior HID	1,770,231	1.00	1,770,232	0.83	1,469,293	11.6
Lighting	LED Exit Sign	1,464,726	1.04	1,517,759	0.83	1,259,740	5.0
Lighting	LED 24/7 CA Interior T8	1,412,749	0.98	1,389,842	0.96	1,334,248	5.7
Lighting	LED 24/7 Garage HID	1,166,929	1.00	1,166,929	0.83	968,551	5.7
Lighting	LED 24/7 Garage T8	1,058,928	1.00	1,058,929	0.96	1,016,572	5.7
Lighting	LED 24/7 Garage T12	600,455	1.00	600,454	0.96	576,436	5.7
Lighting	LED 24/7 CA Interior T12	504,168	0.98	491,660	0.96	471,994	5.7
Lighting	LED CA Interior T8	418,621	0.99	413,283	0.96	396,752	15.0
Lighting	LED CA Interior Omnidirectional Incandescent	407,578	0.92	376,683	0.67	252,378	3.4
Lighting	LED CA Interior T12	313,200	0.96	299,483	0.96	287,504	15.0
Lighting	LED IU Interior Omnidirectional	308,471	0.96	295,578	0.67	198,037	10.0
HVAC	Advanced Thermostat	260,745	1.00	260,746	NA	260,746	11.0
Lighting	LED CA Interior Decorative Incandescent	256,841	0.86	221,032	0.82	181,246	2.9
Lighting	LED IU Interior Decorative	178,891	0.87	156,225	0.82	128,104	10.0
Hot Water	Low Flow Showerhead (Electric)	147,400	1.04	152,959	1.03	157,548	10.0
Lighting	LED CA Interior Omnidirectional CFL	112,098	0.96	107,600	0.67	72,092	3.4
Lighting	LED CA Interior Directional Incandescent	109,730	0.95	103,814	0.82	85,127	4.2
Lighting	LED CA Exterior Omnidirectional Incandescent	44,801	1.00	44,801	0.67	30,016	4.6
Lighting	LED IU Interior Fixture	24,115	1.25	30,245	0.82	24,801	15.0
HVAC	IU Programmable Thermostat	25,059	1.10	27,529	0.86	23,675	8.0
Lighting	LED Garage HID	26,543	1.00	26,543	0.83	22,031	14.7
Hot Water	Low Flow Showerhead (Gas)	0	NA	23,521	1.03	24,227	10.0
Lighting	LED CA Exterior Decorative Incandescent	19,042	1.00	19,042	0.82	15,614	4.0
Lighting	LED CA Exterior Directional Incandescent	16,933	1.00	16,933	0.82	13,885	5.8
Lighting	LED CA Exterior Omnidirectional CFL	14,363	1.00	14,363	0.67	9,623	4.6
Hot Water	Faucet Aerator - Kitchen (Electric)	11,647	1.05	12,233	1.03	12,600	10.0
Lighting	LED CA Interior Decorative CFL	11,948	1.00	11,948	0.82	9,797	2.9
Hot Water	Low Flow Faucet Aerator (Gas)	0	NA	6,632	1.03	6,831	10.0
Lighting	LED CA Exterior Directional CFL	5,975	1.00	5,975	0.82	4,899	5.8
Lighting	LED CA Interior Directional CFL	5,245	0.86	4,529	0.82	3,714	4.2
HVAC	IU Reprogram Thermostat	4,471	1.00	4,471	0.86	3,845	2.0
Hot Water	Faucet Aerator - Bathroom (Electric)	3,438	1.06	3,645	1.03	3,754	10.0
Lighting	LED Garage Exterior T8	3,073	1.00	3,073	0.96	2,950	11.6
Lighting	LED Garage Omnidirectional Incandescent	2,567	1.00	2,567	0.67	1,720	5.6
Hot Water	CA Pipe Insulation	2,066	1.00	2,066	0.83	1,715	15.0
Hot Water	IU Pipe Insulation	1,680	1.00	1,680	0.83	1,394	15.0
Lighting	LED Garage T12	1,574	1.00	1,574	0.96	1,511	14.7
Lighting	LED Garage Omnidirectional CFL	534	1.00	534	0.67	358	5.6
Lighting	LED CA Exterior Decorative CFL	284	1.00	284	0.82	233	4.0
Lighting	LED IU Exterior Decorative	253	1.00	253	0.82	207	6.9
Lighting	LED Garage T8	241	1.00	241	0.96	232	14.7
Total		10,717,612	0.99	10,647,892	NA	9,336,002	NA

NA = not applicable

Note: The savings in this table include secondary electric energy (kWh) savings from water supply and wastewater treatment plants for measures claimed by ComEd. 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.

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	LED Exterior HID	0.00	NA	0.00	0.83	0.00
Lighting	LED Exit Sign	173.92	1.04	180.75	0.83	150.02
Lighting	LED 24/7 CA Interior T8	166.87	1.00	166.87	0.96	160.19
Lighting	LED 24/7 Garage HID	133.12	1.00	133.12	0.83	110.49
Lighting	LED 24/7 Garage T8	120.80	1.00	120.80	0.96	115.97
Lighting	LED 24/7 Garage T12	68.50	1.00	68.50	0.96	65.76
Lighting	LED 24/7 CA Interior T12	59.61	1.00	59.61	0.96	57.23
Lighting	LED CA Interior T8	120.44	1.00	120.44	0.96	115.63
Lighting	LED CA Interior Omnidirectional Incandescent	51.81	1.00	51.81	0.67	34.71
Lighting	LED CA Interior T12	90.18	1.00	90.18	0.96	86.57
Lighting	LED IU Interior Omnidirectional	37.30	1.00	37.30	0.67	24.99
HVAC	Advanced Thermostat	29.30	1.00	29.30	NA	29.30
Lighting	LED CA Interior Decorative Incandescent	32.75	1.00	32.76	0.82	26.86
Lighting	LED IU Interior Decorative	26.30	1.00	26.29	0.82	21.56
Hot Water	Low Flow Showerhead (Electric)	19.70	1.00	19.70	1.03	20.29
Lighting	LED CA Interior Omnidirectional CFL	13.94	1.00	13.94	0.67	9.34
Lighting	LED CA Interior Directional Incandescent	15.20	1.00	15.20	0.82	12.46
Lighting	LED CA Exterior Omnidirectional Incandescent	0.00	NA	0.00	0.67	0.00
Lighting	LED IU Interior Fixture	3.54	1.16	4.09	0.82	3.36
HVAC	IU Programmable Thermostat	0.00	NA	0.00	0.86	0.00
Lighting	LED Garage HID	7.18	1.00	7.18	0.83	5.96
Hot Water	Low Flow Showerhead (Gas)	0.00	NA	0.00	1.03	0.00
Lighting	LED CA Exterior Decorative Incandescent	0.00	NA	0.00	0.82	0.00
Lighting	LED CA Exterior Directional Incandescent	0.00	NA	0.00	0.82	0.00
Lighting	LED CA Exterior Omnidirectional CFL	0.00	NA	0.00	0.67	0.00
Hot Water	Faucet Aerator - Kitchen (Electric)	3.05	1.00	3.05	1.03	3.14
Lighting	LED CA Interior Decorative CFL	1.67	1.00	1.67	0.82	1.37
Hot Water	Low Flow Faucet Aerator (Gas)	0.00	NA	0.00	1.03	0.00
Lighting	LED CA Exterior Directional CFL	0.00	NA	0.00	0.82	0.00
Lighting	LED CA Interior Directional CFL	0.70	1.00	0.70	0.82	0.58
HVAC	IU Reprogram Thermostat	0.00	NA	0.00	0.86	0.00
Hot Water	Faucet Aerator - Bathroom (Electric)	3.44	1.00	3.44	1.03	3.54
Lighting	LED Garage Exterior T8	0.00	NA	0.00	0.96	0.00
Lighting	LED Garage Omnidirectional Incandescent	0.67	1.00	0.67	0.67	0.45
Hot Water	CA Pipe Insulation	0.24	1.00	0.24	0.83	0.20
Hot Water	IU Pipe Insulation	0.00	NA	0.19	0.83	0.16
Lighting	LED Garage T12	0.43	1.00	0.43	0.96	0.41
Lighting	LED Garage Omnidirectional CFL	0.14	1.00	0.14	0.67	0.09
Lighting	LED CA Exterior Decorative CFL	0.00	NA	0.00	0.82	0.00
Lighting	LED IU Exterior Decorative	0.03	1.00	0.03	0.82	0.02
Lighting	LED Garage T8	0.07	1.00	0.07	0.96	0.06
	Total	1,180.88	1.01	1,188.46	NA	1,060.71

* 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 Multi-Family Assessment Program includes measures that save water. That reduction in water produces secondary kWh savings from water supply and wastewater treatment. Table 5-3 shows the secondary measure-level savings. The savings in this table are included in the electricity savings 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	LED Exterior HID	0	NR	NA	0	0.83	0
Lighting	LED Exit Sign	0	NR	NA	0	0.83	0
Lighting	LED 24/7 CA Interior T8	0	NR	NA	0	0.96	0
Lighting	LED 24/7 Garage HID	0	NR	NA	0	0.83	0
Lighting	LED 24/7 Garage T8	0	NR	NA	0	0.96	0
Lighting	LED 24/7 Garage T12	0	NR	NA	0	0.96	0
Lighting	LED 24/7 CA Interior T12	0	NR	NA	0	0.96	0
Lighting	LED CA Interior T8	0	NR	NA	0	0.96	0
Lighting	LED CA Interior Omnidirectional Incandescent	0	NR	NA	0	0.67	0
Lighting	LED CA Interior T12	0	NR	NA	0	0.96	0
Lighting	LED IU Interior Omnidirectional	0	NR	NA	0	0.67	0
HVAC	Advanced Thermostat	0	NR	NA	0	NA	0
Lighting	LED CA Interior Decorative Incandescent	0	NR	NA	0	0.82	0
Lighting	LED IU Interior Decorative	0	NR	NA	0	0.82	0
Hot Water	Low Flow Showerhead (Electric)	1,259,709	NR	NA	5,559	1.03	5,726
Lighting	LED CA Interior Omnidirectional CFL	0	NR	NA	0	0.67	0
Lighting	LED CA Interior Directional Incandescent	0	NR	NA	0	0.82	0
Lighting	LED CA Exterior Omnidirectional Incandescent	0	NR	NA	0	0.67	0
Lighting	LED IU Interior Fixture	0	NR	NA	0	0.82	0
HVAC	IU Programmable Thermostat	0	NR	NA	0	0.86	0
Lighting	LED Garage HID	0	NR	NA	0	0.83	0
Hot Water	Low Flow Showerhead (Gas)	6,570,728	NR	NA	23,521	1.03	24,227
Lighting	LED CA Exterior Decorative Incandescent	0	NR	NA	0	0.82	0
Lighting	LED CA Exterior Directional Incandescent	0	NR	NA	0	0.82	0
Lighting	LED CA Exterior Omnidirectional CFL	0	NR	NA	0	0.67	0
Hot Water	Faucet Aerator - Kitchen (Electric)	120,225	NR	NA	586	1.03	603
Lighting	LED CA Interior Decorative CFL	0	NR	NA	0	0.82	0
Hot Water	Low Flow Faucet Aerator (Gas)	1,917,069	NR	NA	6,632	1.03	6,831
Lighting	LED CA Exterior Directional CFL	0	NR	NA	0	0.82	0
Lighting	LED CA Interior Directional CFL	0	NR	NA	0	0.82	0
HVAC	IU Reprogram Thermostat	0	NR	NA	0	0.86	0
Hot Water	Faucet Aerator - Bathroom (Electric)	43,273	NR	NA	207	1.03	213
Lighting	LED Garage Exterior T8	0	NR	NA	0	0.96	0
Lighting	LED Garage Omnidirectional Incandescent	0	NR	NA	0	0.67	0
Hot Water	CA Pipe Insulation	0	NR	NA	0	0.83	0
Hot Water	IU Pipe Insulation	0	NR	NA	0	0.83	0
Lighting	LED Garage T12	0	NR	NA	0	0.96	0
Lighting	LED Garage Omnidirectional CFL	0	NR	NA	0	0.67	0
Lighting	LED CA Exterior Decorative CFL	0	NR	NA	0	0.82	0
Lighting	LED IU Exterior Decorative	0	NR	NA	0	0.82	0
Lighting	LED Garage T8	0	NR	NA	0	0.96	0
	Total	9,911,004	NA	NA	36,505	NA	37,600

NR = not reported

NA = not applicable

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

6. Impact Analysis Findings and Recommendations

6.1 Impact Parameter Estimates

The evaluation team used the savings algorithms and inputs deemed by the TRM v8.0 and TRM v8.0 Errata, where applicable, to calculate energy and demand savings for each measure installed as part of the program in CY2020. The lifetime energy and demand savings are estimated by multiplying the verified savings by the EUL for each measure. The evaluation team also applied midlife baseline adjustments to the lifetime savings calculations for lighting measures following TRM v8.0 methodology. The team conducted research to validate the parameters that were not specified in the TRM v8.0. Table 6-1 shows the results.

Table 6-1. Savings Parameters

Gross Savings Input Parameters	Custom Input Parameters	Deemed Input Parameters	Source *
LED Lighting	Watts_EE, Watts_Base	Watts_Base, Hours, waste heat factor – energy (WHF_e), in-service rate (ISR), waste heat factor – demand (WHF_d), coincidence factor (CF), NTG, midlife baseline adjustment	TRM v8.0 – Section 4.5.5 and TRM v8.0 – Errata – Sections 4.5.4, 5.5.6, 5.5.8, 5.5.9
Advanced Thermostat	None	%Electric Heat, Elec_heating_consumption, Heating_reduction, Cooling_reduction, household factor (HF), ISR, furnace fan energy consumption (F_e), full load cooling hours (FLH), seasonal energy efficiency ratio (SEER), energy efficiency ratio (EER), CF, NTG	TRM v8.0 – Section 5.3.16
Low Flow Faucet Aerator	None	%DHW, GPM_base, GPM_low, L_base, L_low, Household, faucets per household (FPH), drain factor (DF), EPG_electric, ISR, Hours, Usage, E_water total, CF, NTG	TRM 8.0 – Sections 5.4.4, 4.3.2
Low Flow Showerhead	None	%DHW, GPM_base, GPM_low, L_base, L_low, Household, showerheads per household (SPH), showers per capita per day (SPCD), EPG_electric, ISR, Hours, Usage, E_water total, CF, NTG	TRM 8.0 – Sections 5.4.5, 4.3.3,
Common area (CA) Pipe Insulation	Q_base, Q_eff	Thermal regain factor (TRF), NTG, Hours, NTG	TRM v8.0 – Section 4.4.14
In unit (IU) Pipe Insulation	Q_base, Q_eff	TRF, NTG, Hours, NTG	TRM v8.0 – Section 5.4.1
IU Programmable Thermostat, IU Reprogram Thermostat	None	%Electric Heat, Elec_heating_consumption, Heating_reduction, HF, ISR, F_e, FLH, SEER, EER, CF, NTG	TRM v8.0 – Section 5.3.11

* TRM is the Illinois Statewide Technical Reference Manual version 8.0 from <http://www.ilsag.info/technical-reference-manual.html>. 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. Table 6-2 presents the end use-level realization rates and program savings percentages to give context to the team's recommendations.

Table 6-2. End Use-Level Savings and Realization Rates

End Use Type	Realization Rate	Percentage of Verified Net Savings
Lighting	0.99	95%
HVAC	1.01	3%
Hot Water	1.22	2%

Source: Evaluation team analysis

6.2.1 LED Lighting – Exit Signs

Finding 1. The ex ante savings for all measures were calculated using the waste heat factor – energy (WHFe) and waste heat factor – demand (WHFd) values corresponding to a mid-rise multifamily building type irrespective of the building type in which they are installed. These parameters are broken out by mid-rise and high-rise multifamily building types in the TRM v8.0. The verified savings for this measure were calculated using the WHFe and WHFd values corresponding to the building type in which the measure is installed. This measure represents 13.5% of program savings and had a verified gross realization rate of 1.04.

Recommendation 1. Guidehouse recommends the implementer use building-specific WHFe and WHFd values in the calculations for this measure as per Section 4.5.5 of the TRM v8.0.

6.2.2 LED Lighting – IU Interior Fixture

Finding 2. The ex ante savings for this measure were calculated using the in-service rate (ISR), hours, and coincidence factor (CF) values from the TRM v8.0 Errata Section 5.5.6. The verified savings for this measure were calculated using the ISR, hours, and CF values from the TRM v8.0 Errata Section 5.5.9 based on the measure description. Section 5.5.9 LED Fixtures of the TRM v8.0 applies specifically to flood light and track lighting fixtures included in this measure category. This measure represents 0.3% of program savings and had a verified gross realization rate of 1.25.

Recommendation 2. Guidehouse recommends the implementer use TRM v8.0 Errata Section 5.5.9 to calculate savings for this measure.

6.2.3 LED Lighting – Interior

Finding 3. The ex ante gross and net savings did not account for electric heating penalty. The verified savings that the evaluation team calculated accounted for electric heating penalty reduction from electric heating interactive effects due to projects or measures installed in electrically heated buildings. This approach is consistent with the TRM v8.0 instructions.

Recommendation 3. Considering that the evaluation process is now reporting electric heating penalties, Guidehouse recommends the implementer track electric heating penalties for affected measures and account for those in ex ante gross and net savings.

6.2.4 HVAC – IU Programmable Thermostats

Finding 4. The ex ante savings calculations for all IU programmable thermostats used the electric and gas heating consumption values for Heating Climate Zone 2. In CY2020, 149 IU programmable thermostats were installed in Heating Climate Zone 1 per the tracking data. IU programmable thermostats represent 0.3% of program savings and had a verified gross realization rate of 1.10.

Recommendation 4. Guidehouse recommends the implementer use the heating consumption values from TRM v8.0 Section 5.3.11 that correspond to the heating climate zone where the thermostat was installed.

Finding 5. The ex ante savings for the IU - Electric Tstat - Programmable Installed - Baseboard-MFES 20 measure were calculated using an ISR of 56%, which corresponds to the Other or Unknown program delivery method from the TRM v8.0 Section 5.3.11. The verified savings for this measure were calculated using an ISR of 100% because this measure is included in the service provider installation application for CY2020 that requires all incentivized equipment and measures to be installed and operational.

Recommendation 5. Guidehouse recommends the implementer use an ISR of 100% for this measure per TRM v8.0 Section 5.3.11.

6.2.5 Hot Water – Aerators and Showerheads

Finding 6. The ex ante savings do not include the kWh energy savings from water savings for the low flow aerator and low flow showerhead measures. TRM v8.0 allows for secondary kWh savings derived from water supply and wastewater treatment reduction to be included in total savings for these measures. These savings are differentiated by the total water energy factor (kWh/million gallons) between Cook County and the rest of Illinois in the TRM v8.0. Secondary savings from water reduction are included in the ex post kWh calculations for these hot water measures. These measures represent 2.2% of program savings and had a verified gross realization rate of 1.22.

Recommendation 6. Guidehouse recommends the implementer continue tracking gallons of water saved from these measures. ComEd informed the evaluation team that the implementer will only be reporting gallons of water saved in CY2020. It is the team's understanding ComEd and the implementer will work together to incorporate necessary calculations and include secondary kWh savings from water reduction in ex ante savings going forward. Table 5-3 shows the total secondary kWh savings for these measures. As the secondary kWh savings vary by location, Guidehouse recommends breaking down the bathroom and kitchen aerator measures based on location for future evaluations.

6.2.6 Hot Water – IU Pipe Insulation

Finding 7. The tracking data did not claim any peak demand savings for the IU - Electric - Pipe Insulation - DHW Small <=1.25-MFES 20 measure. Guidehouse verified peak demand savings

for this measure as per Section 5.4.1 of the TRM v8.0. IU pipe insulation represents 0.0% of program savings and had a verified gross realization rate of 1.00.

Recommendation 7. Guidehouse recommends the implementer claim peak demand savings for all IU electric domestic hot water (DHW) pipe insulation measures as per the TRM v8.0 Section 5.4.1.

Appendix A. Impact Analysis Methodology

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

- Reviewing the savings algorithm inputs in the measure workbook for agreement with the TRM v8.0 and TRM Errata v8.0, where applicable.
- Validating the savings algorithm was applied correctly.
- Cross-checking per-unit savings values in the program tracking data with the verified values in the measure workbook or in Guidehouse's calculations if the workbook did not agree with the TRM v8.0.
- Multiplying the verified per-unit savings value by the quantity reported in the tracking data.

The evaluation team calculated verified net energy and demand (coincident peak and overall) savings by multiplying the verified gross savings estimates by a NTG ratio. In CY2020, NTG estimates used to calculate the net verified savings were based on past evaluation research and defined by a consensus process through Illinois SAG.

Appendix B. Impact Analysis Detail

Table B-1 shows the per unit ex ante and verified energy and demand savings for each unique measure in the CY2020 tracking data.

Table B-1. Verified Measure Per Unit Impact Detail – Electric

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Hot Water	Electric Pipe Insulation - DHW (CA, Small <=1.25)	Linear feet	52.97	0.01	52.97	1.00	0.01	1.00	5.4.1
Hot Water	Gas Aerator - Bathroom (CA, Cook County)	Each	0.00	0.00	4.52	NA	0.00	NA	4.3.2
Hot Water	Gas Aerator - Bathroom (CA)	Each	0.00	0.00	7.70	NA	0.00	NA	4.3.2
Hot Water	Gas Showerhead (CA, Cook County)	Each	0.00	0.00	10.09	NA	0.00	NA	4.3.3
Hot Water	Gas Showerhead (CA)	Each	0.00	0.00	17.20	NA	0.00	NA	4.3.3
Hot Water	Gas Aerator - Kitchen (CA, Cook County)	Each	0.00	0.00	4.52	NA	0.00	NA	4.3.2
Hot Water	Gas Aerator - Kitchen (CA)	Each	0.00	0.00	7.70	NA	0.00	NA	4.3.2
Hot Water	Gas Showerhead (CA, Cook County)	Each	0.00	0.00	10.09	NA	0.00	NA	4.3.3
Hot Water	Gas Showerhead (CA)	Each	0.00	0.00	17.20	NA	0.00	NA	4.3.3
Hot Water	Electric Aerator - Bathroom (IU, Cook County)	Each	31.54	0.03	32.71	1.04	0.03	1.00	5.4.4
Hot Water	Electric Aerator - Bathroom (IU)	Each	31.54	0.03	33.53	1.06	0.03	1.00	5.4.4
Hot Water	Electric Showerhead (IU, Cook County)	Each	227.12	0.03	232.82	1.03	0.03	1.00	5.4.5
Hot Water	Electric Showerhead (IU)	Each	227.12	0.03	236.84	1.04	0.03	1.00	5.4.5
Hot Water	Electric Aerator - Kitchen (IU, Cook County)	Each	50.86	0.01	52.40	1.03	0.01	1.00	5.4.4
Hot Water	Electric Aerator - Kitchen (IU)	Each	50.86	0.01	53.49	1.05	0.01	1.00	5.4.4
Hot Water	Electric Pipe Insulation - DHW (IU, Small <=1.25)	Linear feet	8.12	0.00	8.12	1.00	0.00	NA	5.4.1
Hot Water	Electric Showerhead (IU, Cook County)	Each	227.12	0.03	232.82	1.03	0.03	1.00	5.4.5
Hot Water	Electric Showerhead (IU)	Each	227.12	0.03	236.84	1.04	0.03	1.00	5.4.5

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Hot Water	Gas Aerator - Bathroom (IU, Cook County)	Each	0.00	0.00	1.17	NA	0.00	NA	4.3.2
Hot Water	Gas Aerator - Bathroom (IU)	Each	0.00	0.00	1.99	NA	0.00	NA	5.4.4
Hot Water	Gas Showerhead (IU, Cook County)	Each	0.00	0.00	5.70	NA	0.00	NA	4.3.3
Hot Water	Gas Showerhead (IU)	Each	0.00	0.00	9.73	NA	0.00	NA	5.4.5
Hot Water	Gas Aerator - Kitchen (IU, Cook County)	Each	0.00	0.00	1.54	NA	0.00	NA	5.4.4
Hot Water	Gas Aerator - Kitchen (IU)	Each	0.00	0.00	2.63	NA	0.00	NA	5.4.4
Hot Water	Gas Showerhead (IU, Cook County)	Each	0.00	0.00	5.70	NA	0.00	NA	4.3.3
Hot Water	Gas Showerhead (IU)	Each	0.00	0.00	9.73	NA	0.00	NA	5.4.5
HVAC	Prog. T-Stat Nest - Electric - Furnace & AC (IU)	Each	878.19	0.07	878.19	1.00	0.07	1.00	5.3.16
HVAC	Prog. T-Stat - Electric - Baseboard (IU)	Each	468.90	0.00	837.35	1.79	0.00	NA	5.3.11
HVAC	Manual T-Stat Nest - Gas - Furnace & AC (IU)	Each	174.76	0.07	174.76	1.00	0.07	1.00	5.3.16
HVAC	Prog. T-Stat Nest - Gas - FanCoil-Boiler & Chiller (IU)	Each	171.62	0.07	171.62	1.00	0.07	1.00	5.3.16
HVAC	Manual T-Stat Nest - Gas - Furnace & AC (IU)	Each	174.76	0.07	174.76	1.00	0.07	1.00	5.3.16
HVAC	Manual T-Stat Nest - Gas - Furnace & AC (IU)	Each	174.76	0.07	174.76	1.00	0.07	1.00	5.3.16
HVAC	Prog. T-Stat Nest - Gas - Furnace & AC (IU)	Each	155.53	0.07	155.53	1.00	0.07	1.00	5.3.16
HVAC	Prog. T-Stat - Gas - Furnace (IU CZ2)	Each	37.26	0.00	37.26	1.00	0.00	NA	5.3.11
HVAC	Prog. T-Stat - Gas - Furnace (IU CZ2)	Each	37.26	0.00	37.26	1.00	0.00	NA	5.3.11
HVAC	Prog. T-Stat - Gas - Furnace (IU)	Each	37.26	0.00	37.26	1.00	0.00	NA	5.3.11
Lighting	1L 4ft TLED (Garage 24/7, T12)	Lamp	71.18	0.01	71.18	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (Garage 24/7, T8)	Lamp	64.17	0.01	64.17	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (Garage 24/7, T8)	Lamp	64.17	0.01	64.17	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (Garage 24/7, T8)	Lamp	64.17	0.01	64.17	1.00	0.01	1.00	4.5.4
Lighting	1L 8ft TLED (Garage 24/7, T12)	Lamp	286.65	0.03	286.65	1.00	0.03	1.00	4.5.4
Lighting	2L 2ft TLED (Garage 24/7, T12)	Lamp	152.53	0.02	152.53	1.00	0.02	1.00	4.5.4

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Lighting	2L 2ft TLED (Garage 24/7, T8)	Lamp	106.95	0.01	106.95	1.00	0.01	1.00	4.5.4
Lighting	2L 2ft TLED (Garage 24/7, T8)	Lamp	106.95	0.01	106.95	1.00	0.01	1.00	4.5.4
Lighting	2L 4ft TLED (Garage 24/7, T12)	Lamp	214.77	0.02	214.77	1.00	0.02	1.00	4.5.4
Lighting	2L 4ft TLED (Garage 24/7, T8)	Lamp	207.40	0.02	207.40	1.00	0.02	1.00	4.5.4
Lighting	2L 4ft TLED (Garage 24/7, T8)	Lamp	207.40	0.02	207.40	1.00	0.02	1.00	4.5.4
Lighting	2L 4ft TLED (Garage 24/7, T8)	Lamp	207.40	0.02	207.40	1.00	0.02	1.00	4.5.4
Lighting	2L 8ft TLED (Garage 24/7, T12)	Lamp	573.30	0.07	573.30	1.00	0.07	1.00	4.5.4
Lighting	2L 8ft TLED (Garage 24/7, T8)	Lamp	419.02	0.05	419.01	1.00	0.05	1.00	4.5.4
Lighting	2L 8ft TLED (Garage 24/7, T8)	Lamp	419.02	0.05	419.01	1.00	0.05	1.00	4.5.4
Lighting	3L 4ft TLED (Garage 24/7, T12)	Lamp	394.12	0.04	394.12	1.00	0.04	1.00	4.5.4
Lighting	3L 4ft TLED (Garage 24/7, T8)	Lamp	347.83	0.04	347.83	1.00	0.04	1.00	4.5.4
Lighting	4L 4ft TLED (Garage 24/7, T12)	Lamp	547.70	0.06	547.70	1.00	0.06	1.00	4.5.4
Lighting	4L 4ft TLED (Garage 24/7, T8)	Lamp	485.99	0.06	485.99	1.00	0.06	1.00	4.5.4
Lighting	4L 4ft TLED (Garage 24/7, T8)	Lamp	485.99	0.06	485.99	1.00	0.06	1.00	4.5.4
Lighting	1L 4ft TLED (Garage 24/7, Delamp 2L 4ft T12)	Lamp	333.46	0.04	333.46	1.00	0.04	1.00	4.5.4
Lighting	1L 8ft TLED (Garage 24/7, Delamp 2L 8ft T12)	Lamp	865.20	0.10	865.20	1.00	0.10	1.00	4.5.4
Lighting	2L 2ft TLED (Garage 24/7, Delamp 2L U-tube T12)	Lamp	394.47	0.05	394.47	1.00	0.05	1.00	4.5.4
Lighting	2L 2ft TLED (Garage 24/7, Delamp 2L U-tube T8)	Lamp	224.76	0.03	224.76	1.00	0.03	1.00	4.5.4
Lighting	2L 4Ft TLED (Garage 24/7, Delamp 4L 4Ft T12)	Lamp	757.21	0.09	757.21	1.00	0.09	1.00	4.5.4
Lighting	2L 4Ft TLED (Garage 24/7, Delamp 4L 4Ft T8)	Lamp	695.50	0.08	695.49	1.00	0.08	1.00	4.5.4
Lighting	LED (Garage 24/7 Outdoor, <=175W HID)	Lamp	925.69	0.11	925.69	1.00	0.11	1.00	4.5.4
Lighting	LED (Garage 24/7 Outdoor, 176-250W HID)	Lamp	1345.58	0.15	1345.58	1.00	0.15	1.00	4.5.4
Lighting	LED (Garage 24/7 Outdoor, 251-400W HID)	Lamp	1954.38	0.22	1954.38	1.00	0.22	1.00	4.5.4
Lighting	11W LED (CA Exterior, 18W CFL)	Lamp	24.85	0.00	24.85	1.00	0.00	NA	4.5.4

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Lighting	11W LED (CA Exterior, 75W CFL)	Lamp	149.10	0.00	149.10	1.00	0.00	NA	4.5.4
Lighting	15W LED (CA Exterior, 100W CFL)	Lamp	202.35	0.00	202.35	1.00	0.00	NA	4.5.4
Lighting	15W LED (CA Exterior, 23W CFL)	Lamp	28.40	0.00	28.40	1.00	0.00	NA	4.5.4
Lighting	15W LED Flood (CA Exterior, 100W Incandescent)	Lamp	301.75	0.00	301.75	1.00	0.00	NA	4.5.4
Lighting	15W LED Flood (CA Exterior, 23W CFL)	Lamp	28.40	0.00	28.40	1.00	0.00	NA	4.5.4
Lighting	4W LED Candelabra (CA Exterior, 40W Incandescent)	Lamp	127.80	0.00	127.80	1.00	0.00	NA	4.5.4
Lighting	4W LED Candelabra (CA Exterior, 9W CFL)	Lamp	17.75	0.00	17.75	1.00	0.00	NA	4.5.4
Lighting	6W LED (CA Exterior, 40W Incandescent)	Lamp	81.65	0.00	81.65	1.00	0.00	NA	4.5.4
Lighting	6W LED (CA Exterior, 9W CFL)	Lamp	10.65	0.00	10.65	1.00	0.00	NA	4.5.4
Lighting	8W LED Flood (CA Exterior, 15W CFL)	Lamp	24.85	0.00	24.85	1.00	0.00	NA	4.5.4
Lighting	8W LED Flood (CA Exterior, 65W Incandescent)	Lamp	202.35	0.00	202.35	1.00	0.00	NA	4.5.4
Lighting	9W LED (CA Exterior, 13W CFL)	Lamp	14.20	0.00	14.20	1.00	0.00	NA	4.5.4
Lighting	9W LED (CA Exterior, 60W Incandescent)	Lamp	120.70	0.00	120.70	1.00	0.00	NA	4.5.4
Lighting	11W LED (CA Exterior, 18W CFL)	Lamp	24.85	0.00	24.85	1.00	0.00	NA	4.5.4
Lighting	11W LED (CA Exterior, 75W Incandescent)	Lamp	122.66	0.03	122.66	1.00	0.03	1.00	4.5.4
Lighting	15W LED (CA Exterior, 100W Incandescent)	Lamp	166.47	0.04	166.47	1.00	0.04	1.00	4.5.4
Lighting	9W LED (CA Exterior, 13W CFL)	Lamp	14.20	0.00	14.20	1.00	0.00	NA	4.5.4
Lighting	11W LED (CA Interior High Rise, 18W CFL)	Lamp	41.23	0.01	41.23	1.00	0.01	1.00	4.5.4
Lighting	15W LED (CA Interior High Rise, 100W Incandescent)	Lamp	335.76	0.05	335.76	1.00	0.05	1.00	4.5.4
Lighting	15W LED (CA Interior High Rise, 23W CFL)	Lamp	47.12	0.01	47.12	1.00	0.01	1.00	4.5.4
Lighting	4W LED Candelabra (CA Interior High Rise, 40W Incandescent)	Lamp	212.06	0.03	212.06	1.00	0.03	1.00	4.5.4
Lighting	4W LED Candelabra (CA Interior High Rise, 9W CFL)	Lamp	29.45	0.00	29.45	1.00	0.00	1.00	4.5.4
Lighting	6/12/19W 3-Way LED (CA Interior High Rise, 50/100/150W)	Lamp	400.55	0.06	400.55	1.00	0.06	1.00	4.5.4

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Lighting	6W LED (CA Interior High Rise, 40W Incandescent)	Lamp	135.48	0.02	135.48	1.00	0.02	1.00	4.5.4
Lighting	6W LED (CA Interior High Rise, 9W CFL)	Lamp	17.67	0.00	17.67	1.00	0.00	1.00	4.5.4
Lighting	6W LED Globe (CA Interior High Rise, 40/60W Incandescent)	Lamp	259.18	0.04	259.18	1.00	0.04	1.00	4.5.4
Lighting	6W LED Globe (CA Interior High Rise, 9W Incandescent)	Lamp	17.67	0.00	17.67	1.00	0.00	1.00	4.5.4
Lighting	7W LED Tracklight GU 3.5 (CA Interior High Rise, 50W Incandescent)	Lamp	253.29	0.04	253.29	1.00	0.04	1.00	4.5.4
Lighting	7W Mini-Flood PAR20 (CA Interior High Rise, 45W Incandescent)	Lamp	223.84	0.03	223.84	1.00	0.03	1.00	4.5.4
Lighting	8W LED Flood (CA Interior High Rise, 15W CFL)	Lamp	41.23	0.01	41.23	1.00	0.01	1.00	4.5.4
Lighting	8W LED Flood (CA Interior High Rise, 65W Incandescent)	Lamp	335.76	0.05	335.76	1.00	0.05	1.00	4.5.4
Lighting	9W LED (CA Interior High Rise, 13W CFL)	Lamp	23.56	0.00	23.56	1.00	0.00	1.00	4.5.4
Lighting	9W LED (CA Interior High Rise, 60W Incandescent)	Lamp	200.28	0.03	200.28	1.00	0.03	1.00	4.5.4
Lighting	11W LED (CA Interior, 18W CFL)	Lamp	38.14	0.00	38.14	1.00	0.00	1.00	4.5.4
Lighting	11W LED (CA Interior, 75W Incandescent)	Lamp	228.85	0.02	228.85	1.00	0.02	1.00	4.5.4
Lighting	15W LED (CA Interior, 100W Incandescent)	Lamp	310.58	0.03	310.58	1.00	0.03	1.00	4.5.4
Lighting	15W LED (CA Interior, 23W CFL)	Lamp	43.59	0.00	43.59	1.00	0.00	1.00	4.5.4
Lighting	4W LED Candelabra (CA Interior, 40W Incandescent)	Lamp	196.15	0.02	196.15	1.00	0.02	1.00	4.5.4
Lighting	4W LED Candelabra (CA Interior, 9W CFL)	Lamp	27.24	0.00	27.24	1.00	0.00	1.00	4.5.4
Lighting	5W LED Mini-Globe (CA Interior, 25W Incandescent)	Lamp	108.97	0.01	108.97	1.00	0.01	1.00	4.5.4
Lighting	6W LED (CA Interior, 40W Incandescent)	Lamp	125.32	0.01	125.32	1.00	0.01	1.00	4.5.4
Lighting	6W LED (CA Interior, 9W CFL)	Lamp	16.35	0.00	16.35	1.00	0.00	1.00	4.5.4
Lighting	6W LED Globe (CA Interior, 40/60W Incandescent)	Lamp	239.74	0.03	239.74	1.00	0.03	1.00	4.5.4
Lighting	6W LED Globe (CA Interior, 9W CFL)	Lamp	16.35	0.00	16.35	1.00	0.00	1.00	4.5.4

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Lighting	7W LED Tracklight Prong GU10 (CA Interior, 50W Incandescent)	Lamp	234.30	0.03	234.29	1.00	0.03	1.00	4.5.4
Lighting	8W LED Flood (CA Interior, 15W CFL)	Lamp	38.14	0.00	38.14	1.00	0.00	1.00	4.5.4
Lighting	8W LED Flood (CA Interior, 65W Incandescent)	Lamp	310.58	0.03	310.58	1.00	0.03	1.00	4.5.4
Lighting	9W LED (CA Interior, 13W CFL)	Lamp	21.80	0.00	21.79	1.00	0.00	1.00	4.5.4
Lighting	9W LED (CA Interior, 60W Incandescent)	Lamp	185.26	0.02	185.26	1.00	0.02	1.00	4.5.4
Lighting	LED (Exterior DD Outdoor, <=175W HID)	Lamp	454.40	0.00	454.40	1.00	0.00	NA	4.5.4
Lighting	LED (Exterior DD Outdoor, 176-250W HID)	Lamp	660.51	0.00	660.51	1.00	0.00	NA	4.5.4
Lighting	LED (Exterior DD Outdoor, 251-400W HID)	Lamp	959.35	0.00	959.35	1.00	0.00	NA	4.5.4
Lighting	LED (Exterior DD Outdoor, 401-650W HID)	Lamp	1730.02	0.00	1730.02	1.00	0.00	NA	4.5.4
Lighting	LED (Exterior DD Outdoor, 801-1000W HID)	Lamp	2498.86	0.00	2498.86	1.00	0.00	NA	4.5.4
Lighting	1L 8ft TLED (Garage, T12)	Lamp	111.21	0.03	111.21	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (Garage, T12)	Lamp	83.33	0.02	83.32	1.00	0.02	1.00	4.5.4
Lighting	2L 4ft TLED (Garage, T8)	Lamp	80.47	0.02	80.47	1.00	0.02	1.00	4.5.4
Lighting	2L 4ft TLED (Garage, T8)	Lamp	80.47	0.02	80.47	1.00	0.02	1.00	4.5.4
Lighting	4L 4ft TLED (Garage, T12)	Lamp	212.50	0.06	212.49	1.00	0.06	1.00	4.5.4
Lighting	LED Exit Sign (Garage 24/7, CFL Dual Sided)	Lamp	87.66	0.01	87.66	1.00	0.01	1.00	4.5.5
Lighting	LED Exit Sign (Garage 24/7, CFL Single Sided)	Lamp	271.75	0.03	271.75	1.00	0.03	1.00	4.5.5
Lighting	LED Exit Sign Fixture BB (Garage 24/7, CFL Dual Sided)	Lamp	87.66	0.01	87.66	1.00	0.01	1.00	4.5.5
Lighting	LED Exit Sign Fixture BB (Garage 24/7, CFL Single Sided)	Lamp	43.83	0.01	43.83	1.00	0.01	1.00	4.5.5
Lighting	LED Exit Sign Fixture BB (Garage 24/7, Incandescent)	Lamp	271.75	0.03	271.75	1.00	0.03	1.00	4.5.5
Lighting	LED Exit Sign lamp (Garage 24/7, Incandescent)	Lamp	271.75	0.03	271.75	1.00	0.03	1.00	4.5.5
Lighting	LED Exit Sign lamp (Garage 24/7, Incandescent)	Lamp	271.75	0.03	271.75	1.00	0.03	1.00	4.5.5

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Lighting	LED (Garage 24/7 Outdoor, <=175W HID)	Lamp	925.69	0.11	925.69	1.00	0.11	1.00	4.5.4
Lighting	LED (Garage Outdoor, 176-250W HID)	Lamp	522.05	0.14	522.05	1.00	0.14	1.00	4.5.4
Lighting	2L 4ft TLED (Garage DD Outdoor, Delamp 4L 4ft T8)	Lamp	341.40	0.00	341.40	1.00	0.00	NA	4.5.4
Lighting	1L 2ft TLED (CA Interior High Rise 24/7, T12)	Lamp	91.52	0.01	91.52	1.00	0.01	1.00	4.5.4
Lighting	1L 2ft TLED (CA Interior High Rise 24/7, T8)	Lamp	54.49	0.01	54.49	1.00	0.01	1.00	4.5.4
Lighting	1L 2ft TLED (CA Interior High Rise 24/7, T8)	Lamp	54.49	0.01	54.49	1.00	0.01	1.00	4.5.4
Lighting	1L 3ft TLED (CA Interior High Rise 24/7, T12)	Lamp	137.28	0.02	137.28	1.00	0.02	1.00	4.5.4
Lighting	1L 3ft TLED (CA Interior High Rise 24/7, T8)	Lamp	72.48	0.01	72.48	1.00	0.01	1.00	4.5.4
Lighting	1L 3ft TLED (CA Interior High Rise 24/7, T8)	Lamp	72.48	0.01	72.48	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (CA Interior High Rise 24/7, T12)	Lamp	85.42	0.01	85.42	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (CA Interior High Rise 24/7, T8)	Lamp	77.00	0.01	77.00	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (CA Interior High Rise 24/7, T8)	Lamp	77.00	0.01	77.00	1.00	0.01	1.00	4.5.4
Lighting	1L 8ft TLED (CA Interior High Rise 24/7, T12)	Lamp	343.98	0.04	343.98	1.00	0.04	1.00	4.5.4
Lighting	1L 8ft TLED (CA Interior High Rise 24/7, T12)	Lamp	343.98	0.04	343.98	1.00	0.04	1.00	4.5.4
Lighting	1L 8ft TLED (CA Interior High Rise 24/7, T8)	Lamp	251.41	0.03	251.41	1.00	0.03	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior High Rise 24/7, T12)	Lamp	183.03	0.02	183.03	1.00	0.02	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior High Rise 24/7, T8)	Lamp	128.33	0.02	128.33	1.00	0.02	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior High Rise 24/7, T8)	Lamp	128.33	0.02	128.33	1.00	0.02	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise 24/7, T12)	Lamp	257.72	0.03	257.72	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise 24/7, T8)	Lamp	248.88	0.03	248.88	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise 24/7, T8)	Lamp	248.88	0.03	248.88	1.00	0.03	1.00	4.5.4
Lighting	2L 8ft TLED (CA Interior High Rise 24/7, T12)	Lamp	687.96	0.08	687.96	1.00	0.08	1.00	4.5.4
Lighting	2L 8ft TLED (CA Interior High Rise 24/7, T8)	Lamp	502.82	0.06	502.82	1.00	0.06	1.00	4.5.4
Lighting	2L 8ft TLED (CA Interior High Rise 24/7, T8)	Lamp	502.82	0.06	502.82	1.00	0.06	1.00	4.5.4

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Lighting	3L 4ft TLED (CA Interior High Rise 24/7, T12)	Lamp	472.94	0.06	472.94	1.00	0.06	1.00	4.5.4
Lighting	3L 4ft TLED (CA Interior High Rise 24/7, T8)	Lamp	417.40	0.05	417.40	1.00	0.05	1.00	4.5.4
Lighting	3L 4ft TLED (CA Interior High Rise 24/7, T8)	Lamp	417.40	0.05	417.40	1.00	0.05	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior High Rise 24/7, T12)	Lamp	657.24	0.08	657.24	1.00	0.08	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior High Rise 24/7, T8)	Lamp	583.18	0.07	583.18	1.00	0.07	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior High Rise 24/7, T8)	Lamp	583.18	0.07	583.18	1.00	0.07	1.00	4.5.4
Lighting	4L 8ft TLED (CA Interior High Rise 24/7, T12)	Lamp	1375.91	0.16	1375.91	1.00	0.16	1.00	4.5.4
Lighting	4L 8ft TLED (CA Interior High Rise 24/7, T8)	Lamp	1005.64	0.12	1005.64	1.00	0.12	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise 24/7, Delamp 2L 8ft T12)	Lamp	1038.25	0.12	1038.25	1.00	0.12	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior High Rise 24/7, Delamp 2L U-Tube T12)	Lamp	473.36	0.06	473.36	1.00	0.06	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise 24/7, Delamp 4L 4ft T12)	Lamp	908.65	0.11	908.65	1.00	0.11	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior High Rise 24/7, Delamp 2L U-Tube T8)	Lamp	269.71	0.03	269.71	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise 24/7, Delamp 4L 4ft T8)	Lamp	834.59	0.10	834.59	1.00	0.10	1.00	4.5.4
Lighting	1L 1ft TLED (CA Interior High Rise, T8)	Lamp	16.88	0.00	16.88	1.00	0.00	1.00	4.5.4
Lighting	1L 2ft TLED (CA Interior High Rise, T12)	Lamp	33.85	0.01	33.85	1.00	0.01	1.00	4.5.4
Lighting	1L 2ft TLED (CA Interior High Rise, T8)	Lamp	20.15	0.01	20.15	1.00	0.01	1.00	4.5.4
Lighting	1L 2ft TLED (CA Interior High Rise, T8)	Lamp	20.15	0.01	20.15	1.00	0.01	1.00	4.5.4
Lighting	1L 3ft TLED (CA Interior High Rise, T12)	Lamp	50.77	0.01	50.77	1.00	0.01	1.00	4.5.4
Lighting	1L 3ft TLED (CA Interior High Rise, T8)	Lamp	26.81	0.01	26.80	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (CA Interior High Rise, T12)	Lamp	31.59	0.01	31.59	1.00	0.01	1.00	4.5.4
Lighting	1L 8ft TLED (CA Interior High Rise, T8)	Lamp	28.48	0.01	28.48	1.00	0.01	1.00	4.5.4

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Lighting	1L 4ft TLED (CA Interior High Rise, T8)	Lamp	28.48	0.01	28.48	1.00	0.01	1.00	4.5.4
Lighting	1L 8ft TLED (CA Interior High Rise, T12)	Lamp	127.22	0.04	127.22	1.00	0.04	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior High Rise, T12)	Lamp	67.69	0.02	67.69	1.00	0.02	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior High Rise, T8)	Lamp	47.46	0.01	47.46	1.00	0.01	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior High Rise, T8)	Lamp	47.46	0.01	47.46	1.00	0.01	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise, T12)	Lamp	95.32	0.03	95.31	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise, T8)	Lamp	92.05	0.03	92.05	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise, T8)	Lamp	92.05	0.03	92.05	1.00	0.03	1.00	4.5.4
Lighting	2L 8ft TLED Retrokit (CA Interior High Rise, T12)	Lamp	254.43	0.07	254.43	1.00	0.07	1.00	4.5.4
Lighting	2L 8ft TLED (CA Interior High Rise, T12)	Lamp	254.43	0.07	254.43	1.00	0.07	1.00	4.5.4
Lighting	2L 8ft TLED (CA Interior High Rise, T8)	Lamp	185.96	0.05	185.96	1.00	0.05	1.00	4.5.4
Lighting	2L 8ft TLED (CA Interior High Rise, T8)	Lamp	185.96	0.05	185.96	1.00	0.05	1.00	4.5.4
Lighting	3L 4ft TLED (CA Interior High Rise, T12)	Lamp	174.91	0.05	174.91	1.00	0.05	1.00	4.5.4
Lighting	3L 4ft TLED (CA Interior High Rise, T8)	Lamp	154.37	0.04	154.37	1.00	0.04	1.00	4.5.4
Lighting	3L 4ft TLED (CA Interior High Rise, T8)	Lamp	154.37	0.04	154.37	1.00	0.04	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior High Rise, T12)	Lamp	243.07	0.07	243.07	1.00	0.07	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior High Rise, T8)	Lamp	215.68	0.06	215.68	1.00	0.06	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior High Rise, T8)	Lamp	215.68	0.06	215.68	1.00	0.06	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise, Delamp 2L 8ft T12)	Lamp	383.98	0.11	383.98	1.00	0.11	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior High Rise, Delamp 2L U-Tube T12)	Lamp	175.07	0.05	175.07	1.00	0.05	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior High Rise, Delamp 2L U-Tube T8)	Lamp	99.75	0.03	99.75	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise, Delamp 4L 4ft T12)	Lamp	336.05	0.10	336.05	1.00	0.10	1.00	4.5.4

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Lighting	2L 2ft TLED Retrokit (CA Interior High Rise, Delamp 2L U-Tube T8)	Lamp	99.75	0.03	99.75	1.00	0.03	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior High Rise, Delamp 2L U-Tube T8)	Lamp	99.75	0.03	99.75	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior High Rise, Delamp 4L 4ft T8)	Lamp	308.67	0.09	308.66	1.00	0.09	1.00	4.5.4
Lighting	4W LED Candelabra (IU Exterior, 40W Incandescent)	Lamp	84.20	0.01	84.20	1.00	0.01	1.00	5.5.6
Lighting	15W LED Flood (IU Interior, 100W Incandescent)	Lamp	61.01	0.01	61.01	1.00	0.01	1.00	5.5.8
Lighting	4W LED Candelabra (IU Interior, 40W Incandescent)	Lamp	27.00	0.00	27.00	1.00	0.00	1.00	5.5.6
Lighting	5W LED Mini-Globe (IU Interior, 25W Incandescent)	Lamp	15.00	0.00	15.00	1.00	0.00	1.00	5.5.6
Lighting	6/12/19W 3-Way LED (IU Interior, 50/100/150W)	Lamp	50.99	0.01	50.99	1.00	0.01	1.00	5.5.6
Lighting	6W LED Globe (IU Interior, 40/60W Incandescent)	Lamp	25.50	0.00	25.50	1.00	0.00	1.00	5.5.6
Lighting	6W LED (IU Interior, 40W Incandescent)	Lamp	24.62	0.00	24.62	1.00	0.00	1.00	5.5.8
Lighting	7W Mini-Flood PAR20 (IU Interior, 45W)	Lamp	28.50	0.00	36.60	1.28	0.00	1.16	5.5.9
Lighting	7W LED Tracklight GU 5.3 (IU Interior, 50W Incandescent)	Lamp	32.25	0.00	41.41	1.28	0.01	1.16	5.5.9
Lighting	7W LED Tracklight GU 10 (IU Interior, 50W Incandescent)	Lamp	32.25	0.00	41.41	1.28	0.01	1.16	5.5.9
Lighting	8W LED Flood (IU Interior, 65W Incandescent)	Lamp	42.74	0.01	54.89	1.28	0.01	1.16	5.5.9
Lighting	9W LED (IU Interior, 60W Incandescent)	Lamp	36.39	0.00	36.39	1.00	0.00	1.00	5.5.8
Lighting	LED Exit Sign (CFL Dual Sided, High Rise)	Lamp	97.30	0.01	105.19	1.08	0.01	1.07	4.5.5
Lighting	LED Exit Sign (CFL Dual Sided, Mid Rise)	Lamp	97.30	0.01	97.30	1.00	0.01	1.00	4.5.5
Lighting	LED Exit Sign (CFL Dual Sided, High Rise)	Lamp	48.65	0.01	52.60	1.08	0.01	1.07	4.5.5
Lighting	LED Exit Sign (CFL Dual Sided, Mid Rise)	Lamp	97.30	0.01	97.30	1.00	0.01	1.00	4.5.5
Lighting	LED Exit Sign (CFL Single Sided, High Rise)	Lamp	48.65	0.01	52.60	1.08	0.01	1.07	4.5.5
Lighting	LED Exit Sign (CFL Single Sided, Mid Rise)	Lamp	48.65	0.01	48.65	1.00	0.01	1.00	4.5.5
Lighting	LED Exit Sign (Incandescent, High Rise)	Lamp	301.64	0.04	326.10	1.08	0.04	1.07	4.5.5

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Lighting	LED Exit Sign (Incandescent, Mid Rise)	Lamp	301.64	0.04	301.64	1.00	0.04	1.00	4.5.5
Lighting	LED Exit Sign Fixture (CFL Single Sided, High Rise)	Lamp	48.65	0.01	52.60	1.08	0.01	1.07	4.5.5
Lighting	LED Exit Sign Fixture (CFL Single Sided, Mid Rise)	Lamp	48.65	0.01	48.65	1.00	0.01	1.00	4.5.5
Lighting	LED Exit Sign Fixture (Incandescent, High Rise)	Lamp	301.64	0.04	326.10	1.08	0.04	1.07	4.5.5
Lighting	LED Exit Sign Fixture (Incandescent, Mid Rise)	Lamp	301.64	0.04	301.64	1.00	0.04	1.00	4.5.5
Lighting	LED Exit Sign Fixture BB (CFL Dual Sided, High Rise)	Lamp	97.30	0.01	105.19	1.08	0.01	1.07	4.5.5
Lighting	LED Exit Sign Fixture BB (CFL Dual Sided, Mid Rise)	Lamp	97.30	0.01	97.30	1.00	0.01	1.00	4.5.5
Lighting	LED Exit Sign Fixture BB (CFL Single Sided, High Rise)	Lamp	48.65	0.01	52.60	1.08	0.01	1.07	4.5.5
Lighting	LED Exit Sign Fixture BB (CFL Single Sided, Mid Rise)	Lamp	48.65	0.01	48.65	1.00	0.01	1.00	4.5.5
Lighting	LED Exit Sign Fixture BB (Incandescent, High Rise)	Lamp	301.64	0.04	326.10	1.08	0.04	1.07	4.5.5
Lighting	LED Exit Sign Fixture BB (Incandescent, Mid Rise)	Lamp	301.64	0.04	301.64	1.00	0.04	1.00	4.5.5
Lighting	LED Exit Sign Lamp (CFL Single Sided, High Rise)	Lamp	48.65	0.01	52.60	1.08	0.01	1.07	4.5.5
Lighting	LED Exit Sign Lamp (CFL Single Sided, Mid Rise)	Lamp	48.65	0.01	48.65	1.00	0.01	1.00	4.5.5
Lighting	LED Exit Sign Lamp (Incandescent, High Rise)	Lamp	301.64	0.04	326.10	1.08	0.04	1.07	4.5.5
Lighting	LED Exit Sign Lamp (Incandescent, Mid Rise)	Lamp	301.64	0.04	301.64	1.00	0.04	1.00	4.5.5
Lighting	1L 2ft TLED (CA Interior 24/7, T12)	Lamp	84.65	0.01	84.65	1.00	0.01	1.00	4.5.4
Lighting	1L 3ft TLED (CA Interior 24/7, T12)	Lamp	126.98	0.02	126.98	1.00	0.02	1.00	4.5.4
Lighting	1L 4ft TLED (CA Interior 24/7, T12)	Lamp	79.01	0.01	79.01	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (CA Interior 24/7, T8)	Lamp	71.23	0.01	71.23	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (CA Interior 24/7, T8)	Lamp	71.23	0.01	71.23	1.00	0.01	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior 24/7, T12)	Lamp	169.31	0.02	169.31	1.00	0.02	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior 24/7, T8)	Lamp	118.71	0.01	118.71	1.00	0.01	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior 24/7, T8)	Lamp	118.71	0.01	118.71	1.00	0.01	1.00	4.5.4

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Lighting	2L 4ft TLED (CA Interior 24/7, T12)	Lamp	238.39	0.03	238.39	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior 24/7, T8)	Lamp	230.22	0.03	230.22	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior 24/7, T8)	Lamp	230.22	0.03	230.22	1.00	0.03	1.00	4.5.4
Lighting	2L 8ft TLED (CA Interior 24/7, T12)	Lamp	636.36	0.08	636.36	1.00	0.08	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior 24/7, T12)	Lamp	607.95	0.07	607.95	1.00	0.07	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior 24/7, T8)	Lamp	539.45	0.06	539.45	1.00	0.06	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior 24/7, T8)	Lamp	539.45	0.06	539.45	1.00	0.06	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior 24/7, Delamp 2L U-Tube T12)	Lamp	437.86	0.05	437.86	1.00	0.05	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior 24/7, Delamp 2L U-Tube T8)	Lamp	249.48	0.03	249.48	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior 24/7, Delamp 4L 4ft T8)	Lamp	772.00	0.09	772.00	1.00	0.09	1.00	4.5.4
Lighting	2L 2ft TLED Retrokit (CA Interior 24/7, Delamp 2L U-Tube T8)	Lamp	249.48	0.03	249.48	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED Retrokit (CA Interior 24/7, Delamp 4L 4ft T12)	Lamp	840.50	0.10	840.50	1.00	0.10	1.00	4.5.4
Lighting	2L 4ft TLED Retrokit (CA Interior 24/7, Delamp 4L 4ft T8)	Lamp	772.00	0.09	772.00	1.00	0.09	1.00	4.5.4
Lighting	1L 2ft TLED (CA Interior, T12)	Lamp	31.31	0.01	31.31	1.00	0.01	1.00	4.5.4
Lighting	1L 2ft TLED (CA Interior, T8)	Lamp	18.64	0.01	18.64	1.00	0.01	1.00	4.5.4
Lighting	1L 3ft TLED (CA Interior, T12)	Lamp	46.96	0.01	46.96	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (CA Interior, T12)	Lamp	29.22	0.01	29.22	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (CA Interior, T8)	Lamp	26.34	0.01	26.34	1.00	0.01	1.00	4.5.4
Lighting	1L 4ft TLED (CA Interior, T8)	Lamp	26.34	0.01	26.34	1.00	0.01	1.00	4.5.4
Lighting	1L 8ft TLED (CA Interior, T12)	Lamp	117.68	0.03	117.67	1.00	0.03	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior, T12)	Lamp	62.62	0.02	62.62	1.00	0.02	1.00	4.5.4
Lighting	2L 2ft TLED Retrokit (CA Interior, T8)	Lamp	43.90	0.01	43.90	1.00	0.01	1.00	4.5.4

End Use Type	Research Category	Unit	Ex Ante Gross kWh/Unit Savings	Ex Ante Gross Peak kW/Unit Savings	Verified Gross kWh/Unit Savings	kWh Savings Realization Rate	Verified Gross Peak kW/Unit	Peak kW Savings Realization Rate	Source (TRM Section*)
Lighting	2L 2ft TLED (CA Interior, T8)	Lamp	43.90	0.01	43.90	1.00	0.01	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior, T8)	Lamp	43.90	0.01	43.90	1.00	0.01	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior, T12)	Lamp	88.17	0.03	88.17	1.00	0.03	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior, T8)	Lamp	85.14	0.02	85.14	1.00	0.02	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior, T8)	Lamp	85.14	0.02	85.14	1.00	0.02	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior, T8)	Lamp	85.14	0.02	85.14	1.00	0.02	1.00	4.5.4
Lighting	2L 8ft TLED (CA Interior, T12)	Lamp	235.35	0.07	235.35	1.00	0.07	1.00	4.5.4
Lighting	2L 8ft TLED (CA Interior, T12)	Lamp	235.35	0.07	235.35	1.00	0.07	1.00	4.5.4
Lighting	2L 8ft TLED (CA Interior, T8)	Lamp	172.01	0.05	172.01	1.00	0.05	1.00	4.5.4
Lighting	3L 4ft TLED (CA Interior, T8)	Lamp	142.79	0.04	142.79	1.00	0.04	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior, T12)	Lamp	224.84	0.07	224.84	1.00	0.07	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior, T8)	Lamp	199.51	0.06	199.51	1.00	0.06	1.00	4.5.4
Lighting	4L 4ft TLED (CA Interior, T8)	Lamp	199.51	0.06	199.51	1.00	0.06	1.00	4.5.4
Lighting	4L 8ft TLED (CA Interior, T12)	Lamp	470.70	0.14	470.70	1.00	0.14	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior, Delamp 2L 8ft T12)	Lamp	355.18	0.10	355.18	1.00	0.10	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior, Delamp 2L U-Tube T12)	Lamp	161.94	0.05	161.94	1.00	0.05	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior, Delamp 4L 4ft T12)	Lamp	310.85	0.09	310.85	1.00	0.09	1.00	4.5.4
Lighting	2L 4ft TLED (CA Interior, Delamp 4L 4ft T8)	Lamp	285.52	0.08	285.51	1.00	0.08	1.00	4.5.4
Lighting	2L 2ft TLED (CA Interior, Delamp 2L U-Tube T8)	Lamp	92.27	0.03	92.27	1.00	0.03	1.00	4.5.4

*TRM v8.0 and TRM v8.0 Errata, where applicable.

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. 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 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	LED Exterior HID	Lamp	2,489	11.6	No	1,770,232	0.00	NA	0	0	0	0.83	0.83	0.85	1,469,293	0.00	NA	0	0	0
Lighting	LED Exit Sign	Lamp	5,831	5.0	No	1,517,759	180.75	NA	0	-14,371	-12,264	0.83	0.83	0.85	1,259,740	150.02	NA	0	-11,928	-10,425
Lighting	LED 24/7 CA Interior T8	Lamp	6,185	5.7	No	1,389,842	166.87	NA	0	-22,909	-8,230	0.96	0.96	0.85	1,334,248	160.19	NA	0	-21,992	-6,995
Lighting	LED 24/7 Garage HID	Lamp	1,084	5.7	No	1,166,929	133.12	NA	0	0	0	0.83	0.83	0.85	968,551	110.49	NA	0	0	0
Lighting	LED 24/7 Garage T8	Lamp	5,426	5.7	No	1,058,929	120.80	NA	0	0	0	0.96	0.96	0.85	1,016,572	115.97	NA	0	0	0
Lighting	LED 24/7 Garage T12‡	Lamp	1,733	5.7	No	600,454	68.50	NA	0	0	0	0.96	0.96	0.85	576,436	65.76	NA	0	0	0
Lighting	LED 24/7 CA Interior T12‡	Lamp	1,697	5.7	No	491,660	59.61	NA	0	-12,507	-3,328	0.96	0.96	0.85	471,994	57.23	NA	0	-12,007	-2,829
Lighting	LED CA Interior T8	Lamp	4,659	15.0	No	413,283	120.44	NA	0	-5,337	-3,034	0.96	0.96	0.85	396,752	115.63	NA	0	-5,123	-2,579
Lighting	LED CA Interior Omnidirectional Incandescent‡	Lamp	1,983	3.4	No	376,683	51.81	NA	0	-30,893	-3,588	0.67	0.67	0.85	252,378	34.71	NA	0	-20,698	-3,049
Lighting	LED CA Interior T12‡	Lamp	2,472	15.0	No	299,483	90.18	NA	0	-13,716	-2,031	0.96	0.96	0.85	287,504	86.57	NA	0	-13,167	-1,726
Lighting	LED IU Interior Omnidirectional‡	Lamp	8,623	10.0	No	295,578	37.30	NA	0	-12,886	-6,179	0.67	0.67	0.85	198,037	24.99	NA	0	-8,634	-5,252
HVAC	Advanced Thermostat	Each	421	11.0	No	260,746	29.30	NA	0	0	0	NA	NA	0.85	260,746	29.30	NA	0	0	0
Lighting	LED CA Interior Decorative Incandescent‡	Lamp	1,261	2.9	No	221,032	32.76	NA	0	-35,808	-1,308	0.82	0.82	0.85	181,246	26.86	NA	0	-29,362	-1,112
Lighting	LED IU Interior Decorative‡	Lamp	7,679	10.0	No	156,225	26.29	NA	0	-22,666	-2,516	0.82	0.82	0.85	128,104	21.56	NA	0	-18,586	-2,138
Hot Water	Low Flow Showerhead (Electric)	Each	649	10.0	No	147,400	19.70	NA	5,559	0	0	1.03	1.03	0.85	151,822	20.29	NA	5,726	0	0
Lighting	LED CA Interior Omnidirectional CFL	Lamp	4,631	3.4	No	107,600	13.94	NA	0	-4,493	-1,323	0.67	0.67	0.85	72,092	9.34	NA	0	-3,010	-1,124
Lighting	LED CA Interior Directional Incandescent‡	Lamp	347	4.2	No	103,814	15.20	NA	0	-5,916	-718	0.82	0.82	0.85	85,127	12.46	NA	0	-4,851	-610
Lighting	LED CA Exterior Omnidirectional Incandescent‡	Lamp	344	4.6	No	44,801	0.00	NA	0	0	0	0.67	0.67	0.85	30,016	0.00	NA	0	0	0
Lighting	LED IU Interior Fixture‡	Lamp	648	15.0	No	30,245	4.09	NA	0	-725	-660	0.82	0.82	0.85	24,801	3.36	NA	0	-595	-561
HVAC	IU Programmable Thermostat	Each	603	8.0	No	27,529	0.00	NA	0	0	0	0.86	0.86	0.85	23,675	0.00	NA	0	0	0
Lighting	LED Garage HID	Lamp	73	14.7	No	26,543	7.18	NA	0	0	0	0.83	0.83	0.85	22,031	5.96	NA	0	0	0
Hot Water	Low Flow Showerhead (Gas)	Each	3,336	10.0	No	0	0.00	NA	23,521	0	0	1.03	1.03	0.85	0	0.00	NA	24,227	0	0
Lighting	LED CA Exterior Decorative Incandescent‡	Lamp	149	4.0	No	19,042	0.00	NA	0	0	0	0.82	0.82	0.85	15,614	0.00	NA	0	0	0
Lighting	LED CA Exterior Directional Incandescent‡	Lamp	66	5.8	No	16,933	0.00	NA	0	0	0	0.82	0.82	0.85	13,885	0.00	NA	0	0	0
Lighting	LED CA Exterior Omnidirectional CFL	Lamp	914	4.6	No	14,363	0.00	NA	0	0	0	0.67	0.67	0.85	9,623	0.00	NA	0	0	0
Hot Water	Faucet Aerator - Kitchen (Electric)	Each	229	10.0	No	11,647	3.05	NA	586	0	0	1.03	1.03	0.85	11,997	3.14	NA	603	0	0
Lighting	LED CA Interior Decorative CFL	Lamp	420	2.9	No	11,948	1.67	NA	0	0	-112	0.82	0.82	0.85	9,797	1.37	NA	0	0	-95
Hot Water	Low Flow Faucet Aerator (Gas)	Each	3,925	10.0	No	0	0.00	NA	6,632	0	0	1.03	1.03	0.85	0	0.00	NA	6,831	0	0
Lighting	LED CA Exterior Directional CFL	Lamp	225	5.8	No	5,975	0.00	NA	0	0	0	0.82	0.82	0.85	4,899	0.00	NA	0	0	0
Lighting	LED CA Interior Directional CFL	Lamp	132	4.2	No	4,529	0.70	NA	0	-716	-17	0.82	0.82	0.85	3,714	0.58	NA	0	-587	-14
HVAC	IU Reprogram Thermostat	Each	120	2.0	No	4,471	0.00	NA	0	0	0	0.86	0.86	0.85	3,845	0.00	NA	0	0	0
Hot Water	Faucet Aerator - Bathroom (Electric)	Each	109	10.0	No	3,438	3.44	NA	207	0	0	1.03	1.03	0.85	3,541	3.54	NA	213	0	0
Lighting	LED Garage Exterior T8	Lamp	9	11.6	No	3,073	0.00	NA	0	0	0	0.96	0.96	0.85	2,950	0.00	NA	0	0	0
Lighting	LED Garage Omnidirectional Incandescent‡	Lamp	17	5.6	No	2,567	0.67	NA	0	0	0	0.67	0.67	0.85	1,720	0.45	NA	0	0	0
Hot Water	CA Pipe Insulation	Ln. Ft	39	15.0	No	2,066	0.24	NA	0	0	0	0.83	0.83	0.85	1,715	0.20	NA	0	0	0
Hot Water	IU Pipe Insulation	Ln. Ft	207	15.0	No	1,680	0.19	NA	0	0	0	0.83	0.83	0.85	1,394	0.16	NA	0	0	0
Lighting	LED Garage T12‡	Lamp	17	14.7	No	1,574	0.43	NA	0	0	0	0.96	0.96	0.85	1,511	0.41	NA	0	0	0
Lighting	LED Garage Omnidirectional CFL	Lamp	30	5.6	No	534	0.14	NA	0	0	0	0.67	0.67	0.85	358	0.09	NA	0	0	0
Lighting	LED CA Exterior Decorative CFL	Lamp	16	4.0	No	284	0.00	NA	0	0	0	0.82	0.82	0.85	233	0.00	NA	0	0	0
Lighting	LED IU Exterior Decorative‡	Lamp	3	6.9	No	253	0.03	NA	0	0	0	0.82	0.82	0.85	207	0.02	NA	0	0	0
Lighting	LED Garage T8	Lamp	3	14.7	No	241	0.07	NA	0	0	0	0.96	0.96	0.85	232	0.06	NA	0	0	0
	Total		68,804	7.5		10,611,387	1,188	NA	36,505	-182,943	-45,306	NA	NA	NA	9,298,402	1,061	NA	37,600	-150,542	-38,510

NA = not applicable

Note: To avoid double counting, the verified gross kWh and net kWh used in the TRC analysis exclude secondary energy savings from water reduction measures. The program saved 9,911,004 gallons of water, representing 36,505 gross kWh and 37,600 net kWh.

*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.

‡ The EUL for this measure varies over time. See the CPAS table (Table 4-1).

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

†§ The kWh savings account for electric heating penalties, where applicable. The electric heating penalties columns show the magnitude of adjustments applied to the program savings. Gas heating penalties represent the program therms heating penalties. The therms penalties are not required to be applied to the program savings.

Source: ComEd tracking data and evaluation team analysis