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ComEd Income Eligible Product Discounts 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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1. Introduction

This report presents the impact evaluation results for ComEd's CY2021 Lighting Discounts – Income Eligible (LDIS-IE) and Appliance Rebates – Income Eligible (APR-IE) Programs. Together these programs are referred to as the Income Eligible Product Discounts Program and referred to as the Product Discounts Program in the NTG workbook.

The LDIS-IE and APR-IE Programs are separated into different sections for reporting purposes. This report summarizes the total energy and demand impacts for each 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. Lighting Discounts – Income Eligible (LDIS-IE)

2.1 Program Description

The primary goal of the LDIS-IE Program is to increase the market penetration of energy efficient lighting measures by providing product incentives through various retail channels. The program also seeks to increase customer awareness and acceptance of energy efficient lighting technologies by distributing educational materials. In CY2021, the program offered incentives for the purchase of omnidirectional, directional, and specialty light-emitting diode (LED) lamps, as well as LED hardwire fixtures, retrofit kits, and nightlights. The program targets retail sales channels that serve, in part or in full, ComEd residential customers with incomes at or below 80% of the area median income.

The CY2021 LDIS-IE Program incentivized over 1.7 million high efficiency LED lamps and fixtures, as shown in Table 2-1 and Figure 2-1. An additional 214,920 carryover LED lamps and fixtures (102,971 of which were purchased in CY2019 and 111,949 of which were purchased in CY2020) were expected to be installed in CY2021. As shown, omnidirectional LEDs accounted for more than half of CY2021 program sales.

Table 2-1. LDIS-IE CY2021 Volumetric Findings Detail

Participation	Omnidirectional LEDs	LED Fixtures and Kits	Directional LEDs	Specialty LEDs	LED Night Lights
CY2021 Incetivized Bulbs	965,772	320,778	131,376	214,282	114,028
CY2021 1st Year Installed Bulbs	729,983	316,860	105,946	172,804	93,868
CY2019 Carrover - CY2021 Installs	76,700	138	13,168	12,965	0
CY2020 Carrover - CY2021 Installs	62,768	450	22,437	23,309	2,985
Total CY2021 Installs	869,452	317,448	141,551	209,078	96,853

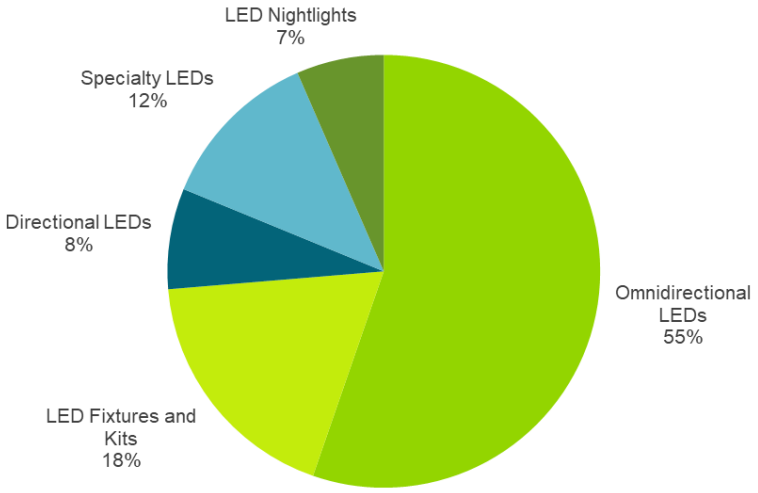
Source: ComEd tracking data and evaluation team analysis

Table 2-2. LDIS-IE Number of Measures by Type

End Use Type	Research Category	Quantity	Unit
Lighting	Omnidirectional LEDs	965,772	Lamps
Lighting	LED Fixtures and Kits	320,778	Lamps
Lighting	Directional LEDs	131,376	Fixtures
Lighting	Specialty LEDs	214,282	Lamps
Lighting	LED Nightlights	114,028	Lamps
	Total	**1,746,236**	

Source: ComEd tracking data and evaluation team analysis

Figure 2-1. LDIS-IE Share of Measures Installed



Source: ComEd tracking data and evaluation team analysis

2.2 Program Savings Detail

Table 2-3 summarizes the incremental energy and demand savings the LDIS-IE Program achieved in CY2021. This program does not produce any gas savings.

Table 2-3. LDIS-IE 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	72,258,217	0.99	71,585,166	Varies	5,200,431	5,445,231	70,353,290
Electric Energy Savings - Converted from Gas	kWh	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Electric Energy Savings	kWh	72,258,217	0.99	71,585,166	Varies	5,200,431	5,445,231	70,353,290
Summer Peak§ Demand Savings	kW	NR	N/A	9,375	Varies	686	702	9,158

N/A = not applicable (refers to a piece of data that cannot be produced or does not apply).
NR = not reported.
* Ex ante excluded gross carryover savings from CY2019 and CY2020.
‡ NTG varies due to differing program year NTG values associated CY2021 program sales and CY2019 and CY2020 carryover.
† Verified net savings includes net carryover savings from CY2019 and CY2020.
¥ The overall program realization rate does not include ex ante carryover savings.
§ The coincident summer peak period is defined as 1:00-5:00 p.m. Central Prevailing Time on non-holiday weekdays, June through August.

Source: ComEd tracking data and evaluation team analysis

2.3 Cumulative Persisting Annual Savings

Table 2-4 and Figure 2-2 show the measure-specific and total verified gross savings for the LDIS-IE 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 2-4. The historic rows in each table are the CPAS contribution back to CY2018. The Program Total Electric CPAS is the sum of the CY2021 contribution and the historic contribution. Figure 2-2 shows the savings across the effective useful life (EUL) of the measures. There are no gas savings associated with these measures, so they are not included in the LDIS-IE CPAS.

Table 2-4. LDIS-IE Cumulative Persisting Annual Savings – Electric and Total

End Use Type	Research Category	EUL	CY2021 Verified Gross Savings (kWh)	NTG*	Lifetime Net Savings (kWh)†	Verified Net kWh Savings (Including Those Converted from Gas Savings) 2018	2019	2020	2021	2022	2023	2024	2025	2026
Lighting	Omnidirectional LEDs (Residential)	10.0	33,405,153	0.86	232,839,099				28,660,318	28,660,318	28,660,318	28,660,318	21,495,590	21,495,590
Lighting	LED Fixtures and Kits (Residential)	15.0	14,210,687	0.75	126,891,506				10,712,711	10,712,711	10,712,711	10,712,711	9,094,980	9,094,980
Lighting	Specialty LEDs (Residential)	10.0	7,393,454	0.85	52,430,365				6,270,546	6,270,546	6,270,546	6,270,546	5,254,377	5,254,377
Lighting	Directional LEDs (Residential)	10.0	6,518,749	0.80	44,990,441				5,236,703	5,236,703	5,236,703	5,236,703	4,526,422	4,526,422
Lighting	Omnidirectional LEDs (Non-Residential)	5.2	3,591,606	0.86	13,692,453				3,081,458	3,081,458	3,081,458	3,081,458	1,170,954	195,668
Lighting	LED Nightlights (Residential)	8.0	2,879,076	0.99	22,871,789				2,858,974	2,858,974	2,858,974	2,858,974	2,858,974	2,858,974
Lighting	LED Fixtures and Kits (Non-Residential)	12.6	1,440,981	0.77	10,173,382				1,112,336	1,112,336	1,112,336	1,112,336	667,401	667,401
Lighting	Specialty LEDs (Non-Residential)	4.8	1,140,177	0.85	4,312,948				967,008	967,008	967,008	967,008	444,915	-
Lighting	Directional LEDs (Non-Residential)	5.9	1,005,285	0.80	4,178,721				807,575	807,575	807,575	807,575	492,621	455,802
Lighting	Carryover (Residential)	10.0	10,096,708	0.94	76,161,969				9,518,711	9,518,711	9,518,711	9,518,711	7,304,969	7,304,969
Lighting	Carryover (Non-Residential)	6.4	1,232,607	0.91	5,914,260				1,126,951	1,126,951	1,126,951	1,126,951	583,924	583,924
CY2021 Program Total Contribution to CPAS			**82,914,481**		**594,456,933**				**70,353,290**	**70,353,290**	**70,353,290**	**70,353,290**	**53,895,126**	**52,438,106**
Historic Program Total Contribution to CPAS‡						**46,515,815**	**105,542,395**	**164,137,686**	**125,636,495**	**124,312,368**	**121,982,074**	**101,215,124**	**98,881,371**	**97,040,607**
Program Total CPAS						**46,515,815**	**105,542,395**	**164,137,686**	**195,989,785**	**194,665,658**	**192,335,364**	**171,568,415**	**152,776,497**	**149,478,713**
CY2021 Program Incremental Expiring Savings§										**-**	**-**	**-**	**16,458,164**	**1,457,020**
Historic Program Incremental Expiring Savings‖									**38,501,191**	**1,324,127**	**2,330,294**	**20,766,950**	**2,333,754**	**1,840,764**
Program Total Incremental Expiring Savings#									**38,501,191**	**1,324,127**	**2,330,294**	**20,766,950**	**18,791,918**	**3,297,784**

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Lighting	Omnidirectional LEDs (Residential)	21,495,590	17,903,686	17,903,686	17,903,686	-	-	-	-	-	-	-	-
Lighting	LED Fixtures and Kits (Residential)	9,094,980	7,094,465	7,094,465	7,094,465	7,094,465	7,094,465	7,094,465	7,094,465	7,094,465			
Lighting	Specialty LEDs (Residential)	5,254,377	3,861,683	3,861,683	3,861,683	-	-	-	-	-	-	-	-
Lighting	Directional LEDs (Residential)	4,526,422	3,488,122	3,488,122	3,488,122	-	-	-	-	-	-	-	-
Lighting	Omnidirectional LEDs (Non-Residential)	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED Nightlights (Residential)	2,858,974	2,858,974	-	-	-	-	-	-	-	-	-	-
Lighting	LED Fixtures and Kits (Non-Residential)	667,401	667,401	667,401	667,401	667,401	667,401	384,827	-	-	-	-	-
Lighting	Specialty LEDs (Non-Residential)	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	Directional LEDs (Non-Residential)	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	Carryover (Residential)	7,304,969	5,879,691	5,879,691	4,412,835	-	-	-	-	-	-	-	-
Lighting	Carryover (Non-Residential)	238,610	-	-	-	-	-	-	-	-	-	-	-
CY2021 Program Total Contribution to CPAS		**51,441,322**	**41,754,022**	**38,895,048**	**37,428,192**	**7,761,867**	**7,761,867**	**7,479,292**	**7,094,465**	**7,094,465**	**-**	**-**	**-**
Historic Program Total Contribution to CPAS‡		**79,161,179**	**57,456,278**	**42,835,493**	**14,373,812**	**14,144,038**	**14,061,534**	**10,121,003**	**5,677,112**	**-**	**-**	**-**	**-**
Program Total CPAS		**130,602,501**	**99,210,300**	**81,730,541**	**51,802,004**	**21,905,904**	**21,823,401**	**17,600,295**	**12,771,577**	**7,094,465**	**-**	**-**	**-**
CY2021 Program Incremental Expiring Savings§		**996,784**	**9,687,300**	**2,858,974**	**1,466,856**	**29,666,326**	**-**	**282,574**	**384,827**	**-**	**7,094,465**	**-**	**-**
Historic Program Incremental Expiring Savings‖		**17,879,429**	**21,704,900**	**14,620,786**	**28,461,681**	**229,774**	**82,503**	**3,940,532**	**4,443,890**	**5,677,112**	**-**	**-**	**-**
Program Total Incremental Expiring Savings#		**18,876,213**	**31,392,200**	**17,479,759**	**29,928,537**	**29,896,100**	**82,503**	**4,223,106**	**4,828,718**	**5,677,112**	**7,094,465**	**-**	**-**

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 savings-weighted combination of the two NTG values deemed for this program, 0.62 for lighting from Big Box, DIY, Warehouse and 1.0 for all other lighting. The program NTG values are listed under the Product Discounts program in the NTG recommendations workbooks: 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 CY2018.

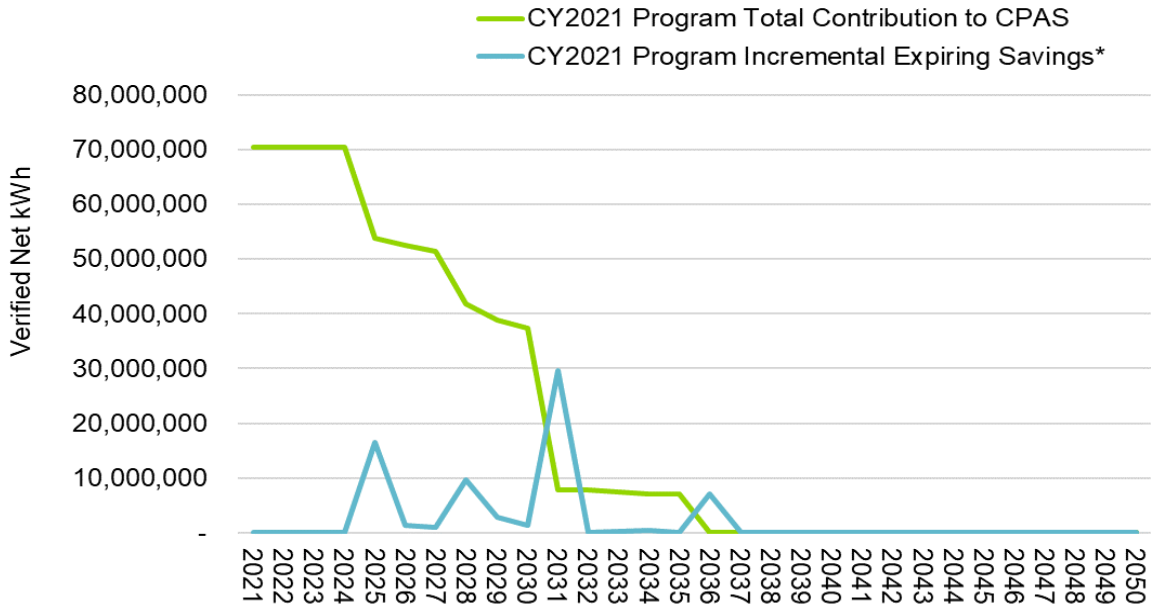
§ Incremental expiring savings are equal to CPAS Y_{n-1} - CPAS Y_n.

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

Program total incremental expiring savings is equal to current year total incremental expiring savings plus historic total incremental expiring savings.

Source: Evaluation team analysis

Figure 2-2. LDIS-IE Cumulative Persisting Annual Savings



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

Source: Evaluation team analysis

2.4 Program Savings by Measure

The LDIS-IE Program includes six distinct lighting measure groups, as the following table shows. These groups include directional LEDs, specialty LEDs (globe, candelabra, and 3-way lamps), LED fixtures and kits, LED nightlights, omnidirectional LEDs, and carryover lamps from purchases in CY2019 and CY2020 that the Illinois Technical Reference Manual v9.0 (IL-TRM)[1] projects participants will install in CY2021.

Table 2-5 and Figure 2-3 present the respective first-year installations and first-year verified net savings from CY2021 program sales. First-year installations of omnidirectional LEDs and LED fixtures and kits contributed the majority of CY2021 sales and first-year CY2021 verified net savings.

Table 2-5. LDIS-IE Number of Measures by Type

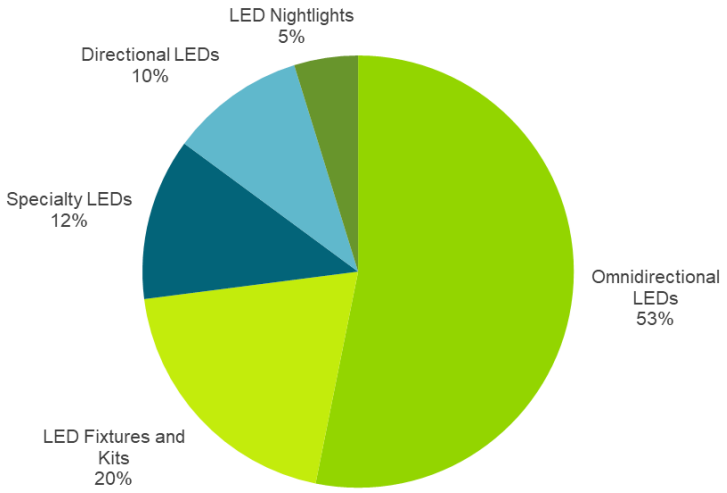
End Use Type	Research Category	Quantity	Unit
Lighting	Omnidirectional LEDs	965,772	Lamps
Lighting	LED Fixtures and Kits	320,778	Lamps
Lighting	Directional LEDs	131,376	Fixtures
Lighting	Specialty LEDs	214,282	Lamps
Lighting	LED Nightlights	114,028	Lamps
	Total	**1,746,236**	

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

Source: ComEd tracking data and evaluation team analysis

[1] In this report, unless stated otherwise, IL-TRM refers to version 9.0 (v9.0).

Figure 2-3. LDIS-IE Verified Net Savings by Measure – Electric



Source: ComEd tracking data and evaluation team analysis

Table 2-6 and Table 2-7 present energy and summer peak demand savings by measure group for the LDIS-IE Program. The evaluation team split all measure groups into residential and non-residential savings to highlight where savings are realized.

Table 2-6. LDIS-IE Energy Savings by Measure – Electric and Total

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	Omnidirectional LEDs (Residential)	33,405,166	1.00	33,405,153	0.86	28,660,318	10.0
Lighting	LED Fixtures and Kits (Residential)	14,824,878	0.96	14,210,687	0.75	10,712,711	15.0
Lighting	Specialty LEDs (Residential)	7,393,710	1.00	7,393,454	0.85	6,270,546	10.0
Lighting	Directional LEDs (Residential)	6,506,134	1.00	6,518,749	0.80	5,236,703	10.0
Lighting	Omnidirectional LEDs (Non-Residential)	3,591,570	1.00	3,591,606	0.86	3,081,458	5.2
Lighting	LED Nightlights (Residential)	2,879,062	1.00	2,879,076	0.99	2,858,974	8.0
Lighting	LED Fixtures and Kits (Non-Residential)	1,514,172	0.95	1,440,981	0.77	1,112,336	12.6
Lighting	Specialty LEDs (Non-Residential)	1,140,182	1.00	1,140,177	0.85	967,008	4.8
Lighting	Directional LEDs (Non-Residential)	1,003,343	1.00	1,005,285	0.80	807,575	5.9
Lighting	Carryover (Residential)	NR	N/A	10,096,708	0.94	9,518,711	10.0
Lighting	Carryover (Non-Residential)	NR	N/A	1,232,607	0.91	1,126,951	6.4
	Total	**72,258,217**	**1.15**	**82,914,481**	**0.85**	**70,353,290**	

NR = not reported (refers to a piece of data that was not reported).
N/A = not applicable (refers to a piece of data that cannot be produced or does not apply).
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 savings-weighted combination of the two NTG values deemed for this program, 0.62 for lighting from Big Box, DIY, Warehouse and 1.0 for all other lighting. Source: Illinois SAG website**: https://www.ilsag.info/evaluator-ntg-recommendations-for-2021**.
¥ The overall program realization rate does not include ex ante carryover savings and includes verified gross carryover savings in program savings totals. The overall program realization rate excluding verified carryover savings is 0.99.

Source: ComEd tracking data and evaluation team analysis

Table 2-7. LDIS-IE 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	Omnidirectional LEDs (Residential)	NR	N/A	4,047	0.86	3,472
Lighting	LED Fixtures and Kits (Residential)	NR	N/A	2,053	0.77	1,584
Lighting	Specialty LEDs (Residential)	NR	N/A	878	0.85	745
Lighting	Directional LEDs (Residential)	NR	N/A	774	0.80	622
Lighting	Omnidirectional LEDs (Non-Residential)	NR	N/A	802	0.86	688
Lighting	LED Nightlights (Residential)	NR	N/A	0	N/A	0
Lighting	LED Fixtures and Kits (Non-Residential)	NR	N/A	342	0.77	264
Lighting	Specialty LEDs (Non-Residential)	NR	N/A	255	0.85	216
Lighting	Directional LEDs (Non-Residential)	NR	N/A	224	0.80	180
Lighting	Carryover (Residential)	NR	N/A	1,203	0.94	1,134
Lighting	Carryover (Non-Residential)	NR	N/A	277	0.91	253
	Total	**NR**	**N/A**	**10,855**	**0.84**	**9,158**

NR = not reported (refers to a piece of data that was not reported).
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

2.5 Impact Analysis Findings and Recommendations

Overall, the evaluation team found minimal discrepancies between ex ante and verified savings estimates. The issues that had the largest effect on adjusting ex ante gross savings were ex ante baseline wattage assignments not being aligned with the IL-TRM.

The evaluation team developed two recommendations for ComEd based on findings from the CY2021 evaluation.

Finding 1. The overall program gross realization rate reported for the LDIS-IE Program is 0.99 Ex ante savings do not include carryover savings; as a result, the program realization rate increases to 1.15 when carryover savings are added to verified gross savings.

Finding 2. The evaluation team found that the non-residential waste heat factor for energy (WHFe) values provided in the eTRACK data are actually the WHFe values for the residential sector. Despite this, the team could only recalculate ex ante savings when using the appropriate non-residential WHFe values. This suggests the savings were calculated with the appropriate value, but they were reported erroneously in the eTRACK data.

> **Recommendation 1.** Update the eTRACK non-residential WHFe values to reflect the correct non-residential WHFe values in accordance with the IL-TRM.

Finding 3. The evaluation team found discrepancies between ex ante and verified baseline wattages in 1,900 records in the final tracking data. These discrepancies primarily occurred with indoor, downlight, and task/under cabinet fixtures. Further details can be found in Appendix C

> **Recommendation 2.** Update eTRACK to correct baseline wattage assignment discrepancies and align them with the IL-TRM.

3. Appliance Rebates – Income Eligible (APR-IE)

3.1 Program Description

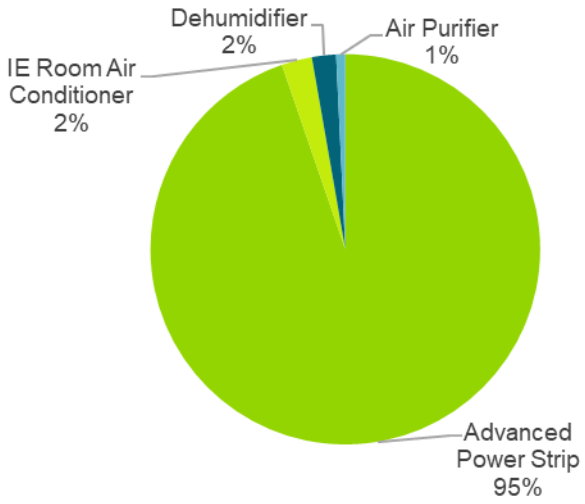
The primary goal of the APR-IE Program is to increase the market penetration of select appliance products in ComEd's income-eligible customer population by providing product incentives through various retail channels. In CY2021, the program offered incentives for Tier 1 advanced power strips (APS), income-eligible room air conditioners (RACs), air purifiers, and dehumidifiers. The program targets retail sales channels that serve, in part or in full, ComEd residential customers with incomes at or below 80% of the area median income. The CY2021 APR-IE Program incentivized over 100,000 measures, as seen in Table 3-1 and Figure 3-1.

Table 3-1. APR-IE Number of Measures by Type

End Use Type	Research Category	Quantity Unit
Appliance	Advanced Power Strip	95,362 Units
Appliance	IE Room Air Conditioner	2,542 Units
Appliance	Dehumidifier	2,021 Units
Appliance	Air Purifier	754 Units
	Total	**100,679**

Source: ComEd tracking data and evaluation team analysis

Figure 3-1. APR-IE Share of Measures Installed



Source: ComEd tracking data and evaluation team analysis

3.2 Program Savings Detail

Table 3-2 summarizes the incremental energy and demand savings the APR-IE Program achieved in CY2021. This program does not produce any gas savings.

Table 3-2. APR-IE 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	7,989,776	1.00	7,999,926	1.00	N/A	N/A	7,999,926
Electric Energy Savings - Converted from Gas	kWh	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Electric Energy Savings	kWh	7,989,776	1.00	7,999,926	1.00	N/A	N/A	7,999,926
Summer Peak§ Demand Savings	kW	1,386	1.00	1,386	1.00	N/A	N/A	1,386

Note: The program NTG values are listed under the Product Discounts program in the NTG workbook.

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

† Verified net savings includes net carryover savings from CY2019 and CY2020.

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

Source: ComEd tracking data and evaluation team analysis

3.3 Cumulative Persisting Annual Savings

Table 3-3 and Figure 3-2 show the measure-specific and total verified gross savings for the APR-IE and the CPAS for the measures installed in CY2021. The electric CPAS across all measures installed in 2021 is shown in Table 3-3. The historic rows in each table are the CPAS contribution back to CY2019. The Program Total Electric CPAS is the sum of the CY2021 contribution and the historic contribution. Figure 3-2 shows the savings across the EUL of the measures. There are no gas savings associated with APR-IE Program measures, so electric CPAS is equivalent to total CPAS.

Table 3-3. APR-IE Cumulative Persisting Annual Savings – Electric and Total

End Use Type	Research Category	EUL	CY2021 Verified Gross Savings (kWh)	NTG*	Lifetime Net Savings (kWh)†	Verified Net kWh Savings (Including Those Converted from Gas Savings) 2018	2019	2020	2021	2022	2023	2024	2025	2026
Appliance	Advanced Power Strip	7.0	6,970,962	1.00	48,796,735				6,970,962	6,970,962	6,970,962	6,970,962	6,970,962	6,970,962
Appliance	IE Room Air Conditioner	12.0	619,463	1.00	7,433,556				619,463	619,463	619,463	619,463	619,463	619,463
Appliance	Dehumidifier	12.0	233,349	1.00	2,800,184				233,349	233,349	233,349	233,349	233,349	233,349
Appliance	Air Purifier	9.0	176,152	1.00	1,585,368				176,152	176,152	176,152	176,152	176,152	176,152
CY2021 Program Total Contribution to CPAS			**7,999,926**		**60,615,844**				**7,999,926**	**7,999,926**	**7,999,926**	**7,999,926**	**7,999,926**	**7,999,926**
Historic Program Total Contribution to CPAS‡						**-**	**7,553,428**	**17,938,371**	**17,938,371**	**17,938,371**	**17,938,371**	**17,938,371**	**17,938,371**	**10,643,602**
Program Total CPAS						**-**	**7,553,428**	**17,938,371**	**25,938,297**	**25,938,297**	**25,938,297**	**25,938,297**	**25,938,297**	**18,643,528**
CY2021 Program Incremental Expiring Savings§										**-**	**-**	**-**	**-**	**-**
Historic Program Incremental Expiring Savings||									**-**	**-**	**-**	**-**	**-**	**7,294,769**
Program Total Incremental Expiring Savings#									**-**	**-**	**-**	**-**	**-**	**7,294,769**

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Appliance	Advanced Power Strip	6,970,962		-	-	-	-	-	-	-	-	-	-
Appliance	IE Room Air Conditioner	619,463	619,463	619,463	619,463	619,463	619,463	-	-	-	-	-	-
Appliance	Dehumidifier	233,349	233,349	233,349	233,349	233,349	233,349	-	-	-	-	-	-
Appliance	Air Purifier	176,152	176,152	176,152	-	-	-	-	-	-	-	-	-
CY2021 Program Total Contribution to CPAS		**7,999,926**	**1,028,964**	**1,028,964**	**852,812**	**852,812**	**852,812**	**-**	**-**	**-**	**-**	**-**	**-**
Historic Program Total Contribution to CPAS‡		**817,608**	**586,583**	**58,229**	**58,229**	**30,595**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Program Total CPAS		**8,817,534**	**1,615,547**	**1,087,193**	**911,041**	**883,407**	**852,812**	**-**	**-**	**-**	**-**	**-**	**-**
CY2021 Program Incremental Expiring Savings§		**-**	**6,970,962**	**-**	**176,152**	**-**	**-**	**852,812**	**-**	**-**	**-**	**-**	**-**
Historic Program Incremental Expiring Savings||		**9,825,994**	**231,025**	**528,354**	**-**	**27,634**	**30,595**	**-**	**-**	**-**	**-**	**-**	**-**
Program Total Incremental Expiring Savings#		**9,825,994**	**7,201,987**	**528,354**	**176,152**	**27,634**	**30,595**	**852,812**	**-**	**-**	**-**	**-**	**-**

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. The program NTG values are listed under the Product Discounts program in the NTG recommendations workbooks: 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.

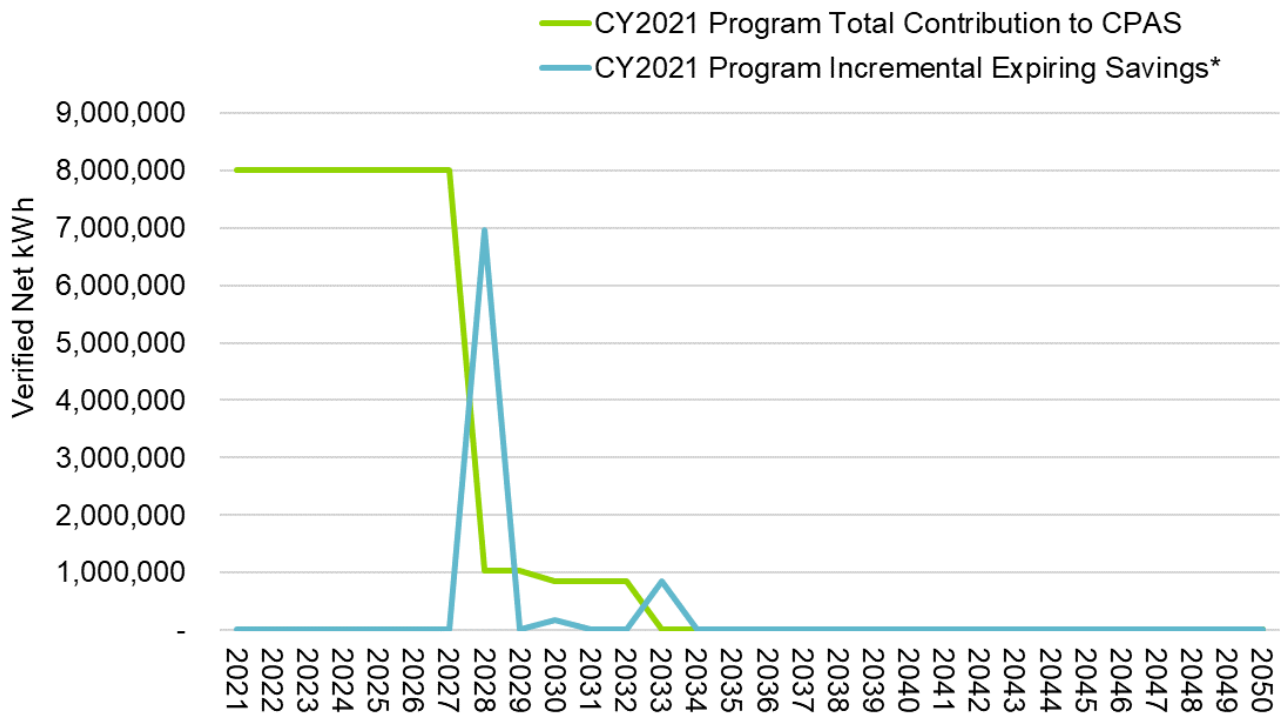
§ Incremental expiring savings are equal to CPAS Y_{n-1} – CPAS Y_n.

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

Program total incremental expiring savings is equal to current year total incremental expiring savings plus historic total incremental expiring savings.

Source: Evaluation team analysis

Figure 3-2. APR-IE Cumulative Persisting Annual Savings



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

Source: Evaluation team analysis

3.4 Program Savings by Measure

The APR-IE Program includes four distinct measure groups, as the following table shows. These measure groups include Tier 1 APS, income-eligible room air conditioners, air purifiers, and dehumidifiers. Table 3-4 and Figure 3-3 present the number of measures by type and the verified net savings by measure, respectively. APS makes up the largest share of measures sold through the program.

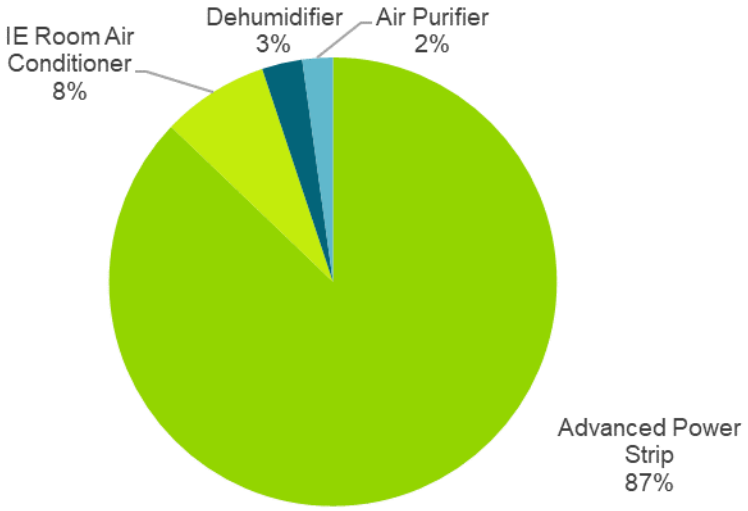
Table 3-4. APR-IE Number of Measures by Type

End Use Type	Research Category	Quantity Unit
Appliance	Advanced Power Strip	95,362 Units
Appliance	IE Room Air Conditioner	2,542 Units
Appliance	Dehumidifier	2,021 Units
Appliance	Air Purifier	754 Units
	Total	**100,679**

Note: This is the same table as Table 3-1.

Source: ComEd tracking data and evaluation team analysis

Figure 3-3. APR-IE Verified Net Savings by Measure – Electric



Source: ComEd tracking data and evaluation team analysis

Table 3-5 and Table 3-6 present energy and summer peak demand savings by measure group for the APR-IE Program.

Table 3-5. APR-IE Energy Savings by Measure – Electric and Total

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)
Appliance	Advanced Power Strip	6,970,962	1.00	6,970,962	1.00	6,970,962	7
Appliance	IE Room Air Conditioner	609,313	1.02	619,463	1.00	619,463	12
Appliance	Dehumidifier	233,349	1.00	233,349	1.00	233,349	12
Appliance	Air Purifier	176,152	1.00	176,152	1.00	176,152	9
	Total	**7,989,776**	**1.00**	**7,999,926**	**1.00**	**7,999,926**	

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* 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 3-6. APR-IE 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)
Appliance	Advanced Power Strip	782	1.00	782	1.00	782
Appliance	IE Room Air Conditioner	531	1.00	531	1.00	531
Appliance	Dehumidifier	53	1.00	53	1.00	53
Appliance	Air Purifier	20	1.00	20	1.00	20
	Total	**1,386**	**1.00**	**1,386**	1.00	**1,386**

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

Source: ComEd tracking data and evaluation team analysis

3.5 Impact Analysis Findings and Recommendations

Overall, the evaluation team found minimal differences between ex ante and verified savings. The only discrepancy identified was the incorrect climate zone application for one retail location, which resulted in differing full load hours (FLH) values for 42 income-eligible RACs.

The team developed one recommendation based on findings from the CY2021 evaluation.

Finding 1. The overall program gross realization rate for the APR-IE program is 1.00.

Finding 2. The gross realization rate for income-eligible room air conditioners (RAC) is 1.02. The evaluation team found that all income-eligible RACs received ex ante FLH values based on the Chicago climate zone. However, 42 income-eligible RACs were sold in in the Rockford climate zone. This resulted in differences in the ex ante and verified FLH values applied these income-eligible RACs.

> **Recommendation 1.** Use the retail store ZIP code to assign climate zones for income-eligible RAC FLH.

Appendix A. Impact Analysis Methodology

A.1 Verified Gross Program Savings Analysis Approach Estimates

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 IL-TRM and IL-TRM Errata, 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 IL-TRM.
- Multiplying the verified per-unit savings value by the quantity reported in the tracking data.

The team calculated verified net energy and demand (coincident peak and overall) savings by multiplying the verified gross savings estimates by a NTG ratio. In CY2021, NTG estimates used to calculate the net verified savings were based on past evaluation research and defined by a consensus process through the Illinois SAG.

The evaluation team used the methodologies outlined in the IL-TRM and IL-TRM Errata to estimate verified gross program savings for the LDIS-IE and APR-IE. Given that the methodologies are presented in the IL-TRM and IL-TRM Errata they are not listed here except for from IE RAC Full Load Hours, which deviates slightly from the TRM.

A.1.1 Income-Eligible Room Air Conditioners Full Load Hours

Starting in CY2021, the APR-IE Program reintroduced ENERGY STAR RACs. The IL-TRM has a dedicated section for RACs targeted at the income-eligible sector (Section 5.1.13). However, the IL TRM does not provide guidance on FLH for unknown housing types. As a result, the evaluation team used weighted average FLH values based on the share of housing types in IE zip codes for each climate zone. Table A-1 presents the FLH values[2] used to calculate gross energy and demand savings.

Table A-1. ENERGY STAR RAC Savings Equation FLH_{RoomAC} Values

Climate Zone	Single-Family Weight	Multifamily Weight	Single-Family FLH	Multifamily FLH	Weighted FLH Used for Calculating Savings
1 (Rockford)	0.65	0.35	512	467	496
2 (Chicago)	0.45	0.58	570	506	533

Source: Room AC TRM v9 - w CEE Tiered Savings + ES Most Efficient Savings_062221.xlsx

[2] Given the upstream delivery of the APR-IE Program, it is not known whether purchased income-eligible RACs are installed in single-family or multifamily locations. As a result, the FLH values used to calculate APR-IE savings are the income-eligible single-family/multifamily household population weighted average FLH as recommended by the evaluation team.

A.2 Verified Net Program Savings Analysis Approach

Verified net energy and peak demand savings are calculated by multiplying the verified gross savings estimates by a net-to-gross (NTG) ratio. For the CY2021 LDIS-IE Program, the NTG ratio estimates applied are 0.62 for all lighting products sold at big box, warehouse, or do-it-yourself (DIY) retail stores and 1.00 for all lighting measures sold through other program retailers. The NTG for all APR-IE measures is 1.00. These NTG ratio estimates were approved through the Illinois SAG consensus process and are listed under the Product Discounts program in the NTG workbook.

A.3 Carryover Savings Analysis Approach

The evaluation team calculated Carryover Savings for CY2021, preliminary carryover for CY2022 and preliminary partial carryover for CY2023. This section details the methodology used for CY2021 carryover and preliminary carryover in CY2022 and CY2023. Details on the calculated CY2021 Carryover and CY2022 and CY2023 preliminary carryover are presented in Appendix B.

A.3.1 CY2021 Carryover Approach

The evaluation team calculated the CY2021 carryover savings estimates using the IL-TRM (v7.0, v8.0, and v9.0) and the CY2019 and CY2020 impact evaluation reports. The energy and demand savings from second-year CY2020 and third-year CY2019 installations are calculated based on the following parameters:

- **Delta watts:** Verified delta watts for bulbs installed in CY2021 based on the baseline wattage values associated with the installation year (source: IL-TRM)
- **Residential/non-residential split:** Verified residential/non-residential split from the year the bulbs were purchased (source: IL-TRM v7.0 and 8.0)
- **Hours of use and summer peak coincidence factor:** Verified hours of use and summer peak coincidence factor from the installation year (source: IL-TRM)
- **Energy and demand waste heat factors:** Verified waste heat factors from the year the bulbs are installed (source: IL-TRM)
- **In-service rate:** Verified installation rate from the year the bulbs were purchased (source: IL-TRM v7.0 and v8.0)
- **NTG:** Deemed NTG based on evaluation research from the year the bulbs were purchased (source: SAG consensus)

A.3.2 CY2022 Preliminary Carryover Savings Approach

The evaluation team calculated a preliminary CY2022 carryover savings estimate using the IL-TRM (v8.0, v9.0, and v10.0) and the CY2020 and CY2021 impact evaluation reports. The energy and demand savings from these CY2020 third-year and CY2021 second-year installations are calculated based on the following parameters:

- **Delta watts:** Verified delta watts for bulbs installed in CY2022 based on the baseline wattage values associated with the installation year (source: IL-TRM v10.0)

- **Residential/non-residential split:** Verified residential/non-residential split from the year the bulbs were purchased (source: IL-TRM v8.0 and v9.0)
- **Hours of use and summer peak coincidence factor:** Verified hours of use and summer peak coincidence factor from the installation year (source: IL-TRM v10.0)
- **Energy and demand waste heat factors:** Verified WHFs from the year the bulbs are installed (source: IL-TRM v10.0)
- **In-service rate:** Verified installation rate from the year the bulbs were purchased (source: IL-TRM v8.0 and v9.0)
- **NTG:** Deemed NTG based on evaluation research from the year the bulbs were purchased (source: SAG consensus)

A.3.3 CY2023 Preliminary Partial Carryover Savings from CY2021 Approach

The evaluation team calculated a preliminary partial CY2023 carryover savings estimate based on the bulbs sold during CY2021 (CY2022 sales are not known at this time) that are estimated to be installed in CY2022. This estimate is preliminary because several of the parameters used to estimate these CY2023 carryover savings are based on deemed parameters from the year of install (delta watts, hours of use and peak coincidence factor, and waste heat factors of energy and demand), which would be based on IL-TRM v11.0 for CY2023. Because IL-TRM v11.0 is not yet finalized, the team used v10.0 of the IL-TRM to estimate these parameters. The preliminary parameters for the partial CY2023 carryover savings are based on the following:

- **Delta watts:** Verified savings estimate from the installation year (source: IL-TRM v10.0); this value is subject to change and will use the values from IL-TRM v11.0
- **Residential/non-residential split:** Verified savings from the purchase year (source: IL-TRM); this value is not subject to change
- **Hours of use and peak coincidence factor:** Verified savings estimate from the installation year (source: IL-TRM v10.0); this value is subject to change and will use the values from IL-TRM v11.0
- **Energy and demand waste heat factors:** Verified savings estimate from the installation year (source: IL-TRM v10.0); this value is subject to change and will use the values from IL-TRM v11.0
- **Installation rate:** Verified savings estimate from the purchase year (source: IL-TRM); this value is not subject to change
- **NTG:** Deemed NTG values from the purchase year; this value is not subject to change

Appendix B. Carryover Savings Results Details

As stated, the LDIS-IE program has carryover savings from lighting measures purchased in prior program years. This section provides details on CY2021 carryover savings, in addition to preliminary carryover estimates for the CY2022 and CY2023 program years.

Table B-1 presents details on CY2021 carryover. As shown, 246,917 lighting measures purchased in CY2019 and 365,398 measures purchased in CY2020 were expected to be installed in ComEd's service territory in CY2021. The table provides the gross and net energy and summer peak demand savings from these carryover bulbs that are counted in CY2021. Total CY2021 net carryover savings are estimated to be 10,645,662 kWh and 1,387 summer peak kW.

Table B-1. CY2021 Carryover Savings from CY2019 and CY2020 Program Sales

CY2021 Carryover Savings	CY2019 Bulbs	CY2020 Bulbs	Total CY2021 Carryover
Carryover Bulbs Installed During CY2021	102,971	111,951	214,922
Gross Energy Savings (kWh)	5,200,431	6,128,884	11,329,315
Gross Peak Summer Peak Demand Savings (kW)	686	795	1,480
Net-to-Gross Ratio	1.00	0.89	0.94
Net Energy Savings (kWh)	5,200,431	5,445,231	10,645,662
Net Summer Peak Demand Savings (kW)	686	702	1,387
EUL Res	10.0	10.0	10.0
EUL NonRes	5.9	6.9	6.4

Source: ComEd tracking data and evaluation team analysis

Table B-2 shows details on CY2022 preliminary carryover. As shown, 247,618 bulbs purchased in CY2020 or CY2021 are expected to be installed in ComEd's service territory in CY2022 (carryover). The table provides the gross and net energy and demand savings from these carryover bulbs. Total preliminary net carryover savings are estimated to be 11,406,602 kWh and 1,444 summer peak kW.

Table B-2. CY2022 Preliminary Carryover Savings Estimates from CY2020 and CY2021 Bulb Sales

Preliminary CY2022 Carryover Savings	CY2020 Bulbs	CY2021 Bulbs	Total Preliminary CY2022 Carryover
Carryover Bulbs Installed During CY2022	94,964	152,654	247,618
Gross Energy Savings (kWh)	5,294,724	7,842,356	13,137,080
Gross Peak Summer Peak Demand Savings (kW)	680	993	1,673
Net-to-Gross Ratio	0.89	0.85	0.87
Net Energy Savings (kWh)	4,708,434	6,698,168	11,406,602
Net Summer Peak Demand Savings (kW)	602	842	1,444
EUL Res	10.0	9.9	9.9
EUL NonRes	6.2	6.7	6.5

Source: Evaluation team analysis

Table B-3 presents details on preliminary partial carryover for CY2023. As shown, 129,643 bulbs purchased in CY2021 are expected to be installed within ComEd's service territory in CY2023. The table provides the gross and net energy and demand savings from these carryover bulbs. Total preliminary CY2023 partial net carryover energy savings are estimated to be 5,688,036 kWh and 4,377 summer peak kW.

Table B-3. CY2023 Preliminary Carryover Savings Estimates from CY2021 Bulb Sales

Preliminary Partial CY2023 Carryover Savings	CY2021 Bulbs
Carryover Bulbs Installed During CY2023	129,643
Gross Energy Savings (kWh)	6,660,126
Gross Peak Summer Peak Demand Savings (kW)	843
Net-to-Gross Ratio	0.85
Net Energy Savings (kWh)	5,688,036
Net Summer Peak Demand Savings (kW)	4,377
EUL Res	9.9
EUL NonRes	6.7

Source: Evaluation team analysis

Appendix C. Impact Findings Detailed Results

C.1 Differences in Gross Parameter Estimates

This section discusses the differences the evaluation team observed between the ex ante and evaluation verified gross parameter estimates.

C.1.1 Baseline Wattages

The evaluation team calculated the baseline wattage for each program model in the tracking data according to the deemed methods provided in the IL-TRM.

Overall, the team found 1,900 records where the ex ante baseline wattages did not align with the verified baseline wattages it calculated using the lumen mapping provided in the IL-TRM. These discrepancies primarily occurred with indoor, downlight, and task/under cabinet fixtures.

Per the IL-TRM, the baseline wattage is 88.5 W for all indoor fixtures, 72.8 W for downlight fixtures (including retrofit kits), 79.6 W for outdoor fixtures, and 45.2 W for task/under cabinet fixtures. In total, the evaluation team found baseline wattage discrepancies for 1,526 fixture records. In a number of cases, discrepancies appear to be the result of mapping a fixture to a different fixture category's baseline wattage—for example, mapping a downlight fixture to an indoor fixture baseline wattage of 88.5 W rather than the 72.8 W indoor fixture baseline. The team recommends the fixture baseline wattages and categories be reviewed to ensure that the appropriate fixture classification and associated baseline wattage agree with the IL-TRM.

The evaluation team found baseline wattage discrepancies occurring with nine PAR lamp records. The baseline wattages provided in the tracking data indicate the ex ante baseline assignments used the ENERGY STAR baseline equation. Furthermore, for most PAR lamps, the results from this equation were correctly rounded to the permitted rounded values. For PAR 30S lamps, however, the results of the ENERGY STAR baseline equation appear to be incorrectly rounded, generating erroneous baseline wattage values for these lamps. The evaluation team recommends the baseline wattage assignments for PAR 30S lamps be reviewed so that they agree with the IL-TRM.

The team also identified several other discrepancies related to BR and R directional LEDs. For BR30 and BR40 lamps (including connected and non-connected lamps), the evaluation team found 113 records where lamps were lumen mapped to the correct reflector type but did not include the exceptions for BR30 and BR40 LEDs with lumen ranges between 650 lumens and 1,419 lumens.

For R-shaped directional LEDs, the evaluation team found differences between the ex ante and verified baseline wattages for 161 records. These differences appeared to result from the lumen mappings that were applied. The IL-TRM specifies two distinct lumen mappings for R-shaped medium-screw based reflector lamps (for those with diameter less than or equal to 2.25 inches and for those with diameter greater than 2.25 inches). All R20 reflector lamps have a diameter of 2.5 inches and so should use the mapping for lamps greater than 2.25 inches. However, it appears that a small number of R-shaped reflectors incorrectly used the mapping for lamps less than 2.25 inches. Additionally, R20 lamps with lumens less than 720 lumens should be mapped with the appropriate R, ER, and BR exceptions provided in the IL-TRM.

The team found baseline wattage discrepancies for four specialty LED records. The evaluation team could not identify the source of the ex ante baseline wattages with certainty; however, the team recommends the baseline wattages be updated to the correct baseline wattages of specialty lamps in the IL-TRM.

C.1.2 Income Eligible Room Air Conditioner Full Load Hours

The evaluation team found that the ex ante FLH values used to calculate income-eligible RAC savings were based exclusively on the Chicago climate zone. However, the team found one store location that sold income-eligible RACs in the Rockford climate zone, resulting in higher verified FLH values and larger savings estimates for income-eligible RACs. This resulted in a gross realization of 1.02 for these measures.

Appendix D. Total Resource Cost Detail

Table D-1 and Table D-2 show 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 D-1. LDIS-IE 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	Omni-Directional LEDs (Residential)	Lamp	936,799	10.0	No	33,405,153	4,047	N/A	N/A	N/A	-759,133	0.86	0.86	0.86	28,660,318	3,472	N/A	N/A	N/A	-651,306
Lighting	LED Fixtures and Kits (Residential)	Lamp	311,155	15.0	No	14,210,687	2,053	N/A	N/A	N/A	-316,017	0.75	0.75	0.75	10,712,711	1,584	N/A	N/A	N/A	-238,229
Lighting	Specialty LEDs (Residential)	Lamp	205,711	10.0	No	7,393,454	878	N/A	N/A	N/A	-168,820	0.85	0.85	0.85	6,270,546	745	N/A	N/A	N/A	-143,179
Lighting	Directional LEDs (Residential)	Lamp	126,121	10.0	No	6,518,749	774	N/A	N/A	N/A	-148,847	0.80	0.80	0.80	5,236,703	622	N/A	N/A	N/A	-119,573
Lighting	Omni-Directional LEDs (Non-Residential)	Lamp	28,973	5.2	No	3,591,606	802	N/A	N/A	N/A	-33,813	0.86	0.86	0.86	3,081,458	688	N/A	N/A	N/A	-29,010
Lighting	LED Nightlights (Residential)	Lamp	114,028	8.0	No	2,879,076	0	N/A	N/A	N/A	0	0.99	0.99	0.99	2,858,974	0	N/A	N/A	N/A	0
Lighting	LED Fixtures and Kits (Non-Residential)	Lamp	9,623	12.6	No	1,440,981	342	N/A	N/A	N/A	-32,386	0.77	0.77	0.77	1,112,336	264	N/A	N/A	N/A	-25,000
Lighting	Specialty LEDs (Non-Residential)	Lamp	8,571	4.8	No	1,140,177	255	N/A	N/A	N/A	-29,171	0.85	0.85	0.85	967,008	216	N/A	N/A	N/A	-24,740
Lighting	Directional LEDs (Non-Residential)	Lamp	5,255	5.9	No	1,005,285	224	N/A	N/A	N/A	-25,256	0.80	0.80	0.80	807,575	180	N/A	N/A	N/A	-20,289
Lighting	Carryover (Residential)	Lamp	207,993	10.0	No	10,096,708	1,203	N/A	N/A	N/A	-229,841	0.94	0.94	0.94	9,518,711	1,134	N/A	N/A	N/A	-216,683
Lighting	Carryover (Non-Residential)	Lamp	6,929	6.4	No	1,232,607	277	N/A	N/A	N/A	-17,093	0.91	0.91	0.91	1,126,951	253	N/A	N/A	N/A	-15,628
	Total			**10.4**		**82,914,481**	**10,855**	**N/A**	**N/A**	**N/A**	**-1,760,376**	**N/A**	**N/A**	**N/A**	**70,353,290**	**9,158**	**N/A**	**N/A**	**N/A**	**-1,483,638**

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.
N/A = not applicable (refers to a piece of data that cannot be produced or does not apply).
* 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.
Source: ComEd tracking data and evaluation team analysis

Table D-2. APR-IE 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)
Appliance	Advanced Power Strip	Units	95,362	7.0	No	6,970,962	782	N/A	N/A	N/A	N/A	1.00	1.00	N/A	6,970,962	782	N/A	N/A	N/A	N/A
Appliance	IE Room Air Conditioner	Units	2,542	12.0	No	619,463	531	N/A	N/A	N/A	N/A	1.00	1.00	N/A	619,463	531	N/A	N/A	N/A	N/A
Appliance	Dehumidifier	Units	2,021	12.0	No	233,349	53	N/A	N/A	N/A	N/A	1.00	1.00	N/A	233,349	53	N/A	N/A	N/A	N/A
Appliance	Air Purifier	Units	754	9.0	No	176,152	20	N/A	N/A	N/A	N/A	1.00	1.00	N/A	176,152	20	N/A	N/A	N/A	N/A
	Total			**7.6**		**7,999,926**	**1,386**	**N/A**	**N/A**	**N/A**	**N/A**			**N/A**	**7,999,926**	**1,386**	**N/A**	**N/A**	**N/A**	**N/A**

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.
N/A = not applicable (refers to a piece of data that cannot be produced or does not apply).
* 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.
Source: ComEd tracking data and evaluation team analysis