Guidehouse

ComEd Lighting Discounts – Income Eligible and Appliance Rebates – Income Eligible Program Evaluation Report

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

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1. Introduction

This report presents results from the CY2020 impact evaluation of ComEd's Lighting Discounts – Income Eligible (LDIS-IE) and the Appliance Rebates – Income Eligible (APR-IE) Programs. Together these programs are referred to as the Income Eligible Product Discounts Program.

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. Each section also provides the impact analysis methodology and details of the total resource cost (TRC) inputs. CY2020 covers January 1, 2020 through December 31, 2020.

2. Lighting Discounts – Income Eligible

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 incentives for these products through various retail channels. The program also seeks to increase customer awareness and acceptance of energy efficient lighting technologies by distributing educational materials. In CY2020, the program offered incentives for the purchase of omni-directional, directional, and specialty LED lamps, as well as LED hardwire fixtures, retrofit kits, and nightlights. The program targets retail sale channels that serve, in part or in full, ComEd residential customers with incomes at or below 80% of the area median income.

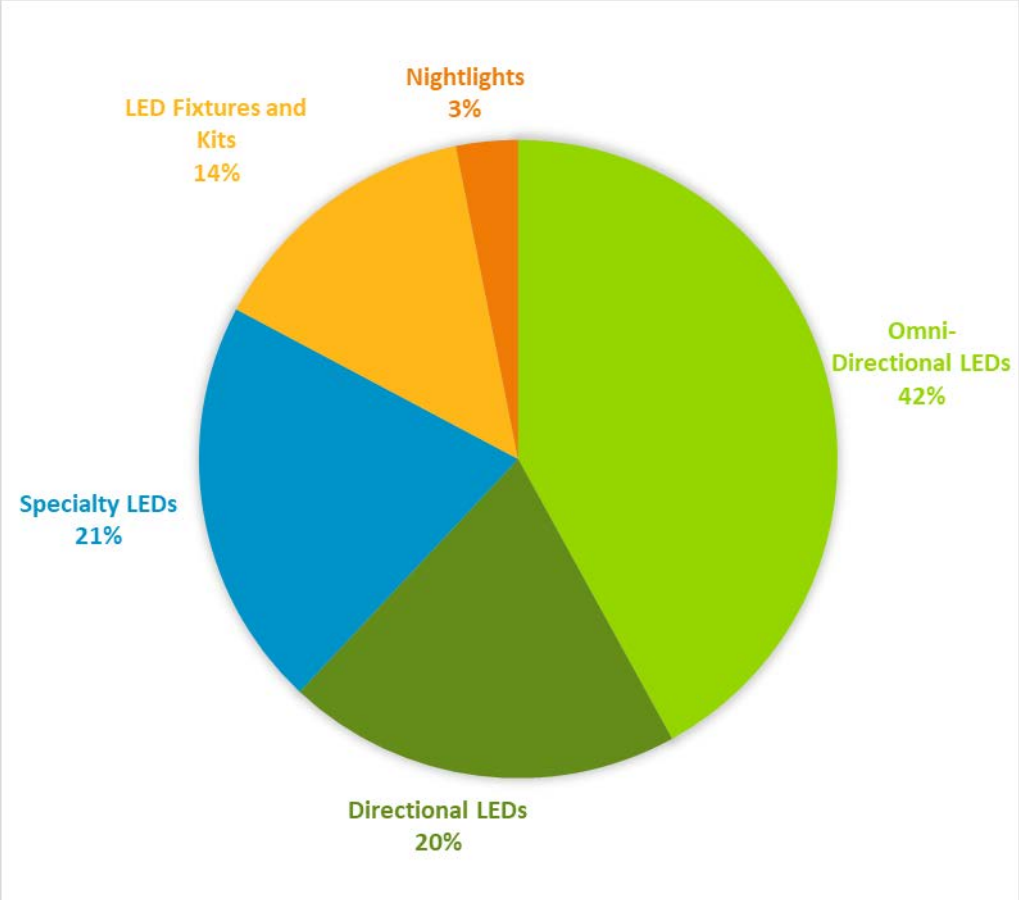
The CY2020 LDIS-IE Program incentivized over 1.25 million high efficiency LED lamps and fixtures. This total included 536,451 omni-directional LEDs, 255,481 directional LEDs, 265,413 specialty LEDs, 179,982 LED fixtures and retrofit kits, and 40,084 LED nightlights. An additional 154,950 lamps and fixtures are expected to be installed in CY2020 from carryover lamps purchased in CY2018 and CY2019 as Table 2-1 and Figure 2-1 show.

Table 2-1. LDIS-IE CY2020 Volumetric Findings Detail

Participation	Total	Omni-Directional LEDs	Directional LEDs	Specialty LEDs	LED Fixtures and Kits	Nightlights
CY2020 Incentivized Bulbs	1,277,411	536,451	255,481	265,413	179,982	40,084
CY2020 1st Year Installed Bulbs	1,036,325	405,479	206,028	214,037	177,784	32,997
CY2019 Carryover – CY2020 Installs	121,535	90,346	15,634	15,393	163	0
CY2018 Carryover – CY2020 Installs	33,415	27,621	3,336	2,424	35	0
Total Installed Bulbs in CY2020	1,191,275	523,445	224,998	231,853	177,981	32,997

Source: ComEd tracking data and evaluation team analysis

Figure 2-1. Share of LDIS-IE Measures Incentivized in CY2020 by Type



Source: ComEd tracking data and evaluation team analysis

2.2 Program Savings Detail

Table 2-2 summarizes the incremental energy and demand savings the LDIS-IE Program achieved in CY2020 from CY2020 first-year savings and carryover from CY2018 and CY2019 purchases installed in CY2020. The LDIS-IE Program did not claim any gas savings in CY2020. The program's verified gross kilowatt-hour (kWh) savings are approximately 4% higher than ex ante gross kWh savings.

Table 2-2. LDIS-IE CY2020 Total Annual Incremental Electric Savings – with Carryover

Savings Category	Energy Savings (kWh)	Summer Peak* Demand Savings (kW)
Electricity		
Ex Ante Gross Savings**	57,548,317	NR
Program Gross Realization Rate	1.04	NA
Verified Gross Savings‡	59,919,018	7,911
Program Net-to-Gross Ratio (NTG)	Varies	Varies
CY2018 Net Carryover Savings	1,665,778	212
CY2019 Net Carryover Savings	6,140,658	810
Verified Net Savings§	58,595,291	7,688
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**	57,548,317	NR
Program Gross Realization Rate	1.04	NA
Verified Gross Savings‡	59,919,018	7,911
Program Net-to-Gross Ratio (NTG)	Varies	Varies
CY2018 Net Carryover Savings	1,665,778	212
CY2019 Net Carryover Savings	6,140,658	810
Verified Net Savings§	58,595,291	7,688

NR = Not reported (refers to a piece of data that was not reported)
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.
‡ Ex ante and verified gross savings exclude gross carryover savings from CY2018 and CY2019 bulb sales.
§ Verified net savings includes net carryover savings from CY2018 and CY2019.
† Gas savings converted to 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

2.3 Cumulative Persisting Annual Savings

Table 2-3 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 CY2020. The electric CPAS across all measures installed in 2020 is 58,595,291 kWh (Table 2-3). The evaluation team did not evaluate gas savings for this program; as such, electric CPAS is equivalent to total CPAS.

Table 2-3. LDIS-IE Cumulative Persisting Annual Savings (CPAS) – Electric and Total

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	Omni-Directional LED (Residential)	10.0	19,220,319	0.97	162,424,618			18,648,062	18,648,062	18,648,062	18,648,062	18,648,062	18,648,062	18,648,062
Lighting	Omni-Directional LED (Nonresidential)	5.5	2,066,502	0.97	9,193,711			2,004,975	2,004,975	2,004,975	2,004,975	801,990	371,821	-
Lighting	Directional LED (Residential)	10.0	12,417,326	0.75	83,465,508			9,263,652	9,263,652	9,263,652	9,263,652	9,263,652	9,263,652	9,263,652
Lighting	Directional LED (Nonresidential)	6.4	1,914,930	0.75	7,533,528			1,428,588	1,428,588	1,428,588	1,428,588	771,438	771,438	276,301
Lighting	Specialty LED (Residential)	10.0	9,257,560	0.86	68,194,841			7,938,864	7,938,864	7,938,864	7,938,864	7,938,864	7,938,864	7,938,864
Lighting	Specialty LED (Nonresidential)	5.1	1,427,648	0.86	5,669,024			1,224,287	1,224,287	1,224,287	1,224,287	685,600	86,277	-
Lighting	LED Fixtures and Kits (Residential)	15.0	11,521,145	0.74	104,730,008			8,473,302	8,473,302	8,473,302	8,473,302	8,473,302	8,473,302	8,473,302
Lighting	LED Fixtures and Kits (Nonresidential)	12.8	1,082,122	0.74	6,967,028			795,658	795,658	795,658	795,658	429,655	429,655	429,655
Lighting	LED Nightlights (Residential)	8.0	1,011,467	1.00	8,091,737			1,011,467	1,011,467	1,011,467	1,011,467	1,011,467	1,011,467	1,011,467
Lighting	Carryover (Residential)	10.0	7,028,334	1.00	70,283,338			7,028,334	7,028,334	7,028,334	7,028,334	7,028,334	7,028,334	7,028,334
Lighting	Carryover (Nonresidential)	5.8	778,102	1.00	4,533,909			778,102	778,102	778,102	778,102	778,102	643,398	-
CY2020 Program Total Electric Contribution to CPAS			67,725,454		531,087,250			58,595,291	58,595,291	58,595,291	58,595,291	55,830,466	54,666,269	53,069,637
Historic Program Total Electric Contribution to CPAS‡						46,515,815	105,542,395	105,542,395	67,041,204	65,717,077	63,386,783	45,384,658	44,215,102	43,970,970
Program Total Electric 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
CY2020 Program Incremental Expiring Electric Savings§									-	-	-	2,764,824	1,164,197	1,596,632
Historic Program Incremental Expiring Electric Savings‡§									38,501,191	1,324,127	2,330,294	18,002,125	1,169,556	244,132
Program Total Incremental Expiring Electric Savings§									38,501,191	1,324,127	2,330,294	20,766,950	2,333,754	1,840,764

End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Lighting	Omni-Directional LED (Residential)	10,629,395	10,629,395	10,629,395	-	-	-	-	-	-	-	-	-
Lighting	Omni-Directional LED (Nonresidential)	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	Directional LED (Residential)	6,206,647	6,206,647	6,206,647	-	-	-	-	-	-	-	-	-
Lighting	Directional LED (Nonresidential)	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	Specialty LED (Residential)	4,207,598	4,207,598	4,207,598	-	-	-	-	-	-	-	-	-
Lighting	Specialty LED (Nonresidential)	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	LED Fixtures and Kits (Residential)	5,677,112	5,677,112	5,677,112	5,677,112	5,677,112	5,677,112	5,677,112	5,677,112	-	-	-	-
Lighting	LED Fixtures and Kits (Nonresidential)	429,655	429,655	429,655	429,655	429,655	347,152	-	-	-	-	-	-
Lighting	LED Nightlights (Residential)	1,011,467	-	-	-	-	-	-	-	-	-	-	-
Lighting	Carryover (Residential)	7,028,334	7,028,334	7,028,334	-	-	-	-	-	-	-	-	-
Lighting	Carryover (Nonresidential)	-	-	-	-	-	-	-	-	-	-	-	-
CY2020 Program Total Electric Contribution to CPAS		35,190,209	34,178,742	34,178,742	6,106,768	6,106,768	6,024,264	5,677,112	5,677,112	-	-	-	-
Historic Program Total Electric Contribution to CPAS‡		43,970,970	23,277,537	8,656,751	8,267,044	8,037,270	8,037,270	4,443,890	-	-	-	-	-
Program Total Electric 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	-	-	-	-
CY2020 Program Incremental Expiring Electric Savings§		17,879,429	1,011,467	-	28,071,974	-	82,503	347,152	-	5,677,112	-	-	-
Historic Program Incremental Expiring Electric Savings‡§		-	20,693,433	14,620,786	389,707	229,774	-	3,593,380	4,443,890	-	-	-	-
Program Total Incremental Expiring Electric 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	-	-	-

Note: The green highlighted cell shows program total first-year electric savings. The gray cells are blank, indicating no values or no contribution to calculating CPAS in CY2020..

*These are calculated values based on deemed values assigned to program bulbs based on the retail store type where the bulbs were purchased. Source found on the Illinois Stakeholder Advisory Group (SAG) website: https://www.ilsag.info/ntg_2020.

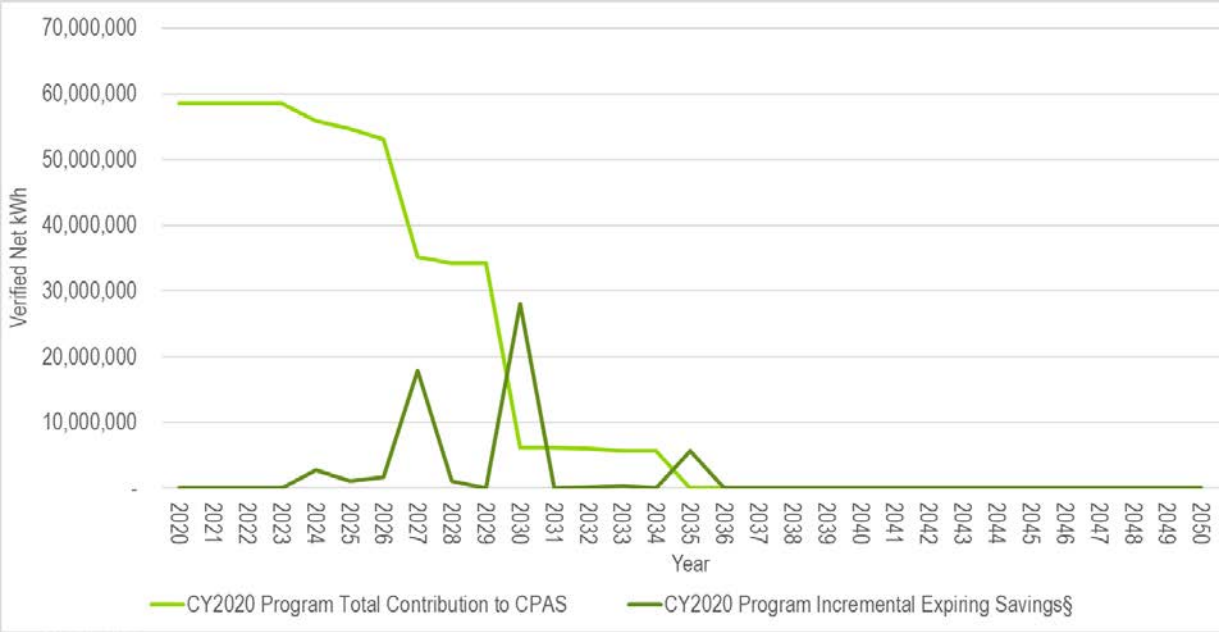
† Lifetime savings are the sum of CPAS savings through the effective useful life (EUL).

‡ Historic savings go back to CY2018.

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

Source: Evaluation team analysis

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



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

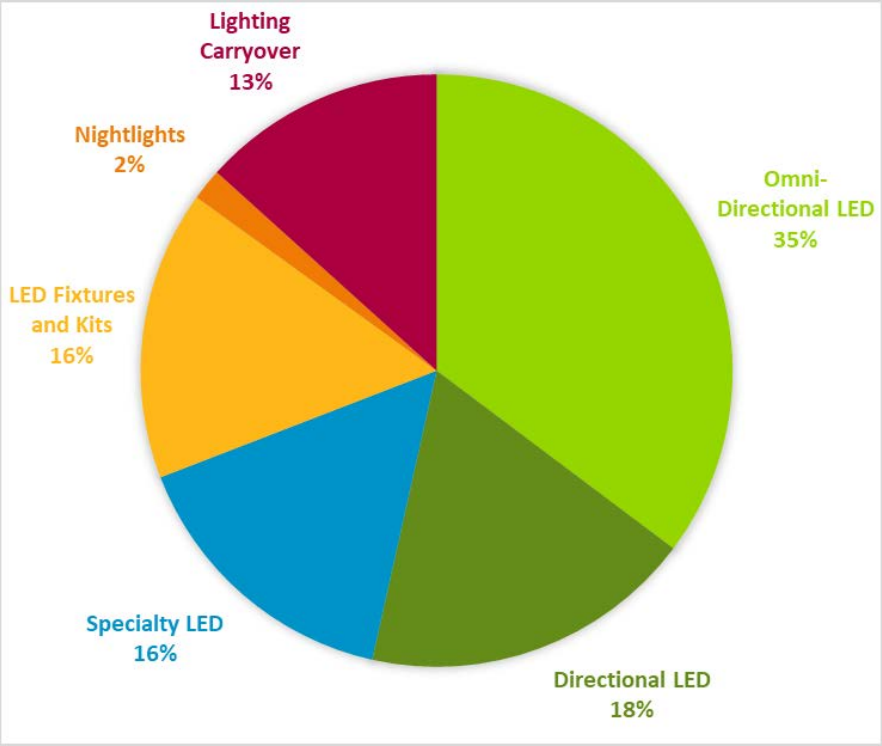
Source: Evaluation team analysis

2.4 Program Savings by Measure

The LDIS-IE Program includes six distinct lighting measure groups, as the following tables show. These groups include omni-directional LEDs, directional LEDs (BR, R, MR, and PAR lamp types), specialty LEDs (globe, candelabra, and 3-way lamps), LED fixtures and retrofit kits, nightlights, and carryover lamps from purchases in CY2018 and CY2019 that the Illinois Statewide Technical Reference Manual v8.0 (TRM v8.0) projects participants will install in CY2020. The omni-directional and directional lamps contributed the most savings in CY2020 (see Figure 2-3). Source: Evaluation team analysis

Table 2-4 and Table 2-5 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 nonresidential savings (using the split specified in the TRM v8.0) to highlight where savings are realized.

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



Source: Evaluation team analysis

Table 2-4. LDIS-IE CY2020 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	Omni-Directional LED (Residential)	19,257,731	1.00	19,220,319	0.97	18,648,062	10.0
Lighting	Omni-Directional LED (Nonresidential)	2,070,427	1.00	2,066,502	0.97	2,004,975	5.5
Lighting	Directional LED (Residential)	11,386,150	1.09	12,417,326	0.75	9,263,652	10.0
Lighting	Directional LED (Nonresidential)	1,755,926	1.09	1,914,930	0.75	1,428,588	6.4
Lighting	Specialty LED (Residential)	9,257,779	1.00	9,257,560	0.86	7,938,864	10.0
Lighting	Specialty LED (Nonresidential)	1,427,637	1.00	1,427,648	0.86	1,224,287	5.1
Lighting	LED Fixtures and Kits (Residential)	10,401,822	1.11	11,521,145	0.74	8,473,302	15.0
Lighting	LED Fixtures and Kits (Nonresidential)	979,382	1.10	1,082,122	0.74	795,658	12.8
Lighting	LED Nightlights (Residential)	1,011,462	1.00	1,011,467	1.00	1,011,467	8.0
Lighting	Carryover (Residential)	NR	NA	7,028,334	1.00	7,028,334	10.0
Lighting	Carryover (Nonresidential)	NR	NA	778,102	1.00	778,102	5.8
	Total	57,548,317	1.18§	67,725,454	0.87	58,595,291	10.5

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.
NR = Not reported (refers to a piece of data that was not reported)
NA = Not applicable (refers to a piece of data that cannot be produced or does not apply)
* These are calculated values based on deemed values assigned to program bulbs based on the retail store type where the bulbs were purchased. Source found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.
§ The overall program realization rate includes verified gross carryover savings in program savings totals. The overall program realization rate excluding verified carryover savings is 1.04.

Source: ComEd tracking data and evaluation team analysis

Table 2-5. LDIS-IE 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	Omni-Directional LED (Residential)	NR	NA	2,328	0.97	2,259
Lighting	Omni-Directional LED (Nonresidential)	NR	NA	461	0.97	448
Lighting	Directional LED (Residential)	NR	NA	1,475	0.75	1,100
Lighting	Directional LED (Nonresidential)	NR	NA	428	0.75	319
Lighting	Specialty LED (Residential)	NR	NA	1,099	0.86	943
Lighting	Specialty LED (Nonresidential)	NR	NA	319	0.86	273
Lighting	LED Fixtures and Kits (Residential)	NR	NA	1,545	0.74	1,136
Lighting	LED Fixtures and Kits (Nonresidential)	NR	NA	256	0.74	188
Lighting	LED Nightlights (Residential)	NR	NA	0	NA	0
Lighting	Carryover (Residential)	NR	NA	847	1.00	847
Lighting	Carryover (Nonresidential)	NR	NA	174	1.00	174
	Total	NR	NA	8,933	0.86	7,688

*A deemed value. Source found on the Illinois SAG website: https://www.ilsag.info/ntg_2020. LDIS-IE NTG values depended on the store type where the bulbs were purchased.
NR = Not reported (refers to a piece of data that was not reported)
NA = Not applicable (refers to a piece of data that cannot be produced or does not apply)
Source: ComEd tracking data and evaluation team analysis

2.5 Impact Analysis Findings and Recommendations

2.5.1 Lighting Impact Parameter Estimates

Equation 2-1 is used to estimate energy and demand savings for LED lamps and fixtures sold through the program, as specified in the TRM 8.0.

Equation 2-1. LDIS-IE Gross Annual Energy and Demand Savings

Verified Gross Annual ΔkWh = ResSplit * Res ΔkWh + NonResSplit * NonRes ΔkWh

Where:

- **Res ΔkWh =** Bulbs * DeltaWatts/1,000 * ISR_r * (1-Leakage) * HOU_r * $WHFe_r$
- **NonRes ΔkWh =** Bulbs * DeltaWatts/1,000 * ISR_{nr} * (1-Leakage) * HOU_{nr}* $WHFe_{nr}$

Verified Gross Annual Summer Peak ΔkW = Gross Annual ΔkW * Summer Peak CF * WHFd

Where:

- **Res/NonRes Split** = Percentage of program bulbs installed in residential and nonresidential locations, deemed within TRM v8.0.
- **Bulbs** = Quantity of bulbs sold through the CY2020 program based on program tracking data.
- **DeltaWatts** = Difference in wattage between the baseline bulb (WattsBase) and the efficient program bulb (WattsEE):
    - WattsBase = Baseline bulb wattage, mapping deemed in TRM v8.0.
    - WattsEE = Wattage of efficient program bulb based on program tracking data.

- **ISR $_{r(nr)}$** = First-year installation rate (residential or nonresidential), deemed in TRM v8.0.
- **Leakage** = Percentage of program bulbs installed outside of ComEd service territory, deemed in TRM v8.0.
- **HOU$_{r(nr)}$** = Annual hours of use (residential/nonresidential), deemed in TRM v8.0.
- **WHFe$_{r(nr)}$** = Waste heat factor – energy (residential/nonresidential), deemed in TRM v8.0.
- **WHFd$_{r(nr)}$** = Waste heat factor – demand (residential/nonresidential), deemed in TRM v8.0.
- **Summer Peak CF** = Peak load coincidence factor, the average runtime percentage of program bulbs during summer peak hours (weekdays from 1 p.m. to 5 p.m.), deemed in TRM v8.0

Table 2-6 shows the source of the verified first-year gross and net savings parameters. The sources of the parameters used to calculate the second- and third-year carryover are presented in Section 2.6.1. The lifetime energy and demand savings are estimated by multiplying the verified savings by the EUL for each measure.

Table 2-6. LDIS-IE Savings Parameters

Gross Savings Input Parameters	Deemed or Evaluated?	Source*
Program Bulbs	Evaluated	CY2020 LDIS-IE Program Tracking Data
DeltaWatts	Deemed	TRM v8.0 Errata Sections 5.5.6, 5.5.8, 5.5.9, 4.5.4
Installation Rate (ISR)	Deemed	TRM v8.0 Errata Sections 5.5.6, 5.5.8, 5.5.9, 4.5.4
Leakage	Evaluated	TRM v8.0 Errata Sections 5.5.6, 5.5.8, 5.5.9, 4.5.4
Res/Non-Res Split	Deemed	TRM v8.0 Errata Sections 5.5.6, 5.5.8, 5.5.9, 4.5.4
Hours of Use (HOU)	Deemed	TRM v8.0 Errata Sections 5.5.6, 5.5.8, 5.5.9, 4.5.4
Summer Peak Coincidence Factor (CF)	Deemed	TRM v8.0 Errata Sections 5.5.6, 5.5.8, 5.5.9, 4.5.4
Waste Heat Factor (Energy)	Deemed	TRM v8.0 Errata Sections 5.5.6, 5.5.8, 5.5.9, 4.5.4
Waste Heat Factor (Demand)	Deemed	TRM v8.0 Errata Sections 5.5.6, 5.5.8, 5.5.9, 4.5.4
NTG	Deemed	SAG Consensus
EUL	Mixture	TRM v8.0, TRM v8.0 Errata Sections 5.5.6, 5.5.8, 5.5.9, 4.5.4

*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.

2.5.2 Other Impact Findings and Recommendations

The evaluation team developed one recommendation based on findings from the CY2020 evaluation.

Finding 1. The overall program gross realization rate for the LDIS-IE Program is 1.04 (exclusive of carryover savings, 1.18 with carryover). This realization rate greater than 1.0 is the result of discrepancies in the baseline wattage values. The evaluation team found discrepancies between ex ante and verified baseline wattages in 13,992 records included in the final tracking data. These discrepancies primarily occurred with omni-directional lamps, PAR and R20 directional lamps, hardwire fixtures, and retrofit kits.

Recommendation 1. Guidehouse recommends ComEd and the implementer update eTRACK to correct the baseline wattage assignment discrepancies so they align with the TRM v8.0.

2.6 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. For the CY2020 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. These NTG ratio estimates were approved through the Illinois SAG consensus process.

2.6.1 Carryover Savings Estimation

2.6.1.1 CY2020 Carryover Savings

The evaluation team calculated the CY2020 carryover savings estimates using the TRM (v6.0, v7.0, and v8.0) and the CY2018 and CY2019 impact evaluation reports. The energy and demand savings from second-year CY2019 and third-year CY2018 installations are calculated based on the following parameters:

- **DeltaWatts:** Verified deltawatts for bulbs installed in CY2020 based on the baseline wattage values associated with the installation year (source: TRM v8.0)
- **Res/Nonres split:** Verified res/nonres split from the year the bulbs were purchased (source: TRM v6.0 and 7.0)
- **HOU and summer peak CF:** Verified hours-of-use and summer peak coincidence factor from the installation year (source: TRM v8.0)
- **Energy and demand waste heat factors:** Verified WHFs from the year the bulbs are installed (source: TRM v8.0)
- **ISR:** Verified installation rate from the year the bulbs were purchased (source: TRM v6.0 and v7.0)
- **NTG:** Deemed NTG based on evaluation research from the year the bulbs were purchased (source: SAG consensus)

Table 2-7 shows that 34,415 bulbs and fixtures purchased during CY2018 and 121,535 bulbs and fixtures purchased during CY2019 are expected to be installed within ComEd's service territory in CY2020. The table provides the gross and net energy and summer peak demand savings from these carryover bulbs, which will be counted in CY2020. Total CY2020 net carryover savings are estimated to be 7,806,436 kWh and 1,021 summer peak kW.

Table 2-7. LDIS-IE CY2020 Carryover Savings from CY2018 and CY2019 Program Sales

Claimed CY2020 Carryover Savings	Second-Year Installation CY2019 Bulbs	Third-Year Installation CY2018 Bulbs	Total Carryover CY2020
Carryover Bulbs Installed During CY2020	121,535	33,415	154,950
Gross kWh Impact Per Unit	50.5	49.9	50.4
Gross Peak kW Impact Per Unit	0.007	0.006	0.007
Carryover Gross Energy Savings (kWh)	6,140,658	1,665,778	7,806,436
Carryover Gross Summer Peak Demand Savings (kW)	810	212	1,021
Net-to-Gross Ratio	1.00	1.00	1.00
Carryover Net Energy Savings (kWh)	6,140,658	1,665,778	7,806,436
Carryover Net Summer Peak Demand Savings (kW)	810	212	1,021
EUL Res	10.0	10.0	10.0
EUL NonRes	5.9	5.6	5.8

Source: ComEd tracking data and evaluation team analysis

2.6.1.2 CY2021 Preliminary Carryover Savings

The evaluation team calculated a preliminary CY2021 carryover savings estimate using the TRM (v7.0, v8.0, and v9.0) and the CY2019 and CY2020 impact evaluation reports. The energy

and demand savings from these CY2019 third-year and CY2020 second-year installations are calculated based on the following parameters:

- **Deltawatts:** Verified deltawatts for bulbs installed in CY2021 based on the baseline wattage values associated with the installation year (source: TRM v9.0)
- **Res/Nonres split:** Verified res/nonres split from the year the bulbs were purchased (source: TRM v7.0 and v8.0)
- **HOU and summer peak CF:** Verified hours-of-use and summer peak coincidence factor from the installation year (source: TRM v9.0)
- **Energy and demand waste heat factors:** Verified WHFs from the year the bulbs are installed (source: TRM v9.0)
- **ISR:** Verified installation rate from the year the bulbs were purchased (source: TRM v7.0 and v8.0)
- **NTG:** Deemed NTG based on evaluation research from the year the bulbs were purchased (source: SAG consensus)

Table 2-8 shows that 214,922 bulbs purchased in CY2019 or CY2020 are expected to be installed within ComEd's service territory in CY2021 (carryover). The table provides the gross and net energy and demand savings from these carryover bulbs. Total **preliminary** net carryover savings is estimated to be 10,645,662 kWh and 1,387 summer peak kW.

Table 2-8. LDIS-IE CY2021 Preliminary Carryover Savings Estimates from CY2019 and CY2020 Bulb Sales

Preliminary CY2021 Carryover Savings	CY2019 Bulbs	CY2020 Bulbs	Total Preliminary 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
EUL NonRes	5.9	6.9	6.4

Source: Evaluation team analysis

2.6.1.3 CY2022 Preliminary Partial Carryover Savings from CY2020

The evaluation team calculated a preliminary partial CY2022 carryover savings estimate based on the bulbs sold during CY2020 (CY2021 sales are not known at this time) that are estimated to be installed in CY2021. This estimate is preliminary because several parameters used to estimate these CY2022 carryover savings are based on deemed parameters from the year of install (delta watts, HOU and peak CF, and waste heat factors of energy and demand), which would be TRM v10.0 for CY2022. Because TRM v10.0 is not yet finalized, the team used v9.0 to estimate these parameters. The **preliminary** parameters for the partial CY2022 carryover savings are based on the following:

- **Delta watts:** Verified savings estimate from the installation year (source: TRM v9.0); this value is subject to change and will ultimately use the values from TRM v10.0.
- **Residential/nonresidential split:** Verified savings from the purchase year (source: TRM v8.0); this value is not subject to change.
- **HOU and peak CF:** Verified savings estimate from the installation year (source: TRM v9.0); this value is subject to change and will ultimately use the values from TRM v10.0.
- **Energy and demand IE:** Verified savings estimate from the installation year (source: TRM v9.0); this value is subject to change and will ultimately use the values from TRM v10.0.
- **Installation rate:** Verified savings estimate from the purchase year (source: TRM v8.0); this value is not subject to change.
- **NTG:** Deemed net-to-gross values from the purchase year; this value is not subject to change.

Table 2-9 shows that 95,213 bulbs purchased in CY2020 are expected to be installed within ComEd's service territory in CY2022. The table provides the gross and net energy and peak demand savings from these carryover bulbs. Total preliminary CY2022 partial net carryover energy savings is estimated to be 4,628,787 kWh and 596 summer peak kW.

Table 2-9. LDIS-IE CY2022 Preliminary Carryover Savings Estimates from CY2020 Bulb Sales

Preliminary Partial CY2022 Carryover Savings	CY2020 Bulbs
Carryover Bulbs Installed During CY2022	95,213
Gross Energy Savings (kWh)	5,211,196
Gross Peak Summer Peak Demand Savings (kW)	675
Net-to-Gross Ratio	0.89
Net Energy Savings (kWh)	4,628,787
Net Summer Peak Demand Savings (kW)	596
EUL Res	10.0
EUL NonRes	6.9

Source: Evaluation team analysis

2.7 Total Resource Cost Detail

Table 2-10 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 2-10. 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 LED (Residential)	Lamp	520,357	10.0	No	19,220,319	2,328	NA	NA	NA	-374,385	0.97	0.97	NA	18,648,062	2,259	NA	NA	NA	-363,238
Lighting	Omni-Directional LED (Nonresidential)	Lamp	16,094	5.5	No	2,066,502	461	NA	NA	NA	-12,355	0.97	0.97	NA	2,004,975	448	NA	NA	NA	-11,987
Lighting	Directional LED (Residential)	Lamp	245,262	10.0	No	12,417,326	1,475	NA	NA	NA	-243,028	0.75	0.75	NA	9,263,652	1,100	NA	NA	NA	-181,305
Lighting	Directional LED (Nonresidential)	Lamp	10,219	6.4	No	1,914,930	428	NA	NA	NA	-29,416	0.75	0.75	NA	1,428,588	319	NA	NA	NA	-21,945
Lighting	Specialty LED (Residential)	Lamp	254,796	10.0	No	9,257,560	1,099	NA	NA	NA	-181,186	0.86	0.86	NA	7,938,864	943	NA	NA	NA	-155,377
Lighting	Specialty LED (Nonresidential)	Lamp	10,617	5.1	No	1,427,648	319	NA	NA	NA	-28,442	0.86	0.86	NA	1,224,287	273	NA	NA	NA	-24,391
Lighting	LED Fixtures and Kits (Residential)	Fixture	174,583	15.0	No	11,521,145	1,545	NA	NA	NA	-254,771	0.74	0.74	NA	8,473,302	1,136	NA	NA	NA	-187,373
Lighting	LED Fixtures and Kits (Nonresidential)	Fixture	5,399	12.8	No	1,082,122	256	NA	NA	NA	-32,134	0.74	0.74	NA	795,658	188	NA	NA	NA	-23,627
Lighting	LED Nightlights (Residential)	Fixture	40,084	8.0	No	1,011,467	0	NA	NA	NA	0	1.00	NA	NA	1,011,467	0	NA	NA	NA	0
Lighting	Carryover (Residential)	Unit	151,525	10.0	No	7,028,334	847	NA	NA	NA	-137,074	1.00	1.00	NA	7,028,334	847	NA	NA	NA	-137,074
Lighting	Carryover (Nonresidential)	Unit	4,696	5.8	No	778,102	174	NA	NA	NA	-10,972	1.00	1.00	NA	778,102	174	NA	NA	NA	-10,972
	Total			10.5		67,725,454	8,933	NA	NA	NA	-1,303,763	NA	NA	NA	58,595,291	7,688	NA	NA	NA	-1,117,289

NA = 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

3. Appliance Rebates – Income Eligible

3.1 Program Description

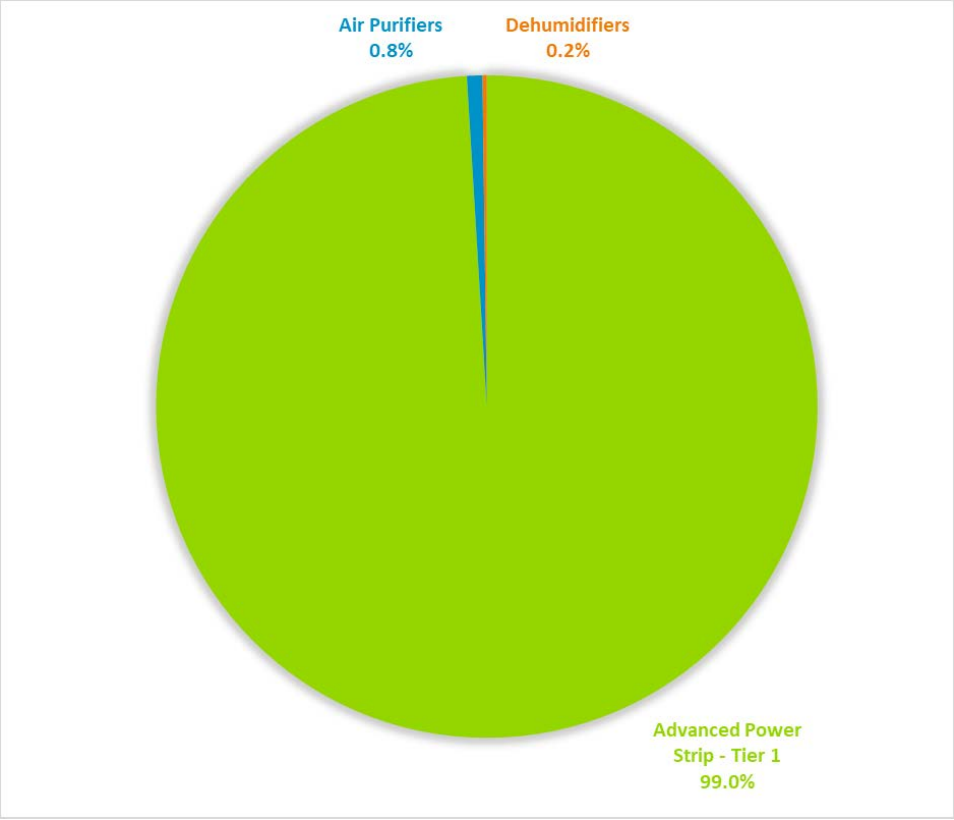
The primary goal of the APR-IE Program is to increase the market penetration of select appliance products within ComEd's income-eligible customer population by providing incentives for these products through various retail channels. In CY2020, the program offered incentives for Tier 1 advanced power strips (APS), air purifiers, and dehumidifiers. The program targets retail sale channels that serve, in part or in full, ComEd residential customers with incomes at or below 80% of the area median income. The CY2020 APR-IE Program incentivized 95,398 Tier 1 APS measures, 725 air purifiers, and 202 dehumidifiers, as Table 3-1 and Figure 3-1 show.

Table 3-1. APR-IE CY2020 Volumetric Findings Detail

Participation	Advanced Power Strip – Tier 1	Air Purifier	Dehumidifier
CY2019 Incentivized Appliance Measures	95,398	725	202

Source: ComEd tracking data and evaluation team analysis

Figure 3-1. Share of APR-IE Measures Incentivized in CY2020 by Type



Source: ComEd tracking data and evaluation team analysis

3.2 Program Savings Detail

Table 3-2 provides the energy and demand savings achieved by the APR-IE Program in CY2020. The APR-IE Program did not claim any gas or secondary electric energy savings from water supply and wastewater treatment plants. The program's verified gross kilowatt-hour (kWh) savings are only 100 kWh higher than ex ante gross kWh savings.

Table 3-2. APR-IE CY2020 Total Annual Incremental Electric and Total Savings

Savings Category	Energy Savings (kWh)	Summer Peak* Demand Savings (kW)
Electricity		
Ex Ante Gross Savings	10,382,843	1,173
Program Gross Realization Rate	1.00	1.00
Verified Gross Savings	10,384,943	1,174
Program Net-to-Gross Ratio (NTG)	1.00	1.00
Verified Net Savings	10,384,943	1,174
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	10,382,843	1,173
Program Gross Realization Rate	1.00	1.00
Verified Gross Savings	10,384,943	1,174
Program Net-to-Gross Ratio (NTG)	1.00	1.00
Verified Net Savings	10,384,943	1,174

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.

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 Program and the cumulative persisting annual savings (CPAS) for the measures installed in CY2020. The electric and total CPAS across all measures installed in 2020 is 10,384,943 kWh (Table 3-3). There are no gas savings associated with this program; as such, the electric CPAS is the total CPAS for CY2020.

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

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
Appliance	Advanced Power Strip - Tier 1	7.0	9,825,994	1.00	68,781,958			9,825,994	9,825,994	9,825,994	9,825,994	9,825,994	9,825,994	9,825,994
Appliance	Air Purifier	9.0	528,354	1.00	4,755,186			528,354	528,354	528,354	528,354	528,354	528,354	528,354
Appliance	Dehumidifier	12.0	30,595	1.00	367,146			30,595	30,595	30,595	30,595	30,595	30,595	30,595
CY2020 Program Total Electric Contribution to CPAS			10,384,943		73,904,290			10,384,943	10,384,943	10,384,943	10,384,943	10,384,943	10,384,943	10,384,943
Historic Program Total Electric Contribution to CPAS‡						-	7,553,428	7,553,428	7,553,428	7,553,428	7,553,428	7,553,428	7,553,428	258,659
Program Total Electric 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
CY2020 Program Incremental Expiring Electric Savings§								-	-	-	-	-	-	-
Historic Program Incremental Expiring Electric Savings‡§								-	-	-	-	-	-	7,294,769
Program Total Incremental Expiring Electric 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 - Tier 1	-	-	-	-	-	-	-	-	-	-	-	-
Appliance	Air Purifier	528,354	528,354	-	-	-	-	-	-	-	-	-	-
Appliance	Dehumidifier	30,595	30,595	30,595	30,595	30,595	-	-	-	-	-	-	-
CY2020 Program Total Electric Contribution to CPAS		558,949	558,949	30,595	30,595	30,595	-	-	-	-	-	-	-
Historic Program Total Electric Contribution to CPAS‡		258,659	27,634	27,634	27,634	-	-	-	-	-	-	-	-
Program Total Electric CPAS		817,608	586,583	58,229	58,229	30,595	-	-	-	-	-	-	-
CY2020 Program Incremental Expiring Electric Savings§		9,825,994	-	528,354	-	-	30,595	-	-	-	-	-	-
Historic Program Incremental Expiring Electric Savings‡§		-	231,025	-	-	27,634	-	-	-	-	-	-	-
Program Total Incremental Expiring Electric Savings§		9,825,994	231,025	528,354	-	27,634	30,595	-	-	-	-	-	-

Note: The green highlighted cell shows program total first-year electric savings. The gray cells are blank, indicating no values or no contribution to calculating CPAS in CY2020.

*A deemed value. Source on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

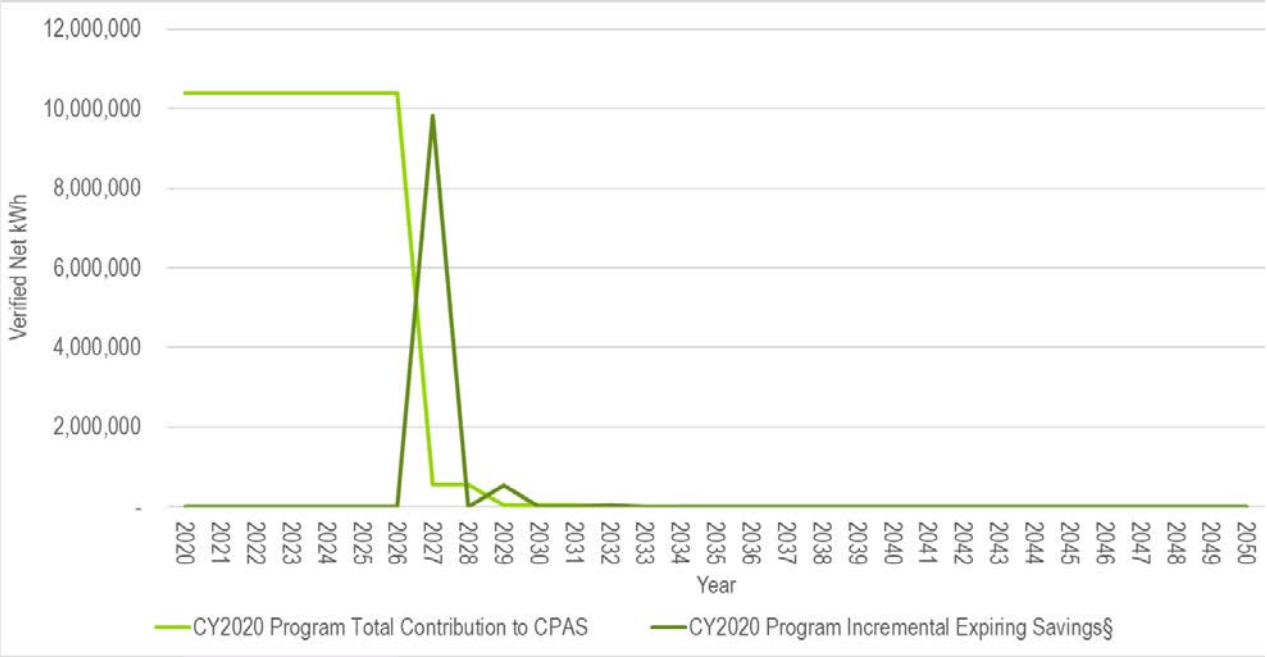
† Lifetime savings are the sum of CPAS savings through the EUL.

‡ Historic savings go back to CY2018. Because the APR-IE Program began in CY2019, there are no historic savings prior to 2019.

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

Source: Evaluation team analysis

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



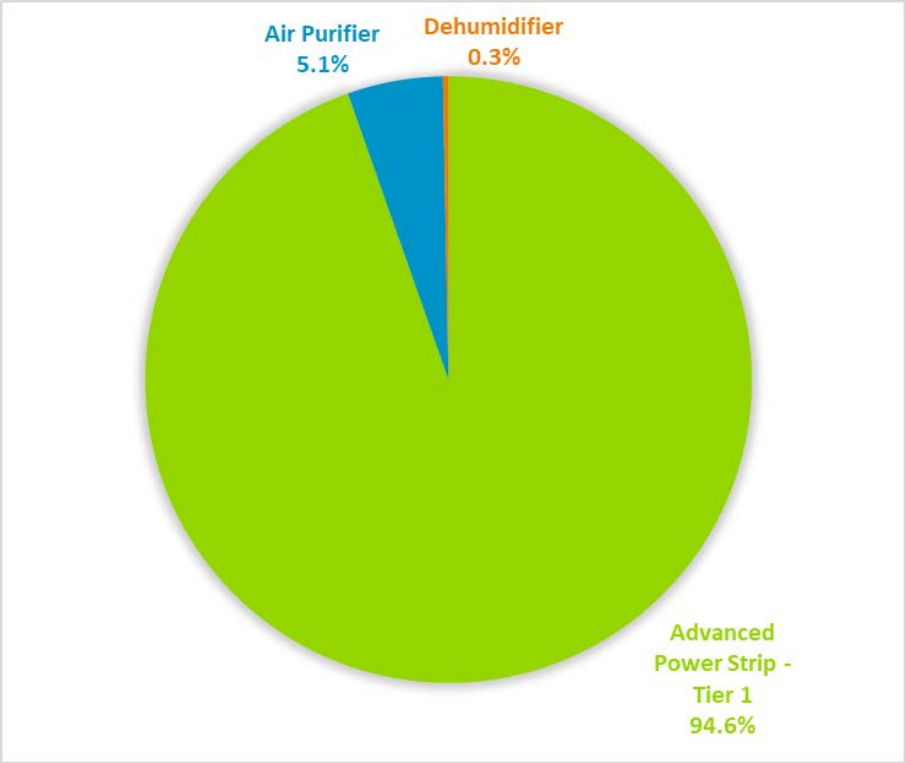
§Expiring savings are equal to CPAS Y_{n-1} - CPAS Y_n.

Source: Evaluation team analysis

3.4 Program Savings by Measure

The APR-IE Program includes three distinct measure groups, as the following tables show. These measure groups include Tier 1 APS, air purifiers, and dehumidifiers. The majority of program savings were contributed by the Tier 1 APS (see Figure 3-3).

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



Source: ComEd tracking data and evaluation team analysis

Table 3-4 and Table 3-5 show the energy and summer peak demand savings by measure group for the APR-IE Program. As Table 3-4 shows, while the program-level verified gross realization rate was 1.00, dehumidifiers had a gross savings realization rate greater than 1.0. The ex ante savings for dehumidifiers used tables included in the TRM v8.0 that are estimates for a range of capacity factors. The evaluation team calculated the verified savings for each model sold through the APR-IE Program based on data provided in the program tracking data.

Table 3-4. APR-IE CY2020 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 - Tier 1	9,825,994	1.00	9,825,994	1.00	9,825,994	7.0
Appliance	Air Purifier	528,354	1.00	528,354	1.00	528,354	9.0
Appliance	Dehumidifier	28,495	1.07	30,595	1.00	30,595	12.0
	Total	10,382,843	1.00	10,384,943	1.00	10,384,943	NA

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

Source: ComEd tracking data and evaluation team analysis

Table 3-5. APR-IE 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)
Appliance	Advanced Power Strip - Tier 1	1,107	1.00	1,107	1.00	1,107
Appliance	Air Purifier	60	1.00	60	1.00	60
Appliance	Dehumidifier	6	1.08	7	1.00	7
	Total	1,173	1.00	1,174	1.00	1,174

* A deemed value. Source found on the Illinois SAG website: https://www.ilsag.info/ntg_2020.

Source: ComEd tracking data and evaluation team analysis

3.5 Impact Analysis Findings and Recommendations

3.5.1 Impact Parameter Estimates

3.5.1.1 Tier 1 Advanced Power Strips

The APR-IE Program offers incentives for Tier 1 APS. The evaluation team applied energy savings of 103 kWh per unit and peak demand savings of 0.0116 kW per unit as stated by the TRM v8.0 savings assumptions for 7-plug load Tier 1 APS units.

3.5.1.2 Air Purifiers

The APR-IE Program offers incentives for ENERGY STAR-labeled air purifiers. The TRM v8.0 deems energy and peak demand savings for these measures based on the air purifier's clean air delivery rate (CADR). The evaluation team used the CADR provided in the tracking data to map energy and peak demand savings to these measures.

3.5.1.3 Dehumidifiers

The APR-IE Program began offering incentives for ENERGY STAR-labeled dehumidifiers in CY2020. The annual energy and peak demand savings for ENERGY STAR-labeled dehumidifiers sold through the program are estimated using the following formulas as specified in the TRM:

Equation 3-1. APR-IE Annual Energy and Peak Demand Savings

Annual ΔkWh = (((Avg Capacity * 0.473) / 24) * Hours) * (1 / (L/kWh_Base) – 1 / (L/kWh_Eff))
Peak ΔkW = ΔkWh/Hours * CF

Where:

- **Avg Capacity** = Average capacity of the unit (pints/day)
- **0.473** = Constant to convert pints to liters
- **24** = Constant to convert liters/day to liters/hour
- **Hours** = Run hours per year
- **L/kWh_Base** = Liters of water per kWh consumed by the baseline dehumidifier
- **L/kWh_Eff** = Liters of water per kWh consumed by the ENERGY STAR dehumidifier

The TRM v8.0 provides lookup tables for the kWh_Base and kWh_Eff values based on the range of average capacity of the dehumidifier and deemed savings assumptions based on the capacity ranges. The ex ante savings were determined using the annual kWh savings estimates provided in the TRM tables; however, the TRM states the actual capacity should be used to calculate savings if known. As a result, the evaluation team calculated verified savings using Equation 3-1 and included the actual capacity to calculate the verified savings. This resulted in gross realization rates that were greater than 1.0 for dehumidifiers (1.07 for energy and 1.08 for peak demand savings). The evaluation team recognizes that ComEd and the implementation team will use the method described by Equation 3-1 in CY2021.

The sources used by the evaluation team for the verified first-year gross and net savings parameters are shown in Table 3-6. The team estimated lifetime energy and demand savings by multiplying the verified savings by the EUL for each measure.

Table 3-6. APR-IE Savings Parameters

Gross Savings Input Parameters	Deemed or Evaluated?	Source*
Program Measures	Evaluated	Program Tracking Data
CADR (Air Purifier)	Evaluated	Program Tracking Data
Average Capacity (Dehumidifier)	Evaluated	Program Tracking Data
Hours (Dehumidifier)	Deemed	TRM v8.0
L/kWh_Base (Dehumidifier)	Deemed	TRM v8.0
L/kWh_Eff (Dehumidifier)	Deemed	TRM v8.0
NTG	Deemed	SAG Consensus
Effective Useful Life (EUL)	Mixture	TRM v8.0 Errata

* 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.

3.5.2 Other Impact Findings and Recommendations

The evaluation team developed one recommendation based on findings from the CY2020 evaluation.

Finding 2. The overall program gross realization rate for the APR-IE Program is 1.00. All measures have a realization rate of 1.00 except dehumidifiers, which has a realization rate of 1.08. The deemed gross energy savings included in the tracking data for dehumidifiers were based on savings estimate tables included in the TRM v8.0 provided in the event that the dehumidifiers' actual capacity is not known. The actual capacity of the dehumidifiers sold through the program is recorded in the program tracking data; thus, the evaluation team used these actual capacities and the equations found in the TRM (and presented previously) to estimate the verified kWh and peak kW savings for dehumidifiers.

Recommendation 2. In the CY2020 Wave 1 memo, the evaluation team recommended calculating measure savings for dehumidifiers for each distinct model using the actual capacity values included in the tracking data in October 2020. The revised ex ante method will be implemented by ComEd and the implementation team starting in CY2021.

3.6 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 defined by a consensus process through Illinois SAG.

3.7 Total Resource Cost Detail

Table 3-7 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 3-7. 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 - Tier 1	Each	95,398	7.0	No	9,825,994	1,107	NA	NA	NA	NA	1.00	1.00	NA	9,825,994	1,107	NA	NA	NA	NA
Appliance	Air Purifier	Each	725	9.0	No	528,354	60	NA	NA	NA	NA	1.00	1.00	NA	528,354	60	NA	NA	NA	NA
Appliance	Dehumidifier	Each	202	12.0	No	30,595	7	NA	NA	NA	NA	1.00	1.00	NA	30,595	7	NA	NA	NA	NA
	Total	Each	96,325	7.1		10,384,943	1,174	NA	NA	NA	NA	NA	NA	NA	10,384,943	1,174	NA	NA	NA	NA

NA = Not applicable

*The total of the EUL column is the WAML and is calculated as the sum product of EUL and measure savings divided by total program savings.

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

Source: ComEd tracking data and evaluation team analysis