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Ameren Illinois Company

2023 Residential Program Impact Evaluation Report

Draft

March 14, 2024

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# Executive Summary

This report presents impact evaluation results from Ameren Illinois Company’s (AIC) 2023 Residential Program. The Residential Program is part of AIC’s overall portfolio of residential and nonresidential energy efficiency programs implemented during 2023. The overarching objective of the 2023 Residential Program impact evaluation is to determine gross and net electric energy, electric demand, and fossil fuel impacts associated with the Program.

## Program Overview

The Residential Program is formally made up of six initiatives, most of which are further broken down into channels:

* Retail Products Initiative
  + Point of Purchase (POP) channel
  + Downstream Rebates channel
  + Online Marketplace channel
  + Efficient Choice Tool (ECT) channel
* Income Qualified (IQ) Initiative
  + Single Family channel
  + Joint Utility channel
  + Community Action Agency (CAA) channel
  + Mobile Homes & Air Sealing (MHAS) channel
  + Smart Savers channel
  + Community Kits channel
  + Multifamily channel
  + Retail Products channel
* Public Housing Initiative
* Market Rate Multifamily Initiative
  + Direct Install channel
  + Heat Pumps channel
  + Whole Building channel
* Market Rate Single Family Initiative
  + Midstream HVAC channel
  + Home Efficiency channel
* Direct Distribution Efficient Products (Direct Distribution) Initiative
  + School Kits channel
  + High School Innovation channel

The Program’s Initiatives are designed to achieve energy savings in accordance with AIC’s plan filing and to provide energy efficiency services and assistance to customers through a wide range of channels. The Retail Products Initiative, which provides point of sale (POS) and instant discounts to customers purchasing energy-efficient products, is the largest component of the Program from an electric energy and gas savings perspective. The IQ Initiative, which provides whole-home retrofit services and energy efficiency measures through a range of channels, is the largest component of the Program from a program cost perspective.

To best serve AIC and stakeholders, we have considered the delivery strategy and unique characteristics for each AIC offering at the initiative and channel level, and have organized our evaluation activities to optimize use of evaluation resources, minimize customer touchpoints, and strengthen research insights. As a result, evaluation efforts are not always organized in a way that perfectly aligns with formal portfolio organization. Our report makes the following organizational reporting choices:

* The Retail Products channel of the IQ Initiative is grouped with the Market Rate channels of the Retail Products Initiative as program delivery is not notably differentiated across these channels. Additionally, the Point of Purchase, Downstream Rebates, and Online Marketplace channels are collectively referred to as “incentive-based channels” reflecting their differentiation from the Efficient Choice Tool channel, which does not utilize incentives.
* The IQ Initiative’s channels that focus on delivery of measures directly to single family customer homes (as differentiated from retail offerings, multifamily offerings, or kit-based offerings) are grouped together as the IQ Initiative – Single Family Channels.
* The three separate AIC efforts that deliver services to multifamily customers (the Multifamily Channel of the IQ Initiative, all channels of the Market Rate Multifamily Initiative, and the Public Housing Initiative) are grouped together as program delivery is coordinated across these channels.
* All AIC efforts that deliver efficiency measures to residential customers through kits or other similar delivery channels are grouped together as evaluation efforts for these efforts are similar.

Throughout this report, where possible, we identify and/or breakout program impacts on income qualified and other hard-to-reach customers. We acknowledge that some of these organizational choices may make it more challenging for readers to understand the total impact of the Residential Program on these customers in 2023; we will continue to refine evaluation reporting efforts to support this goal wherever possible.

## Policy Background

This is the second calendar year of AIC’s sixth Electric and Gas Energy Efficiency and Demand Response Plan, covering calendar years 2022-2025 (“Plan 6”). AIC’s Plan 6 portfolio is governed by components of Illinois state law (220 ILCS 5/8-103B [“Section 8-103B”] and 220 ILCS 5/8-104 [“Section 8-104”]) which directs large, regulated utilities to offer electric and gas energy efficiency programs. Section 8-103B and Section 8-104 were most recently substantively revised through the passage of Illinois Public Act 102-0662 (the Climate and Equitable Jobs Act, or “CEJA”) in September 2021.

Section 8-103B and Section 8-104 define key points of policy that are relevant to the evaluation of the 2023 AIC Residential Program, which are summarized below as context for this evaluation report.

* **Cumulative Persisting Annual Savings (CPAS):** Since 2018, electric energy savings goals for Illinois utilities have been primarily defined based on persisting savings as a percentage of sales. As such, annual evaluations of AIC’s electric energy efficiency programs must present both annual and persisting savings over the life of delivered measures. As a result, AIC and its program implementer have sought to deliver programs that achieve savings that persist for longer periods of time.
* **Weighted Average Measure Life (WAML):** Section 8-103B allows AIC to create a regulatory asset from all of its 8-103B expenditures, and amortize and recover the total expenditures of that regulatory asset “over a period that is equal to the weighted average of the measure lives implemented for that year that are reflected in the regulatory asset.”[[1]](#footnote-1) Therefore, annual evaluations of AIC’s electric energy efficiency programs must present a WAML in accordance with the guidelines for calculation presented in the Illinois Stakeholder Advisory Group’s (SAG) WAML Report and the Illinois Energy Efficiency Policy Manual.[[2]](#footnote-2)
* **Applicable Annual Incremental Goal (AAIG):** Section 8-103B allows AIC to earn a rate of return on their electric energy efficiency spending if they create a regulatory asset, as discussed above. The rate of return that is earned can be adjusted either up or down as a function of AIC’s performance relative to its AAIG. The AAIG is defined as the difference between the cumulative persisting electric savings goal for the year being evaluated and the cumulative persisting electric savings goal for the previous year. AIC must achieve sufficient savings through its programs to replace savings from measures at the end of their measure life before progress can be counted toward the AAIG. Therefore, annual evaluations of AIC’s electric energy efficiency programs must assess AIC’s performance against its AAIG.
* **(b-25) Savings Conversion:** Subsection (b-25) of Section 8-103B allows electric utilities to “convert” savings achieved for other fuels, including natural gas, to electric savings for the purposes of goal attainment in certain cases. The total amount of savings allowed to be converted is capped at a maximum of 10% of the utility’s applicable annual total savings requirement.[[3]](#footnote-3),[[4]](#footnote-4) Electric savings reported in summary sections of this report therefore include converted savings where applicable.

## Program Savings

In the following sections, the evaluation team presents annual savings (annualized 2023 energy savings) and CPAS for AIC's Residential Program. As discussed in greater detail in the *2023 AIC Integrated Impact Evaluation Report*, AIC’s performance compared to its AAIG is determined based on both types of savings.

### Annual Savings

The 2023 Residential Program achieved 200,177 MWh, 24.90 MW, and 2,445,434 therms in verified net savings. These savings include a non-participant spillover (NPSO) “adder” to net savings.[[5]](#footnote-5),[[6]](#footnote-6) These savings also include (b-25) conversions of fuels not provided by AIC, which are detailed further in Appendix B. Table 1, Table 2, and Table 3 present ex ante gross, verified gross, and verified net electric energy, electric demand, and gas savings, by Initiative and Channel, for the 2023 Residential Program.

Table 1. 2023 Residential Program Electric Energy Annual Savings Summary

| Initiative/Channel | Ex Ante Gross MWh | Gross Realization Rate | Verified Gross MWh | Net-to-Gross Ratio (NTGR) | Verified Net MWh |
| --- | --- | --- | --- | --- | --- |
| Retail Products – Income Qualified | 121,109 | 100% | 121,418 | 0.898 | 109,002 |
| Retail Products – Market Rate Incentive-Based | 20,675 | 98% | 20,294 | 0.796 | 16,159 |
| Retail Products – Efficient Choice Tool | N/A | N/A | 562 | 0.666 | 374 |
| Retail Products – Income Qualified Carryovera | N/A | N/A | 7,557 | 0.919 | 6,941 |
| Retail Products – Market Rate Carryovera | N/A | N/A | 8,799 | 0.712 | 6,264 |
| Income Qualified – Single Family | 3,106 | 101% | 3,123 | 1.000 | 3,123 |
| Income Qualified - CAA | 1,111 | 99% | 1,101 | 1.000 | 1,101 |
| Income Qualified – Joint Utility | 105 | 100% | 105 | 1.000 | 105 |
| Income Qualified – Smart Savers | 4,942 | 97% | 4,807 | 0.999 | 4,804 |
| Income Qualified – MHAS | 183 | 147% | 269 | 1.000 | 269 |
| Income Qualified – Carryovera | N/A | N/A | 737 | 1.000 | 737 |
| Multifamily – Income Qualified | 8,128 | 94% | 7,643 | 1.000 | 7,643 |
| Multifamily – Market Rate | 2,752 | 100% | 2,750 | 0.878 | 2,413 |
| Multifamily – Public Housing | 1,266 | 94% | 1,194 | 1.000 | 1,194 |
| Market Rate Single Family – Midstream HVAC | 12,280 | 100% | 12,280 | 0.701 | 8,612 |
| Market Rate Single Family – Home Efficiency | 83 | 99% | 82 | 0.834 | 69 |
| Kits – School Kits | 4,082 | 123% | 5,027 | 1.000 | 5,027 |
| Kits – High School Innovation | 713 | 111% | 793 | 1.000 | 793 |
| Kits – Mobile Home Kits | 1,330 | 100% | 1,330 | 1.000 | 1,330 |
| Kits – Income Qualified Community Kits | 156 | 103% | 161 | 1.000 | 161 |
| Kits – Joint Utility Kits | 87 | 99% | 87 | 1.000 | 87 |
| Kits – Carryovera | N/A | N/A | 1,245 | 0.996 | 1,240 |
| *Residential Program Subtotal* | *182,109* | *100%b* | *201,364* | *0.881* | *177,450* |
| Residential NPSO Adder |  |  |  |  | 1,051 |
| (b-25) Conversions - AIC Gas |  |  |  |  | 18,981 |
| (b-25) Conversions - Non-AIC Gas |  |  |  |  | 156 |
| (b-25) Conversions - Propane |  |  |  |  | 2,540 |
| Residential Program Total |  |  |  |  | 200,177 |

a Carryover savings are achieved through installation of measures during 2023 that were distributed or rebated in prior program years. For clarity, we break out carryover savings separately throughout this report.

b Calculations of gross realization rate at the Residential Program level exclude categories of savings with no ex ante savings.

Table 2. 2023 Residential Program Electric Demand Annual Savings Summary

| Initiative/Channel | Ex Ante Gross MW | Gross Realization Rate | Verified Gross MW | NTGR | Verified Net MW |
| --- | --- | --- | --- | --- | --- |
| Retail Products – Income Qualified | 15.10 | 99% | 14.98 | 0.900 | 13.47 |
| Retail Products – Market Rate Incentive-Based | 4.21 | 97% | 4.07 | 0.770 | 3.14 |
| Retail Products – Efficient Choice Tool | N/A | N/A | 0.09 | 0.667 | 0.06 |
| Retail Products – Income Qualified Carryovera | N/A | N/A | 0.98 | 0.919 | 0.90 |
| Retail Products – Market Rate Carryovera | N/A | N/A | 1.15 | 0.712 | 0.82 |
| Income Qualified – Single Family | 0.87 | 101% | 0.87 | 1.000 | 0.87 |
| Income Qualified - CAA | 0.26 | 97% | 0.25 | 1.000 | 0.25 |
| Income Qualified – Joint Utility | 0.04 | 100% | 0.04 | 1.000 | 0.04 |
| Income Qualified – Smart Savers | 1.33 | 92% | 1.23 | 0.999 | 1.22 |
| Income Qualified – MHAS | 0.05 | 231% | 0.11 | 1.000 | 0.11 |
| Income Qualified – Carryovera | N/A | N/A | 0.09 | 1.000 | 0.09 |
| Multifamily – Income Qualified | 0.84 | 99% | 0.84 | 1.000 | 0.84 |
| Multifamily – Market Rate | 0.41 | 102% | 0.42 | 0.864 | 0.36 |
| Multifamily – Public Housing | 0.15 | 112% | 0.17 | 1.000 | 0.17 |
| Market Rate Single Family – Midstream HVAC | 1.68 | 100% | 1.68 | 0.700 | 1.17 |
| Market Rate Single Family – Home Efficiency | 0.04 | 100% | 0.04 | 0.842 | 0.03 |
| Kits – School Kits | 0.62 | 116% | 0.72 | 1.000 | 0.72 |
| Kits – High School Innovation | 0.10 | 111% | 0.11 | 1.000 | 0.11 |
| Kits – Income Qualified Community Kits | 0.17 | 100% | 0.17 | 1.000 | 0.17 |
| Kits – Mobile Home Kits | 0.02 | 102% | 0.02 | 1.000 | 0.02 |
| Kits – Joint Utility Kits | 0.01 | 101% | 0.01 | 1.000 | 0.01 |
| Kits – Carryovera | N/A | N/A | 0.14 | 0.996 | 0.14 |
| *Residential Program Subtotal* | *25.90* | *99%b* | *28.17* | *0.878* | *24.72* |
| Residential NPSO Adder |  |  |  |  | 0.17 |
| Residential Program Total |  |  |  |  | 24.90 |

a Carryover savings are those savings achieved through installation of measures during 2023 that were distributed or rebated in prior program years. For clarity, we break out carryover savings separately throughout this report.

b Calculations of gross realization rate at the Residential Program level exclude categories of savings with no ex ante savings.

Table 3. 2023 Residential Program Gas Annual Savings Summary

| Initiative/Channel | Ex Ante Gross Therms | Gross Realization Rate | Verified Gross Therms | NTGR | Verified Net Therms |
| --- | --- | --- | --- | --- | --- |
| Retail Products – Income Qualified | 500,708 | 103% | 513,555 | 1.000 | 513,555 |
| Retail Products – Market Rate Incentive-Based | 982,688 | 98% | 965,353 | 0.896 | 865,222 |
| Retail Products – Efficient Choice Tool | N/A | N/A | 48,623 | 0.603 | 29,321 |
| Income Qualified – Single Family | 387,406 | 100% | 387,663 | 1.000 | 387,663 |
| Income Qualified - CAA | 112,071 | 101% | 112,999 | 1.000 | 112,999 |
| Income Qualified – Joint Utility | N/A | N/A | N/A | N/A | N/A |
| Income Qualified – Smart Savers | 487,592 | 96% | 468,036 | 1.000 | 467,813 |
| Income Qualified – MHAS | 54,178 | 95% | 51,317 | 1.000 | 51,317 |
| Multifamily – Income Qualified | 89,536 | 100% | 89,674 | 1.000 | 89,674 |
| Multifamily – Market Rate | 9,304 | 100% | 9,304 | 0.922 | 8,581 |
| Multifamily – Public Housing | 41,101 | 100% | 41,102 | 1.000 | 41,102 |
| Market Rate Single Family – Midstream HVAC | 323,915 | 100% | 324,132 | 0.809 | 262,076 |
| Market Rate Single Family – Home Efficiency | 18,217 | 100% | 18,221 | 0.822 | 14,983 |
| Kits – School Kits | 105,035 | 127% | 133,530 | 1.000 | 133,530 |
| Kits – High School Innovation | 17,452 | 120% | 20,867 | 1.000 | 20,867 |
| Kits – Income Qualified Community Kits | 40,889 | 98% | 40,266 | 1.000 | 40,266 |
| Kits – Mobile Home Kits | 2,021 | 116% | 2,344 | 1.000 | 2,344 |
| Kits – Joint Utility Kits | 0 | N/A | 7 | 1.000 | 7 |
| *Residential Program Subtotal* | *3,172,113* | *100%a* | *3,226,995* | *0.942* | *3,041,321* |
| Residential NPSO Adder |  |  |  |  | 51,928 |
| (b-25) Conversions – AIC Gas |  |  |  |  | -647,815 |
| Residential Program Total |  |  |  |  | 2,445,434 |

a Calculations of gross realization rate at the Residential Program level exclude categories of savings with no ex ante savings.

### Cumulative Persisting Annual Savings

Table 4 summarizes CPAS and WAML for the 2023 Residential Program. For additional detail related to CPAS and measure life, please see the individual subsections in Section 3 and Appendix C, which present CPAS achieved in each future year. The overall WAML for the 2023 Residential Program is 9.8 years.

Table 4. 2023 Residential Program CPAS and WAML

| Initiative/Channel | WAML | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Retail Products - Income Qualified | 8.2 | 121,418 | 0.898 | 109,002 | | 109,002 | 109,002 | | 109,002 | | … | 104,551 | … | 892,457 |
| Retail Products - Market Rate Incentive-Based | 8.7 | 20,294 | 0.796 | 16,159 | | 16,159 | 12,608 | | 12,608 | | … | 11,938 | … | 145,181 |
| Retail Products - ECT | 13.0 | 562 | 0.666 | 374 | | 374 | 374 | | 374 | | … | 356 | … | 4,856 |
| Retail Products - Income Qualified Carryover | 10.0 | 7,557 | 0.919 | 6,941 | | 6,941 | 6,941 | | 6,941 | | … | 5,383 | … | 64,650 |
| Retail Products - Market Rate Carryover | 9.3 | 8,799 | 0.712 | 6,264 | | 6,264 | 6,264 | | 6,264 | | … | 2,652 | … | 42,426 |
| Income Qualified – Single Family | 14.2 | 3,123 | 1.000 | 3,123 | | 3,123 | 3,123 | | 3,123 | | … | 2,489 | … | 40,970 |
| Income Qualified – CAA | 15.8 | 1,101 | 1.000 | 1,101 | | 1,101 | 1,101 | | 1,101 | | … | 1,024 | … | 16,403 |
| Income Qualified – Joint Utility | 11.6 | 105 | 1.000 | 105 | | 105 | 105 | | 105 | | … | 74 | … | 1,127 |
| Income Qualified – Smart Savers | 11.0 | 4,807 | 0.999 | 4,804 | | 4,804 | 4,804 | | 4,804 | | … | 4,804 | … | 52,843 |
| Income Qualified – MHAS | 11.5 | 269 | 1.000 | 269 | | 269 | 269 | | 269 | | … | 139 | … | 2,987 |
| Income Qualified - Carryover | 10.0 | 737 | 1.000 | 737 | | 737 | 737 | | 737 | | … | 555 | … | 6,826 |
| Multifamily - Income Qualified | 13.3 | 7,643 | 1.000 | 7,643 | | 7,643 | 7,360 | | 7,360 | | … | 6,960 | … | 98,486 |
| Multifamily - Market Rate | 12.3 | 2,750 | 0.878 | 2,413 | | 2,413 | 2,354 | | 2,354 | | … | 2,196 | … | 28,613 |
| Multifamily - Public Housing | 11.8 | 1,194 | 1.000 | 1,194 | | 1,194 | 1,185 | | 1,185 | | … | 1,078 | … | 13,808 |
| Market Rate Single Family - Midstream HVAC | 15.5 | 12,280 | 0.701 | 8,612 | | 8,612 | 8,612 | | 8,612 | | … | 8,612 | … | 133,460 |
| Market Rate Single Family - Home Efficiency | 19.9 | 82 | 0.834 | 69 | | 69 | 69 | | 69 | | … | 69 | … | 1,286 |
| Kits - School Kits | 8.9 | 5,027 | 1.000 | 5,027 | | 5,027 | 4,367 | | 4,367 | | … | 3,859 | … | 44,503 |
| Kits - High School Innovation | 10.4 | 793 | 1.000 | 793 | | 793 | 793 | | 793 | | … | 793 | … | 8,189 |
| Kits - Mobile Home Kits | 8.2 | 161 | 1.000 | 161 | | 161 | 161 | | 161 | | … | 139 | … | 1,317 |
| Kits - Income Qualified Community Kits | 9.1 | 1,330 | 1.000 | 1,330 | | 1,330 | 1,330 | | 1,330 | | … | 1,084 | … | 12,056 |
| Kits - Joint Utility Kits | 9.8 | 87 | 1.000 | 87 | | 87 | 85 | | 85 | | … | 69 | … | 846 |
| Kits - Carryover | 9.8 | 1,245 | 0.996 | 1,240 | | 1,240 | 1,240 | | 1,240 | | … | 978 | … | 11,361 |
| Residential NPSO Adder | 11.0 | 1,388 | 1.000 | 1,051 | | 1,051 | 939 | | 939 | | … | 800 | … | 11,030 |
| (b-25) Conversions | 13.5 | 22,691 | 0.955 | 21,677 | | 21,677 | 21,677 | | 21,677 | | … | 18,385 | … | 244,981 |
| 2023 CPAS |  | 225,443 | 0.888 | 200,177 | | 200,177 | 195,500 | | 195,500 | | … | 178,986 | … | 1,880,663 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 4,677 | | 0 | | … | 8,535 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 4,677 | | 4,677 | | … | 21,191 | … |  |
| WAML | 9.8 |  |  |  |  | | |  | |  |  |  |  |  |

# Evaluation Approach

The following section of the report describes the evaluation approach taken for the 2023 Residential Program impact evaluation. As part of the evaluation process, the evaluation team applied versions of the Illinois Energy Efficiency Policy Manual and the Illinois Technical Reference Manual (IL-TRM) applicable to the 2023 program year (Version 3.0[[7]](#footnote-7) and Version 11.0 [V11.0], respectively) wherever relevant.[[8]](#footnote-8) Appendix A of this report provides more detailed, initiative-specific methodology where appropriate.

## Research Objectives and Evaluation Approach

The overarching research objectives for the impact evaluation of AIC’s 2023 Residential Program are as follows:

* Estimate the estimated gross energy and demand impacts from the Program
* Estimate the net energy and demand impacts from the Program

The evaluation team met these objectives by conducting the impact evaluation activities listed in Table 5. As shown, for each initiative, the impact evaluation primarily consisted of applying savings algorithms from the IL-TRM V11.0 to final initiative tracking databases to estimate verified gross savings, and by applying SAG-approved net-to-gross ratios (NTGRs) to these verified gross savings to derive verified net savings. In addition, we reviewed initiative materials and interviewed initiative managers.

Table 5. 2023 Residential Program Impact Evaluation Activities

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Initiative | Gross Impacts | | | | Net Impacts |
| IL-TRM Application Review | Engineering Desk Reviews | On-Site Measurement and Verification (M&V) | Consumption Analysis | Application of SAG-Approved NTGRs |
| Retail Products Initiative | ü |  |  |  | ü |
| Income Qualified Initiative | ü |  |  |  | ü |
| Multifamily Initiatives | ü |  |  |  | ü |
| Market Rate Single Family Initiative | ü |  |  |  | ü |
| Kits Initiatives | ü |  |  |  | ü |

The following sections provide further detail on the approaches to estimating verified gross and net savings.

## Verified Gross Impact Analysis Approach

### Application of IL-TRM V11.0

To determine verified gross impacts associated with the measures delivered through the Residential Program, we reviewed the content of the initiative tracking databases to identify database errors and duplicate records, and to ensure that the implementer correctly applied savings algorithms and assumptions stated in the IL-TRM V11.0 and the IL-TRM V11.0 errata document. In particular, we applied the algorithms and assumptions provided in the IL-TRM V11.0, while using project-specific data from the initiative tracking databases as inputs where appropriate. We also verified measure installations through analysis of initiative tracking databases, as well as through a review of supporting project documentation. Appendix A provides detailed information on the IL-TRM V11.0 measures used in this evaluation.

Additionally, we resolved any discrepancies found in the databases and provide details related to any gross savings adjustments in the initiative-specific sections of this report. Finally, in accordance with Illinois policy, the evaluation team omitted gas penalties and non-AIC fossil fuel savings from savings reported in the body of this report. Appendix B presents details on these additional impacts for cost-effectiveness purposes.

### Carryover Savings

In addition to savings achieved by AIC’s Residential Program through measures delivered during the 2023 program year, AIC also claims savings in 2023 from lighting measures distributed by the Residential Program in prior years but not installed until 2023. Past measures that AIC claims savings for were distributed through the Retail Products, Income Qualified, and Kits Initiatives in 2021 and 2022.

Carryover savings are evaluated using the applicable net-to-gross ratio (NTGR) and in-service rate (ISR) trajectory assumption based on the year in which the product was sold, the applicable measure life and midlife adjustments as detailed in the IL-TRM V10.0 errata memo,[[9]](#footnote-9) and IL-TRM V11.0 assumptions for all other relevant impact parameters.

We reported previously on AIC’s 2023 carryover savings as part of an earlier memo.[[10]](#footnote-10) Carryover savings are not reported as part of individual initiative subsections in Section 3.

## Verified Net Impact Analysis Approach

To determine verified net savings for the 2023 Residential Program, we applied SAG-approved NTGRs to verified gross savings. Details on SAG-approved NTGRs are presented in Appendix A.

### Non-Participant Spillover

Net impact evaluation of AIC’s Residential Program includes a non-participant spillover (NPSO) adder to net savings achieved by non-income qualified (non-IQ) efforts. This NPSO adder is 3.1% for non-IQ electric savings (energy and demand) and 4.4% for non-IQ gas savings.[[11]](#footnote-11) Table 6 summarizes verified, non-IQ net savings for AIC’s Residential Program by initiative and computes the NPSO adder as defined above.

Table 6. 2023 Residential Program Verified Net Savings Summary for Non-Income Qualified Initiatives

| Initiative/Channel | Verified Net MWh | Verified Net MW | Verified Net Therms |
| --- | --- | --- | --- |
| Retail Products – Incentive-Based Channels (non-IQ) | 16,159 | 3.14 | 865,222 |
| Efficient Choice Tool | 374 | 0.06 | 29,321 |
| Retail Products Carryover (non-IQ) | 6,264 | 0.82 | N/A |
| Market Rate Multifamily | 2,413 | 0.36 | 8,581 |
| Midstream HVAC | 8,612 | 1.17 | 262,076 |
| Home Efficiency | 69 | 0.03 | 14,983 |
| Non-IQ Residential Program Subtotal | 33,892 | 5.58 | 1,180,183 |
| Residential NPSO Adder | 1,051 | 0.17 | 51,928 |

## Sources and Mitigation of Error

The evaluation team took steps to mitigate potential sources of error throughout the planning and implementation of the 2023 evaluation. In particular, we considered the below types of error:

* Analysis Error:
  + Prescriptive Gross Impact Calculations: For prescriptive gross impact calculations, we applied IL-TRM V11.0 calculations to the participant data in the tracking database to calculate gross impacts. To minimize data analysis error, a separate team member reviewed all calculations to verify their accuracy.
  + Net Impact Calculations: For net impact calculations, we applied SAG-approved NTGRs to estimated gross impacts to derive net impacts. To minimize analytical errors, all calculations were reviewed by a separate team member to verify their accuracy.

Note that there is no sampling error associated with any Residential Program evaluation activity because we did not conduct any sampling-based evaluation activities for the 2023 impact evaluation.

Finally, calculations in some of the tables in this report cannot be exactly reproduced due to rounding.

# Initiative-Level Results

## Retail Products Initiative

### Initiative Description

The AIC Retail Products Initiative includes several incentive-based channels as well as the more recently incorporated Efficient Choice Tool (ECT) channel, which does not directly utilize incentives. Incentive-based channels offer discounts on a wide range of qualifying ENERGY STAR® products, including LED lighting, Tier 1 advanced power strips, advanced thermostats, and over a dozen other household appliances and miscellaneous equipment.[[12]](#footnote-12) The ECT channel is an online platform for comparing and reviewing residential home appliances and consumer electronics, which launched as a pilot in 2020 and was integrated into the Retail Products Initiative as a full channel at the start of 2022.[[13]](#footnote-13)

### Initiative Annual Savings Summary

Table 7 presents the Retail Products Initiative annual savings achieved in 2023. The 2023 Retail Products Initiative achieved 125,536 MWh, 16.67 MW, and 1,408,098 therms in verified net savings. Subsequent sections provide breakouts of savings by channel, as well as by Market Rate (MR) versus Income Qualified (IQ) participants. The Initiative also produced 76,941 therms in verified net propane savings in 2023, which are not included in this section but are detailed further in Appendix B.

Table 7. 2023 Retail Products Initiative Annual Savings

|  |  |  |  |
| --- | --- | --- | --- |
| Metric | Electric Energy Savings (MWh) | Electric Demand Savings (MW) | Gas Savings (Therms) |
| Ex Ante Gross Savings | 141,784 | 19.31 | 1,483,397 |
| Gross Realization Rate | 100% | 99% | 103% |
| Verified Gross Savings | 142,273 | 19.14 | 1,527,531 |
| NTGR | 0.882 | 0.871 | 0.922 |
| Verified Net Savings | 125,536 | 16.67 | 1,408,098 |

Note: Because the ECT channel does not report ex ante savings, ex ante values shown here are based exclusively on incentive-based channels.

### Incentive-Based Channels

#### Channel Description

The AIC Retail Products Initiative offers incentives in various forms on a wide range of qualifying ENERGY STAR products through several different participation channels:

* Point of Sale (POS) Channel: By partnering with retailers and manufacturers, the POS channel provides in-store discounts that reduce the purchase price of select products.
* Downstream Rebate Channel: This channel allows AIC customers to apply for a post-purchase reimbursement (rebate) to cover a portion of the cost of qualifying product purchases.
* Online Marketplace Channel: This channel offers AIC customers select products at discounted price points to be purchased from AIC’s own online store.

These channels are designed to incentivize customers to purchase energy-efficient versions of selected retail products instead of less efficient (and typically cheaper) alternatives by offsetting the price difference, helping customers reduce their energy usage, energy bills, and carbon footprints. The types of products incentivized through the Retail Products Initiative in 2023 included:

* LED lighting, including a variety of bulb shapes and fixtures.
* Consumer electronics, including advanced thermostats, Tier 1 advanced power strips, and smart sockets.
* Appliances, including dehumidifiers, air purifiers, clothes washers, clothes dryers, refrigerators, freezers, water dispensers, room air conditioners, gas storage water heaters, gas tankless water heaters, and heat pump water heaters.
* Miscellaneous other equipment, including variable-speed pool pumps, bathroom exhaust fans, showerheads, faucet aerators, showerhead kits, pipe insulation, door sweeps, wall plate gaskets, and weatherstripping.

Leidos implemented the incentive-based channels of the Retail Products Initiative with support from subcontractors. Walker-Miller Energy Services provided field services, including store visits and promotional events, while AM Conservation Group operated the Online Marketplace.

##### Summary of Key Implementation Changes

We summarize key changes to the incentive-based channel’s design and implementation in 2023 below.

* In 2023, AM Conservation Group took over implementation of the Online Marketplace channel.
* The Initiative expanded its measure offerings and incentives as follows:
  + Added gas tankless water heaters to the Downstream Rebate channel.
  + Added door sweeps to the POS and Online Marketplace channels.
  + Added pipe insulation, wall plate gaskets, weatherstripping, smart sockets, showerheads, and faucet aerators to the Online Marketplace channel.
  + Added advanced thermostats and heat pump water heaters to the POS channel.
  + Added ENERGY STAR Tier 2 or ENERGY STAR Most Efficient product offerings for air purifiers, clothes washers, dehumidifiers, clothes dryers, freezers, refrigerators, and room air conditioners—these products have higher levels of energy efficiency (and savings) than their ENERGY STAR counterparts.

#### Participation Summary

The LED Lighting measure category remained the primary driver for incentive-based channels in 2023, accounting for 93% of all units incentivized. Standard LEDs represented nearly half (48%) of all incentivized product sales, followed by Specialty LEDs (20%) and LED Fixtures (16%). The Initiative also discounted over 75,000 advanced power strips, 32,000 showerhead kits, and 29,000 advanced thermostats, which collectively make up 5% of all sales and two-thirds of non-lighting sales. The remaining measures collectively accounted for less than 3% of total sales volume. Table 8 summarizes participation in the incentive-based channels during 2023 by measure.

Table 8. 2023 Incentive-Based Channels Participation Summary

| Measure Category | Bulb Shape | Sales Quantity | Share of Sales |
| --- | --- | --- | --- |
| Standard LED | A-Line | 1,347,022 | 48% |
| Specialty LED | Decorative | 288,575 | 10% |
| BR/R | 113,677 | 4% |
| Globe | 76,947 | 3% |
| 3-Way | 55,149 | 2% |
| PAR/MR | 33,471 | 1% |
| LED Fixture | N/A | 453,108 | 16% |
| LED Nightlight | N/A | 214,601 | 8% |
| Connected LED | N/A | 4,904 | <1% |
| Advanced Power Strip | N/A | 75,966 | 3% |
| Showerhead Kit | N/A | 32,268 | 1% |
| Advanced Thermostat | N/A | 29,180 | 1% |
| Door Sweep | N/A | 23,652 | 1% |
| Air Purifier | N/A | 9,705 | <1% |
| Dehumidifier | N/A | 8,352 | <1% |
| Bathroom Exhaust Fan | N/A | 4,857 | <1% |
| Refrigerator | N/A | 2,841 | <1% |
| Clothes Washer | N/A | 2,535 | <1% |
| Electric Dryer | N/A | 1,452 | <1% |
| Pipe Insulation | N/A | 1,372 | <1% |
| Water Dispenser | N/A | 364 | <1% |
| Freezer | N/A | 277 | <1% |
| Room Air Conditioner | N/A | 176 | <1% |
| Heat Pump Water Heater | N/A | 125 | <1% |
| Pool Pump | N/A | 109 | <1% |
| Faucet Aerator | N/A | 101 | <1% |
| Gas Tankless Water Heater | N/A | 69 | <1% |
| Showerhead | N/A | 56 | <1% |
| Gas Water Heater | N/A | 15 | <1% |
| Wall Plate Gasket | N/A | 8 | <1% |
| Weatherstripping | N/A | 7 | <1% |
| Smart Socket | N/A | 3 | <1% |
| Total | N/A | 2,780,944 | 100% |

##### Historic Product Sales

Since 2009, AIC has discounted 42.8 million energy-efficient lighting products through the Retail Products Initiative and its predecessors, beginning with compact fluorescent lamp (CFL) products and shifting toward LEDs as the lighting market has transformed. The incentive-based channels discounted over 2.5 million LED bulbs and fixtures during 2023, reflecting a less than 1% increase from 2022 lighting sales. Figure 1 shows efficient lighting sales from PY1 through 2023.

Figure 1. Retail Products Initiative Historical Lighting Sales (PY1-2023)

A graph of numbers and bars

Description automatically generated

a We do not have a record of the number of CFLs sold by shape for PY1.

b LEDs were sold, but the quantity is too small for the bar to be clearly visible.

c Connected LEDs, LED nightlights, and LED fixtures are included as Specialty LEDs.

The incentive-based channels featured 23 non-lighting measures in 2023, including seven newly added measure categories. The Initiative sold higher volumes of most measures than in the previous year – most notably showerhead kits and air purifiers, which increased by over 3,000% and 250%, respectively. The offering also sold over 23,000 door sweeps and nearly 10,000 air purifiers in the first year they were made available. Overall, the incentive-based channels sold nearly 85% more non-lighting units than in 2022. These non-lighting measure mix trends are outlined in Table 9.

Table 9. 2023 Incentive-Based Channels Historical Non-Lighting Sales

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Measure Category | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Advanced Power Strip | 25,803 | 55,275 | 66,438 | 54,881 | 52,026 | 75,966 |
| Showerhead Kit | 0 | 0 | 0 | 0 | 915 | 32,268 |
| Advanced Thermostat | 14,403 | 16,044 | 33,073 | 28,289 | 36,402 | 29,180 |
| Door Sweep | 0 | 0 | 0 | 0 | 0 | 23,652 |
| Air Purifier | 0 | 0 | 0 | 0 | 0 | 9,705 |
| Dehumidifier | 0 | 0 | 1,237 | 3,316 | 3,733 | 8,352 |
| Bathroom Exhaust Fan | 0 | 0 | 5,768 | 7,735 | 7,747 | 4,857 |
| Refrigerator | 0 | 0 | 1,675 | 1,315 | 4,364 | 2,841 |
| Clothes Washer | 0 | 82 | 1,388 | 2,915 | 2,206 | 2,535 |
| Electric Dryer | 0 | 177 | 2,587 | 3,299 | 2,562 | 1,452 |
| Pipe Insulation | 0 | 79 | 1,357 | 1,714 | 1,399 | 1,372 |
| Water Dispenser | 0 | 0 | 611 | 1,110 | 548 | 364 |
| Freezer | 0 | 6 | 83 | 230 | 189 | 277 |
| Room Air Conditioner | 0 | 0 | 0 | 422 | 290 | 176 |
| Heat Pump Water Heater | 0 | 0 | 0 | 55 | 96 | 125 |
| Pool Pump | 206 | 8 | 59 | 124 | 89 | 109 |
| Faucet Aerator | 0 | 0 | 0 | 0 | 0 | 101 |
| Gas Tankless Water Heater | 0 | 0 | 0 | 0 | 0 | 69 |
| Showerhead | 0 | 0 | 0 | 0 | 0 | 56 |
| Gas Water Heater | 0 | 0 | 0 | 0 | 24 | 15 |
| Wall Plate Gasket | 0 | 0 | 0 | 0 | 0 | 8 |
| Weatherstripping | 0 | 0 | 0 | 0 | 0 | 7 |
| Smart Socket | 0 | 0 | 0 | 0 | 0 | 3 |
| Lighted Ceiling Fana | 0 | 0 | 0 | 0 | 3 | 0 |
| Total | 40,412 | 71,671 | 114,276 | 105,405 | 112,593 | 193,490 |

a Zero lighted ceiling fans were purchased in 2023.

##### Sales by Delivery Channel

The POS channel provided the majority of sales, accounting for all LED sales and nearly all advanced power strip sales (over 99%). Online Marketplace channel sales were largely comprised of advanced thermostat sales, along with a few hundred units of other products. The Downstream Rebate channel accounted for the vast majority of larger appliance sales, including clothes washers, refrigerators, and heat pump water heaters. Table 10 provides a breakdown of 2023 sales of each measure by delivery channel.

Table 10. 2023 Incentive-Based Sales by Delivery Channel and Measure

| Measure Category | POS | Downstream Rebate | Online Marketplace |
| --- | --- | --- | --- |
| LED Lighting | 2,587,454 | 0 | 0 |
| Advanced Power Strip | 75,802 | 0 | 164 |
| Showerhead Kit | 32,268 | 0 | 0 |
| Advanced Thermostat | 1,075 | 965 | 27,140 |
| Door Sweep | 23,644 | 0 | 8 |
| Air Purifier | 9,251 | 434 | 20 |
| Dehumidifier | 7,083 | 1,266 | 3 |
| Bathroom Exhaust Fan | 4,694 | 163 | 0 |
| Refrigerator | 0 | 2,841 | 0 |
| Clothes Washer | 0 | 2,535 | 0 |
| Electric Dryer | 0 | 1,452 | 0 |
| Pipe Insulation | 1,372 | 0 | 0 |
| Water Dispenser | 346 | 18 | 0 |
| Freezer | 0 | 277 | 0 |
| Room Air Conditioner | 0 | 176 | 0 |
| Heat Pump Water Heater | 24 | 101 | 0 |
| Pool Pump | 0 | 109 | 0 |
| Faucet Aerator | 0 | 0 | 101 |
| Gas Tankless Water Heater | 0 | 69 | 0 |
| Showerhead | 0 | 0 | 56 |
| Gas Water Heater | 0 | 15 | 0 |
| Wall Plate Gasket | 0 | 0 | 8 |
| Weatherstripping | 0 | 0 | 7 |
| Smart Socket | 0 | 0 | 3 |
| Total | 2,743,013 | 10,421 | 27,510 |

##### Sales to Income Qualified Customers

The Retail Products Initiative implementation team made concerted efforts to maximize outreach to low- and moderate-income customers by engaging thrift stores, dollar stores, and retailers in ZIP codes with higher incidences of IQ customers. For LED lighting, the IL-TRM V11.0 states that savings can only be claimed for Energy Independence and Security Act (EISA) non-exempt products sold to MR customers through June 30, 2023 (after which the baseline for such products is assumed to be an LED). A limited number of EISA non-exempt LED lighting sales (2,900 standard LEDs, 1,598 specialty LEDs, and 232 LED fixtures) occurred after June 30, 2023 at non-IQ store locations, and verified savings are set to zero for those sales. Table 11 summarizes the share of sales for each measure category assumed to reach IQ versus MR customers, along with the associated distribution of IQ and MR verified kWh savings. Overall, 93% of sales and 86% of verified kWh from the incentive-based channels are considered IQ, driven primarily by LED lighting participation.

Table 11. 2023 Incentive-Based Channels Income Qualified Allocations by Measure

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Measure Category | IQ Allocation | Total Sales Quantity | IQ Sales Quantity | MR Sales Quantity | IQ Verified Gross kWh | MR Verified Gross kWh |
| Standard LED | 99.9% | 1,347,022 | 1,344,122 | 2,900 | 59,280,595 | 0 |
| Specialty LED | 88.6% | 567,819 | 516,959 | 50,860 | 25,313,199 | 1,563,287 |
| LED Fixtures | 88.4% | 453,108 | 388,655 | 64,453 | 20,008,540 | 4,021,787 |
| LED Nightlights | 77.7% | 214,601 | 187,483 | 27,118 | 4,791,102 | 692,996 |
| Connected LED | 100.0% | 4,904 | 4,904 | 0 | 202,719 | 0 |
| Advanced Power Strip | 78.5% | 75,966 | 65,108 | 10,858 | 4,442,957 | 756,931 |
| Showerhead Kit | 74.1% | 32,268 | 28,493 | 3,775 | 984,208 | 130,402 |
| Advanced Thermostat | 27.4% | 29,180 | 7,984 | 21,196 | 4,220,877 | 10,797,018 |
| Door Sweep | 69.7% | 23,652 | 21,227 | 2,425 | 333,314 | 38,027 |
| Air Purifier | 34.9% | 9,705 | 6,668 | 3,037 | 948,860 | 543,646 |
| Dehumidifier | 32.0% | 8,352 | 2,687 | 5,665 | 401,641 | 851,493 |
| Bathroom Exhaust Fan | 32.3% | 4,857 | 1,585 | 3,272 | 41,370 | 85,603 |
| Refrigerator | 27.6% | 2,841 | 786 | 2,055 | 48,678 | 127,688 |
| Clothes Washer | 27.0% | 2,535 | 684 | 1,851 | 73,639 | 197,888 |
| Electric Dryer | 27.3% | 1,452 | 397 | 1,055 | 63,696 | 169,395 |
| Pipe Insulation | 70.2% | 1,372 | 1,109 | 263 | 156,574 | 37,152 |
| Water Dispenser | 31.8% | 364 | 116 | 248 | 14,500 | 30,835 |
| Freezer | 28.4% | 277 | 79 | 198 | 3,778 | 9,531 |
| Room Air Conditioner | 30.8% | 176 | 54 | 122 | 2,853 | 6,859 |
| Heat Pump Water Heater | 26.5% | 125 | 33 | 92 | 74,939 | 203,270 |
| Pool Pump | 24.7% | 109 | 27 | 82 | 8,319 | 25,327 |
| Faucet Aerator | 30.3% | 101 | 31 | 70 | 743 | 1,644 |
| Gas Tankless Water Heater | 24.6% | 69 | 17 | 52 | 0 | 0 |
| Showerhead | 30.0% | 56 | 17 | 39 | 1,000 | 2,374 |
| Gas Water Heater | 19.7% | 15 | 3 | 12 | 0 | 0 |
| Wall Plate Gasket | 30.1% | 8 | 2 | 6 | 98 | 283 |
| Weatherstripping | 31.6% | 7 | 2 | 5 | 34 | 84 |
| Smart Socket | 13.0% | 3 | 0 | 3 | 16 | 108 |
| Total | 92.7% | 2,780,944 | 2,579,232 | 201,712 | 121,418,249 | 20,293,628 |

#### Savings Detail

##### Income Qualified

Table 12 presents the ex ante, verified gross, and verified net electric energy savings achieved through the IQ portion of the incentive-based channels in 2023.

Table 12. 2023 Incentive-Based Channels (Income Qualified) Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Standard LED | 59,281 | 100% | 59,281 | 0.864 | 51,206 |
| Specialty LED | 25,302 | 100% | 25,313 | 0.863 | 21,857 |
| LED Fixtures | 20,505 | 98% | 20,009 | 0.961 | 19,229 |
| LED Nightlights | 4,107 | 117% | 4,791 | 0.991 | 4,747 |
| Connected LED | 199 | 102% | 203 | 0.696 | 141 |
| Advanced Thermostat | 4,319 | 98% | 4,221 | 1.000 | 4,221 |
| Advanced Power Strip | 4,443 | 100% | 4,443 | 1.000 | 4,443 |
| Air Purifier | 949 | 100% | 949 | 1.000 | 949 |
| Dehumidifier | 402 | 100% | 402 | 1.000 | 402 |
| Showerhead Kit | 942 | 105% | 984 | 1.000 | 984 |
| Door Sweep | 333 | 100% | 333 | 1.000 | 333 |
| Heat Pump Water Heater | 76 | 98% | 75 | 1.000 | 75 |
| Electric Dryer | 64 | 99% | 64 | 1.000 | 64 |
| Clothes Washer | 61 | 120% | 74 | 1.000 | 74 |
| Refrigerator | 45 | 108% | 49 | 1.000 | 49 |
| Bathroom Exhaust Fan | 41 | 100% | 41 | 1.000 | 41 |
| Water Dispenser | 15 | 99% | 14 | 1.000 | 14 |
| Pool Pump | 8 | 100% | 8 | 1.000 | 8 |
| Freezer | 6 | 68% | 4 | 1.000 | 4 |
| Room Air Conditioner | 3 | 102% | 3 | 1.000 | 3 |
| Pipe Insulation | 7 | 2111% | 157 | 1.000 | 157 |
| Showerhead | 1 | 108% | 1 | 1.000 | 1 |
| Faucet Aerator | 1 | 109% | 1 | 1.000 | 1 |
| Wall Plate Gasket | <1 | 117% | <1 | 1.000 | <1 |
| Weatherstripping | <1 | 42% | <1 | 1.000 | <1 |
| Smart Socket | 0 | N/A | <1 | 1.000 | <1 |
| Total | 121,109 | 100% | 121,418 | 0.898 | 109,002 |

Table 13 presents the ex ante, verified gross, and verified net electric demand savings achieved through the income qualified portion of the incentive-based channels in 2023.

Table 13. 2023 Incentive-Based Channels (Income Qualified) Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Standard LED | 7.16 | 100% | 7.16 | 0.863 | 6.19 |
| Specialty LED | 3.00 | 100% | 3.01 | 0.864 | 2.60 |
| LED Fixtures | 2.93 | 95% | 2.79 | 0.961 | 2.68 |
| Connected LED | 0.02 | 102% | 0.02 | 0.696 | 0.02 |
| Advanced Thermostat | 1.09 | 97% | 1.06 | 1.000 | 1.06 |
| Advanced Power Strip | 0.50 | 100% | 0.50 | 1.000 | 0.50 |
| Air Purifier | 0.11 | 100% | 0.11 | 1.000 | 0.11 |
| Dehumidifier | 0.09 | 100% | 0.09 | 1.000 | 0.09 |
| Showerhead Kit | 0.14 | 119% | 0.17 | 1.000 | 0.17 |
| Door Sweep | <0.01 | 102% | <0.01 | 1.000 | <0.01 |
| Heat Pump Water Heater | <0.01 | 99% | <0.01 | 1.000 | <0.01 |
| Electric Dryer | 0.01 | 99% | 0.01 | 1.000 | 0.01 |
| Clothes Washer | 0.01 | 121% | 0.01 | 1.000 | 0.01 |
| Refrigerator | 0.01 | 108% | 0.01 | 1.000 | 0.01 |
| Bathroom Exhaust Fan | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Water Dispenser | <0.01 | 99% | <0.01 | 1.000 | <0.01 |
| Pool Pump | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Freezer | <0.01 | 68% | <0.01 | 1.000 | <0.01 |
| Room Air Conditioner | <0.01 | 100% | <0.01 | 1.000 | <0.01 |
| Pipe Insulation | <0.01 | 2111% | 0.02 | 1.000 | 0.02 |
| Showerhead | <0.01 | 124% | <0.01 | 1.000 | <0.01 |
| Faucet Aerator | <0.01 | 126% | <0.01 | 1.000 | <0.01 |
| Wall Plate Gasket | 0 | N/A | <0.01 | 1.000 | <0.01 |
| Weatherstripping | <0.01 | 134% | <0.01 | 1.000 | <0.01 |
| Smart Socket | 0 | N/A | <0.01 | 1.000 | <0.01 |
| Total | 15.10 | 99% | 14.98 | 0.900 | 13.47 |

Table 14 presents the ex ante, verified gross, and verified net gas savings achieved through the income qualified portion of the incentive-based channels in 2023.

Table 14. 2023 Incentive-Based Channels (Income Qualified) Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat | 357,548 | 98% | 350,193 | 1.000 | 350,193 |
| Showerhead Kit | 93,077 | 105% | 97,429 | 1.000 | 97,429 |
| Door Sweep | 45,854 | 100% | 45,872 | 1.000 | 45,872 |
| Gas Tankless Water Heater | 1,248 | 100% | 1,248 | 1.000 | 1,248 |
| Clothes Washer | 1,028 | 123% | 1,267 | 1.000 | 1,267 |
| Pipe Insulation | 1,663 | 1038% | 17,260 | 1.000 | 17,260 |
| Gas Water Heater | 108 | 51% | 60 | 1.000 | 60 |
| Showerhead | 93 | 124% | 115 | 1.000 | 115 |
| Faucet Aerator | 66 | 128% | 85 | 1.000 | 85 |
| Wall Plate Gasket | 12 | 100% | 12 | 1.000 | 12 |
| Weatherstripping | 11 | 134% | 15 | 1.000 | 15 |
| Total | 500,708 | 103% | 513,555 | 1.000 | 513,555 |

##### Market Rate

Table 15 presents the ex ante, verified gross, and verified net electric energy savings achieved through the market rate portion of the incentive-based channels in 2023.

Table 15. 2023 Incentive-Based Channels (Market Rate) Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Standard LEDa | 133 | 0% | 0 | 0.000 | 0 |
| Specialty LEDa | 1,685 | 93% | 1,563 | 0.690 | 1,079 |
| LED Fixturesa | 4,052 | 99% | 4,022 | 0.690 | 2,775 |
| LED Nightlights | 594 | 117% | 693 | 0.690 | 478 |
| Advanced Thermostat | 11,065 | 98% | 10,797 | 0.872 | 9,417 |
| Advanced Power Strip | 757 | 100% | 757 | 0.860 | 651 |
| Air Purifier | 544 | 100% | 544 | 0.790 | 429 |
| Dehumidifier | 852 | 100% | 851 | 0.670 | 571 |
| Showerhead Kit | 125 | 105% | 130 | 0.800 | 104 |
| Door Sweep | 38 | 100% | 38 | 0.800 | 30 |
| Heat Pump Water Heater | 208 | 98% | 203 | 0.800 | 163 |
| Electric Dryer | 171 | 99% | 169 | 0.670 | 113 |
| Clothes Washer | 165 | 120% | 198 | 0.630 | 125 |
| Refrigerator | 119 | 107% | 128 | 0.650 | 83 |
| Bathroom Exhaust Fan | 86 | 100% | 86 | 0.660 | 56 |
| Water Dispenser | 31 | 99% | 31 | 0.670 | 21 |
| Pool Pump | 25 | 100% | 25 | 0.760 | 19 |
| Freezer | 14 | 68% | 10 | 0.630 | 6 |
| Room Air Conditioner | 7 | 101% | 7 | 0.720 | 5 |
| Pipe Insulation | 2 | 2111% | 37 | 0.800 | 30 |
| Showerhead | 2 | 108% | 2 | 0.800 | 2 |
| Faucet Aerator | 2 | 109% | 2 | 0.800 | 1 |
| Wall Plate Gasket | <1 | 118% | <1 | 0.800 | <1 |
| Weatherstripping | <1 | 48% | <1 | 0.800 | <1 |
| Smart Socket | 0 | N/A | <1 | 0.800 | <1 |
| Total | 20,675 | 98% | 20,294 | 0.796 | 16,159 |

a A limited number of EISA non-exempt LED lighting sales (2,900 standard LEDs, 1,598 specialty LEDs, and 232 LED fixtures) occurred after June 30, 2023, at non-IQ store locations. For these sales, an LED baseline is assumed and zero verified savings are assigned.

Table 16 presents the ex ante, verified gross, and verified net electric demand savings achieved through the market rate portion of the incentive-based channels in 2023.

Table 16. 2023 Incentive-Based Channels (Market Rate) Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Standard LEDa | 0.02 | 0% | 0.00 | 0.000 | 0.00 |
| Specialty LEDa | 0.22 | 95% | 0.21 | 0.690 | 0.14 |
| LED Fixturesa | 0.62 | 95% | 0.59 | 0.690 | 0.41 |
| Advanced Thermostat | 2.88 | 97% | 2.79 | 0.800 | 2.23 |
| Advanced Power Strip | 0.08 | 100% | 0.08 | 0.860 | 0.07 |
| Air Purifier | 0.06 | 100% | 0.06 | 0.790 | 0.05 |
| Dehumidifier | 0.19 | 100% | 0.19 | 0.670 | 0.13 |
| Showerhead Kit | 0.02 | 119% | 0.02 | 0.800 | 0.02 |
| Door Sweep | <0.01 | 103% | <0.01 | 0.800 | <0.01 |
| Heat Pump Water Heater | 0.01 | 98% | 0.01 | 0.800 | 0.01 |
| Electric Dryer | 0.02 | 99% | 0.02 | 0.670 | 0.02 |
| Clothes Washer | 0.02 | 121% | 0.02 | 0.630 | 0.01 |
| Refrigerator | 0.02 | 108% | 0.02 | 0.650 | 0.01 |
| Bathroom Exhaust Fan | 0.01 | 100% | 0.01 | 0.660 | 0.01 |
| Water Dispenser | <0.01 | 99% | <0.01 | 0.670 | <0.01 |
| Pool Pump | 0.02 | 100% | 0.02 | 0.760 | 0.01 |
| Freezer | <0.01 | 68% | <0.01 | 0.630 | <0.01 |
| Room Air Conditioner | 0.01 | 100% | 0.01 | 0.720 | <0.01 |
| Pipe Insulation | <0.01 | 2111% | <0.01 | 0.800 | <0.01 |
| Showerhead | <0.01 | 124% | <0.01 | 0.800 | <0.01 |
| Faucet Aerator | <0.01 | 126% | <0.01 | 0.800 | <0.01 |
| Wall Plate Gasket | 0 | N/A | <0.01 | 0.800 | <0.01 |
| Weatherstripping | <0.01 | 135% | <0.01 | 0.800 | <0.01 |
| Smart Socket | 0 | N/A | <0.01 | 0.800 | <0.01 |
| Total | 4.21 | 97% | 4.07 | 0.770 | 3.14 |

a A limited number of EISA non-exempt LED lighting sales (2,900 standard LEDs, 1,598 specialty LEDs, and 232 LED fixtures) occurred after June 30, 2023, at non-IQ store locations. For these sales, an LED baseline is assumed and zero verified savings are assigned.

Table 17 presents the ex ante, verified gross, and verified net gas savings achieved through the market rate portion of the incentive-based channels in 2023.

Table 17. 2023 Incentive-Based Channels (Market Rate) Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat | 957,284 | 98% | 935,140 | 0.900 | 841,628 |
| Showerhead Kit | 12,332 | 105% | 12,909 | 0.800 | 10,327 |
| Door Sweep | 5,251 | 100% | 5,262 | 0.800 | 4,209 |
| Gas Tankless Water Heater | 3,827 | 100% | 3,827 | 0.800 | 3,062 |
| Clothes Washer | 2,759 | 123% | 3,391 | 0.630 | 2,137 |
| Pipe Insulation | 395 | 1038% | 4,095 | 0.800 | 3,276 |
| Gas Water Heater | 422 | 51% | 210 | 0.800 | 168 |
| Showerhead | 221 | 124% | 273 | 0.800 | 218 |
| Faucet Aerator | 146 | 128% | 187 | 0.800 | 150 |
| Wall Plate Gasket | 28 | 100% | 28 | 0.800 | 23 |
| Weatherstripping | 24 | 134% | 31 | 0.800 | 25 |
| Total | 982,688 | 98% | 965,353 | 0.896 | 865,222 |

##### Summary of Discrepancies

While realization rates still rounded to 100%, the evaluation team provided zero verified savings for non-exempt standard and specialty LEDs (i.e., bulbs with lumen outputs between 310 and 3,300) sold after June 30, 2023, at non-IQ store locations, whereas the implementation team claimed ex ante savings for these records. This adjustment affected less than 1% of Standard and Specialty LEDs.

We discuss additional major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on the ones that resulted in realization rates different from 100%.

* LED Fixtures (17% of ex ante electric energy savings and 18% of demand savings): The gross realization rate for LED fixtures is 98% for kWh and 95% for kW.
  + In 5% of cases, all of which are task/under cabinet fixtures, the evaluation team used hours-of-use, waste heat factor, and coincidence factors specified by the IL-TRM V11.0 for these types of fixtures, whereas the implementation team used the indoor fixture hours-of-use and unknown location waste heat factor and coincidence factors assumptions, resulting in lower verified energy and demand savings.
  + In 2% of cases, the evaluation team assigned indoor-specific IL-TRM V11.0 assumptions to indoor fixtures and exterior-specific assumptions to outdoor fixtures, whereas the implementation team applied indoor-specific assumptions to outdoor fixtures or vice versa, resulting in lower verified savings for the indoor fixtures and higher verified savings for the outdoor fixtures.
  + In less than 1% of cases, the evaluation team zeroed savings for non-exempt LED fixtures (i.e., lumen outputs between 310 and 3300 and not task/under cabinet) sold after June 30, 2023 at non-IQ store locations, whereas the implementation team claimed savings for these records, resulting In lower verified energy and demand savings.
* LED Nightlights (3% of ex ante electric energy savings): The gross realization rate for LED Nightlights is 117% for kWh.
  + In 37% of cases, the evaluation team used the IL-TRM-recommended 3-year cumulative ISR, whereas the implementation team used the first-year ISR, resulting in higher verified energy savings.
* Showerhead Kits (1% of ex ante electric energy savings, 1% of demand savings, and 7% of gas savings): The gross realization rate for showerhead kits is 105% for kWh, 119% for kW, and 105% for therms.
  + In 100% of cases, the evaluation team used an ISR value recommended by the IL-TRM V11.0 for requested efficiency kits, whereas the implementation team used the IL-TRM-recommended ISR for distributed efficiency kits, resulting in higher verified energy, demand, and gas savings.
* Clothes Washers (<1% of ex ante energy savings, <1% of demand savings, and <1% of gas savings): The gross realization rate for clothes washers is 120% for kWh, 121% for kW, and 123% for therms.
  + In 25% of cases, the evaluation team applied parameters associated with CEE Tier 2/Most Efficient products based on information available from Initiative tracking data, whereas the implementation team used parameters associated with ENERGY STAR products, resulting in higher verified energy, demand, and gas savings.
  + In 4% of cases, the evaluation team assigned non-zero savings, whereas the implementation team claimed zero ex ante savings, resulting in higher verified energy, demand, and gas savings.
* Refrigerators (<1% of ex ante electric energy savings and <1% of demand savings): The gross realization rate for refrigerators is 108% for kWh and 108% for kW.
  + In 100% of cases, the evaluation team used IL-TRM-specified algorithms that reference adjusted volume and applied a 2:1 fresh volume/freezer volume split to the overall refrigerator capacity to calculate the adjusted volume, whereas the implementation team used product-specific energy usage values to calculate savings. On average, this resulted in higher verified energy and demand savings.
* Freezers (<1% of ex ante electric energy savings and <1% of demand savings): The gross realization rate for freezers is 68% for kWh and 68% for kW.
  + In 100% of cases, the evaluation team used TRM-specified algorithms that reference adjusted volume, whereas the implementation team used product-specific energy usage values to calculate savings. On average, this resulted in lower verified energy and demand savings.
* Pipe Insulation (<1% of ex ante electric energy savings, <1% of demand savings, and <1% of gas savings): The gross realization rate for pipe insulation is 2,111% for kWh, 2,111% for kW, and 1,038% for therms.
  + In 100% of cases, the evaluation team multiplied per-unit (i.e., per-linear foot) savings by the total number of units, whereas the implementation team multiplied per-unit savings by the total number of packs, which resulted in higher verified energy, demand, and gas savings.
* Showerhead (<1% of ex ante electric energy savings, <1% of demand savings, and <1% of gas savings): The gross realization rate for showerheads is 108% for kWh, 124% for kW, and 105% for therms.
  + In 100% of cases, the evaluation team used an ISR value recommended by the IL-TRM V11.0 for unverified self-installation, whereas the implementation team used the IL-TRM-recommended ISR for distributed efficiency kits, resulting in higher verified energy, demand, and gas savings.
* Faucet Aerator (<1% of ex ante electric energy savings, <1% of demand savings, and <1% of gas savings): The gross realization rate for faucet aerators is 109% for kWh, 126% for kW, and 128% for therms.
  + In 100% of cases, the evaluation team used an ISR value recommended by the IL-TRM V11.0 for unverified self-installation, whereas the implementation team used the IL-TRM-recommended ISR for distributed efficiency kits, resulting in higher verified energy, demand, and gas savings.
* Wall Plate Gasket (<1% of ex ante electric energy savings, <1% of demand savings, and <1% of gas savings): The gross realization rate for wall plate gaskets is 118% for kWh and 100% for therms. A gross realization rate for demand savings is not applicable for this measure, because no ex ante savings were claimed.
  + In 100% of cases, the evaluation team applied savings parameters from the IL-TRM V11.0 based on available information in the tracking data regarding participants’ heating types and ZIP code-based heating/cooling zones, whereas the implementation team applied savings parameters from the IL-TRM V11.0 assuming an unknown location or heating type. On average, this resulted in higher verified energy savings.
  + In 100% of cases, the evaluation team estimated non-zero demand savings, whereas the implementation team claimed zero ex ante demand savings.
* Weatherstripping (<1% of ex ante electric energy savings, <1% of demand savings, and <1% of gas savings): The gross realization rate for weatherstripping is 46% for kWh, 135% for kW, and 134% for therms.
  + In 100% of cases, the evaluation team applied savings parameters from the IL-TRM V11.0 based on available information in the tracking data regarding participants’ heating types and ZIP code-based heating/cooling zones, whereas the implementation team applied savings parameters from the IL-TRM V11.0 assuming an unknown location or heating type. On average, this resulted in lower verified energy savings and higher demand and gas savings.
  + In 17% of cases, the evaluation team estimated non-zero savings, whereas the implementation team claimed zero ex ante savings.
* Gas Water Heater (<1% of ex ante gas savings): The gross realization rate for gas water heaters is 51% for therms.
  + In 100% of cases, the evaluation team used a Unified Energy Factor that varies by gallon size as specified in the IL-TRM V11.0, whereas the implementation team used a fixed Unified Energy Factor for all records. On average, this resulted in lower verified gas savings.
* Smart Socket (0% of ex ante energy savings and 0% of demand savings): A gross realization rate is not applicable for this measure, because no ex ante savings were claimed.
  + In 100% of cases, the verified analysis relied on IL-TRM V12.0 formulas and assumptions (given the measure was not included in the IL-TRM V11.0), resulting in non-zero savings, whereas the implementation team claimed zero ex ante savings.

### Efficient Choice Tool

#### Channel Description

The Efficient Choice Tool (ECT) channel, launched as a pilot in 2020 and implemented by Enervee, is an online platform for comparing and reviewing residential home appliances and consumer electronics.[[14]](#footnote-14) The ECT channel is designed to eliminate barriers to adoption of energy-efficient products and help AIC customers conduct relevant product research using a range of information that includes product specifications, pricing, tips for use, reviews, images, and vendor locations. Key factors differentiating the ECT channel from other sources of product information include::

* **Enervee Score:** A number between 0 and 100 assigned to all models available in the market. The closer to 100 a product’s score is, the more energy-efficient the product is.[[15]](#footnote-15)
* **YOUSAVE:** YOUSAVE translates energy savings to dollars. It shows how much money consumers could save in energy costs by choosing a given product over similar products in the market.[[16]](#footnote-16)
* **CLEARCOST:** CLEARCOST shows the combined implications of a product’s cost and energy usage. It uses the current lowest price available for a given product along with its estimated lifetime energy use to present an approximate cumulative cost relative to a representative alternative product with an Enervee Score of 50.[[17]](#footnote-17)
* **Aggregation of Retail Offers:** The platform collects currently available prices and associated offers from a wide array of retailers, updated daily, allows shoppers to make comparisons and set price drop alerts for preferred products.

#### Participation Summary

While the ECT channel does not have a tracked population of “participants” in the same way as other residential initiatives, website traffic indicates that over 29,000 unique active shoppers visited and engaged with the ECT channel during 2023.[[18]](#footnote-18) To estimate savings for the channel, the evaluation team relied on participant survey results from 2021 and 2022 to estimate purchase rates for product categories found on the site. We then used implementer-tracked unique active shopper counts based on observed site traffic to scale estimated energy-efficient purchase quantities to the population of ECT channel users. Based on participant survey results, we estimate that AIC customers purchased over 4,000 energy-efficient products after engaging with the ECT channel.

Table 18. 2023 Efficient Choice Tool Channel Total Energy-Efficient Product Purchases

|  |  |  |  |
| --- | --- | --- | --- |
| Measure | Unique Active Shoppers | Purchase Rate | Estimated Total EE Products |
| Refrigerators | 7,359 | 17.7% | 1,302 |
| Advanced Thermostats | 6,418 | 5.7% | 363 |
| Clothes Washers | 4,792 | 16.5% | 790 |
| Gas Water Heaters | 2,052 | 16.5% | 339 |
| Air Purifiers | 2,035 | 12.6% | 257 |
| Dehumidifiers | 1,853 | 19.1% | 354 |
| Heat Pump Water Heaters | 1,280 | 4.7% | 60 |
| Electric Clothes Dryers | 1,106 | 14.2% | 157 |
| Televisions | 746 | 27.7% | 206 |
| Air Conditioners | 602 | 20.9% | 126 |
| Dishwashers | 509 | 25.2% | 128 |
| Freezers | 350 | 19.0% | 66 |
| Advanced Power Strips | 283 | 28.3% | 80 |
| Pool Pumps | 176 | 9.1% | 16 |
| Gas Clothes Dryers | 31 | 14.5% | 4 |
| Total | N/A | N/A | 4,250 |

*Source:* Enervee tracking of unique active shoppers and Opinion Dynamics analysis.

#### Savings Detail

To develop verified savings estimates, we calculated counts of energy-efficient products purchased by customers for each product category following engagement with the ECT and applied per-unit gross savings developed using IL-TRM V11.0 recommendations and SAG-approved NTGRs to estimate total gross and net savings for each product category.

Table 19 presents the ex ante, verified gross, and verified net electric energy savings achieved through the ECT channel in 2023.

Table 19. 2023 Efficient Choice Tool Channel Electric Energy Savings by Measure

| Measure Category | Estimated Total EE Products | Per-Unit Gross Savings (kWh) | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Heat Pump Water Heaters | 60 | 2,767.00 | 166 | 0.676 | 112 |
| Air Purifiers | 257 | 308.75 | 79 | 0.676 | 54 |
| Advanced Thermostats | 363 | 215.41 | 78 | 0.676 | 53 |
| Clothes Washers | 790 | 85.00 | 67 | 0.676 | 45 |
| Refrigerators | 1,302 | 47.86 | 62 | 0.620 | 39 |
| Dehumidifiers | 354 | 133.00 | 47 | 0.676 | 32 |
| Electric Clothes Dryers | 157 | 167.13 | 26 | 0.610 | 16 |
| Televisions | 206 | 91.30 | 19 | 0.676 | 13 |
| Advanced Power Strips | 80 | 56.60 | 5 | 0.676 | 3 |
| Pool Pumps | 16 | 260.42 | 4 | 0.676 | 3 |
| Dishwashers | 128 | 22.10 | 3 | 0.620 | 2 |
| Air Conditioners | 126 | 19.73 | 2 | 0.676 | 2 |
| Freezers | 66 | 32.17 | 2 | 0.676 | 1 |
| Total | 3,987 | N/A | 562 | 0.666 | 374 |

Table 20 presents the ex ante, verified gross, and verified net electric demand savings achieved through the ECT channel in 2023.

Table 20. 2023 Efficient Choice Tool Channel Electric Demand Savings by Measure

| Measure Category | Estimated Total EE Products | Per-Unit Gross Savings (kW) | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Heat Pump Water Heaters | 60 | 0.1311 | 0.01 | 0.676 | 0.01 |
| Air Purifiers | 257 | 0.0353 | 0.01 | 0.676 | 0.01 |
| Advanced Thermostats | 363 | 0.0741 | 0.03 | 0.676 | 0.02 |
| Clothes Washers | 790 | 0.0109 | 0.01 | 0.676 | 0.01 |
| Refrigerators | 1,302 | 0.0070 | 0.01 | 0.620 | 0.01 |
| Dehumidifiers | 354 | 0.0300 | 0.01 | 0.676 | 0.01 |
| Electric Clothes Dryers | 157 | 0.0224 | <0.01 | 0.610 | <0.01 |
| Televisions | 206 | 0.0114 | <0.01 | 0.676 | <0.01 |
| Advanced Power Strips | 80 | 0.0064 | <0.01 | 0.676 | <0.01 |
| Pool Pumps | 16 | 0.3208 | 0.01 | 0.676 | <0.01 |
| Dishwashers | 128 | 0.0016 | <0.01 | 0.620 | <0.01 |
| Air Conditioners | 126 | 0.0240 | <0.01 | 0.676 | <0.01 |
| Freezers | 66 | 0.0052 | <0.01 | 0.676 | <0.01 |
| Total | 3,987 | N/A | 0.09 | 0.667 | 0.06 |

Table 21 presents the ex ante, verified gross, and verified net gas savings achieved through the ECT channel in 2023.

Table 21. 2023 Efficient Choice Tool Channel Gas Savings by Measure

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Measure Category | Estimated Total EE Products | Per-Unit Gross Savings (Therms) | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| Advanced Thermostats | 6,418 | 75.98 | 27,605 | 0.603 | 16,646 |
| Gas Water Heaters | 2,052 | 56.93 | 19,273 | 0.603 | 11,622 |
| Clothes Washers | 4,792 | 2.10 | 1,659 | 0.603 | 1,000 |
| Dishwashers | 509 | 0.64 | 82 | 0.620 | 51 |
| Gas Clothes Dryers | 31 | 0.85 | 4 | 0.603 | 2 |
| Total | 1,625 | N/A | 48,623 | 0.603 | 29,321 |

### Cumulative Persisting Annual Savings

Table 22 summarizes CPAS and WAML for the 2023 Retail Products Initiative by channel. The WAML for the Initiative is 8.3 years. CPAS and WAML for each channel at a measure level are presented in Table 24, Table 23, and Table 25. In 2023, AIC converted some propane savings produced by Retail Products Initiative to CPAS for the purposes of goal attainment; further details on these savings can be found in Appendix B and further detail on converted CPAS can be found in Appendix C.

Table 22. 2023 Retail Products Initiative by Channel for CPAS and WAML

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Channel | WAML | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Incentive-Based Channels (Income Qualified) | 8.2 | 121,418 | 0.898 | 109,002 | | 109,002 | 109,002 | | 109,002 | | … | 104,551 | … | 892,457 |
| Incentive-Based Channels (Market Rate) | 8.7 | 20,294 | 0.796 | 16,159 | | 16,159 | 12,608 | | 12,608 | | … | 11,938 | … | 145,181 |
| Efficient Choice Tool Channel | 13.0 | 562 | 0.666 | 374 | | 374 | 374 | | 374 | | … | 356 | … | 4,856 |
| 2023 CPAS |  | 142,273 | 0.882 | 125,536 | | 125,536 | 121,984 | | 121,984 | | … | 116,844 | … | 1,042,494 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 3,552 | | 0 | | … | 5,127 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 3,552 | | 3,552 | | … | 8,692 | … |  |
| WAML | 8.3 |  |  |  |  | | |  | |  |  |  |  |  |

Table 23. 2023 Retail Products Initiative - Incentive-Based Channels (Income Qualified) CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Standard LED (Residential IQ) | 8.0 | 59,281 | 0.864 | 51,206 | | 51,206 | 51,206 | | 51,206 | | … | 51,206 | … | 409,647 |
| Specialty LED (Residential IQ) | 8.0 | 25,313 | 0.863 | 21,857 | | 21,857 | 21,857 | | 21,857 | | … | 21,857 | … | 174,853 |
| Fixture LED (Residential IQ) | 8.0 | 20,009 | 0.961 | 19,229 | | 19,229 | 19,229 | | 19,229 | | … | 19,229 | … | 153,831 |
| Nightlight LED (Residential IQ) | 8.0 | 4,791 | 0.991 | 4,747 | | 4,747 | 4,747 | | 4,747 | | … | 4,747 | … | 37,980 |
| Connected LED (Residential IQ) | 10.0 | 203 | 0.696 | 141 | | 141 | 141 | | 141 | | … | 141 | … | 1,410 |
| Advanced Thermostat (Residential IQ) | 11.0 | 4,221 | 1.000 | 4,221 | | 4,221 | 4,221 | | 4,221 | | … | 4,221 | … | 46,430 |
| Advanced Power Strip (Residential IQ) | 7.0 | 4,443 | 1.000 | 4,443 | | 4,443 | 4,443 | | 4,443 | | … | 0 | … | 31,101 |
| Air Purifier (Residential IQ) | 9.0 | 949 | 1.000 | 949 | | 949 | 949 | | 949 | | … | 949 | … | 8,540 |
| Dehumidifier (Residential IQ) | 12.0 | 402 | 1.000 | 402 | | 402 | 402 | | 402 | | … | 402 | … | 4,820 |
| Showerhead Kit (Residential IQ) | 10.0 | 984 | 1.000 | 984 | | 984 | 984 | | 984 | | … | 984 | … | 9,842 |
| Door Sweep (Residential IQ) | 20.0 | 333 | 1.000 | 333 | | 333 | 333 | | 333 | | … | 333 | … | 6,666 |
| Heat Pump Water Heater (Residential IQ) | 15.0 | 75 | 1.000 | 75 | | 75 | 75 | | 75 | | … | 75 | … | 1,124 |
| Electric Dryer (Residential IQ) | 16.0 | 64 | 1.000 | 64 | | 64 | 64 | | 64 | | … | 64 | … | 1,019 |
| Clothes Washer (Residential IQ) | 14.0 | 74 | 1.000 | 74 | | 74 | 74 | | 74 | | … | 74 | … | 1,031 |
| Refrigerator (Residential IQ) | 15.0 | 49 | 1.000 | 49 | | 49 | 49 | | 49 | | … | 49 | … | 730 |
| Bathroom Exhaust Fan (Residential IQ) | 19.0 | 41 | 1.000 | 41 | | 41 | 41 | | 41 | | … | 41 | … | 786 |
| Water Dispenser (Residential IQ) | 10.0 | 14 | 1.000 | 14 | | 14 | 14 | | 14 | | … | 14 | … | 145 |
| Pool Pump (Residential IQ) | 7.0 | 8 | 1.000 | 8 | | 8 | 8 | | 8 | | … | 0 | … | 58 |
| Freezer (Residential IQ) | 11.0 | 4 | 1.000 | 4 | | 4 | 4 | | 4 | | … | 4 | … | 42 |
| Room Air Conditioner (Residential IQ) | 12.0 | 3 | 1.000 | 3 | | 3 | 3 | | 3 | | … | 3 | … | 34 |
| Pipe Insulation (Residential IQ) | 15.0 | 157 | 1.000 | 157 | | 157 | 157 | | 157 | | … | 157 | … | 2,349 |
| Showerhead (Residential IQ) | 10.0 | 1 | 1.000 | 1 | | 1 | 1 | | 1 | | … | 1 | … | 10 |
| Faucet Aerator (Residential IQ) | 10.0 | 1 | 1.000 | 1 | | 1 | 1 | | 1 | | … | 1 | … | 7 |
| Wall Plate Gasket (Residential IQ) | 20.0 | 0 | 1.000 | 0 | | 0 | 0 | | 0 | | … | 0 | … | 2 |
| Weatherstripping (Residential IQ) | 20.0 | 0 | 1.000 | 0 | | 0 | 0 | | 0 | | … | 0 | … | 1 |
| Smart Socket (Residential IQ) | 7.0 | 0 | 1.000 | 0 | | 0 | 0 | | 0 | | … | 0 | … | 0 |
| 2023 CPAS |  | 121,418 | 0.898 | 109,002 | | 109,002 | 109,002 | | 109,002 | | … | 104,551 | … | 892,457 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 4,451 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 4,451 | … |  |
| WAML | 8.2 |  |  |  |  | | |  | |  |  |  |  |  |

Table 24. 2023 Retail Products Initiative – Incentive-Based Channels (Market Rate) CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | 2024 | | | 2025 | 2026 | | … | 2030 | … |
| Specialty LED (Residential Market Rate) | 2.0 | 1,330 | 0.690 | 918 | 918 | | | 0 | 0 | | … | 0 | … | 1,836 |
| Specialty LED (Commercial) | 2.0 | 233 | 0.690 | 161 | 161 | | | 0 | 0 | | … | 0 | … | 322 |
| Fixture LED (Residential Market Rate) | 2.0 | 3,584 | 0.690 | 2,473 | 2,473 | | | 0 | 0 | | … | 0 | … | 4,946 |
| Fixture LED (Commercial) | 14.8 | 438 | 0.690 | 302 | 302 | | | 302 | 302 | | … | 302 | … | 4,472 |
| Nightlight LED (Residential Market Rate) | 8.0 | 693 | 0.690 | 478 | 478 | | | 478 | 478 | | … | 478 | … | 3,825 |
| Advanced Thermostat (Residential Market Rate) | 11.0 | 10,797 | 0.872 | 9,417 | 9,417 | | | 9,417 | 9,417 | | … | 9,417 | … | 103,591 |
| Advanced Power Strip (Residential Market Rate) | 7.0 | 757 | 0.860 | 651 | 651 | | | 651 | 651 | | … | 0 | … | 4,557 |
| Air Purifier (Residential Market Rate) | 9.0 | 544 | 0.790 | 429 | 429 | | | 429 | 429 | | … | 429 | … | 3,865 |
| Dehumidifier (Residential Market Rate) | 12.0 | 851 | 0.670 | 571 | 571 | | | 571 | 571 | | … | 571 | … | 6,846 |
| Showerhead Kit (Residential Market Rate) | 10.0 | 130 | 0.800 | 104 | 104 | | | 104 | 104 | | … | 104 | … | 1,043 |
| Door Sweep (Residential Market Rate) | 20.0 | 38 | 0.800 | 30 | 30 | | | 30 | 30 | | … | 30 | … | 608 |
| Heat Pump Water Heater (Residential Market Rate) | 15.0 | 203 | 0.800 | 163 | 163 | | | 163 | 163 | | … | 163 | … | 2,439 |
| Electric Dryer (Residential Market Rate) | 16.0 | 169 | 0.670 | 113 | 113 | | | 113 | 113 | | … | 113 | … | 1,816 |
| Clothes Washer (Residential Market Rate) | 14.0 | 198 | 0.630 | 125 | 125 | | | 125 | 125 | | … | 125 | … | 1,745 |
| Refrigerator (Residential Market Rate) | 15.0 | 128 | 0.650 | 83 | 83 | | | 83 | 83 | | … | 83 | … | 1,245 |
| Bathroom Exhaust Fan (Residential Market Rate) | 19.0 | 86 | 0.660 | 56 | 56 | | | 56 | 56 | | … | 56 | … | 1,073 |
| Water Dispenser (Residential Market Rate) | 10.0 | 31 | 0.670 | 21 | 21 | | | 21 | 21 | | … | 21 | … | 207 |
| Pool Pump (Residential Market Rate) | 7.0 | 25 | 0.760 | 19 | 19 | | | 19 | 19 | | … | 0 | … | 135 |
| Freezer (Residential Market Rate) | 11.0 | 10 | 0.630 | 6 | 6 | | | 6 | 6 | | … | 6 | … | 66 |
| Room Air Conditioner (Residential Market Rate) | 12.0 | 7 | 0.720 | 5 | 5 | | | 5 | 5 | | … | 5 | … | 59 |
| Pipe Insulation (Residential Market Rate) | 15.0 | 37 | 0.800 | 30 | 30 | | | 30 | 30 | | … | 30 | … | 446 |
| Showerhead (Residential Market Rate) | 10.0 | 2 | 0.800 | 2 | 2 | | | 2 | 2 | | … | 2 | … | 19 |
| Faucet Aerator (Residential Market Rate) | 10.0 | 2 | 0.800 | 1 | 1 | | | 1 | 1 | | … | 1 | … | 13 |
| Wall Plate Gasket (Residential Market Rate) | 20.0 | 0 | 0.800 | 0 | 0 | | | 0 | 0 | | … | 0 | … | 5 |
| Weatherstripping (Residential Market Rate) | 20.0 | 0 | 0.800 | 0 | 0 | | | 0 | 0 | | … | 0 | … | 1 |
| Smart Socket (Residential Market Rate) | 7.0 | 0 | 0.800 | 0 | 0 | | | 0 | 0 | | … | 0 | … | 1 |
| 2023 CPAS |  | 20,294 | 0.796 | 16,159 | 16,159 | | | 12,608 | 12,608 | | … | 11,938 | … | 145,181 |
| Expiring 2023 CPAS |  |  |  | 0 | 0 | | | 3,552 | 0 | | … | 670 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | 0 | | | 3,552 | 3,552 | | … | 4,222 | … |  |
| WAML | 8.7 |  |  |  | |  |  | | |  |  |  |  |  |

Table 25. 2023 Retail Products Initiative – ECT Channel CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Heat Pump Water Heaters | 15.0 | 166 | 0.676 | 112 | | 112 | 112 | | 112 | | … | 112 | … | 1,683 |
| Air Purifiers | 9.0 | 79 | 0.676 | 54 | | 54 | 54 | | 54 | | … | 54 | … | 483 |
| Advanced Thermostats | 11.0 | 78 | 0.676 | 53 | | 53 | 53 | | 53 | | … | 53 | … | 582 |
| Clothes Washers | 14.0 | 67 | 0.676 | 45 | | 45 | 45 | | 45 | | … | 45 | … | 636 |
| Refrigerators | 17.0 | 62 | 0.620 | 39 | | 39 | 39 | | 39 | | … | 39 | … | 657 |
| Dehumidifiers | 12.0 | 47 | 0.676 | 32 | | 32 | 32 | | 32 | | … | 32 | … | 382 |
| Electric Clothes Dryers | 16.0 | 26 | 0.610 | 16 | | 16 | 16 | | 16 | | … | 16 | … | 256 |
| Televisions | 5.0 | 19 | 0.676 | 13 | | 13 | 13 | | 13 | | … | 0 | … | 64 |
| Advanced Power Strips | 7.0 | 5 | 0.676 | 3 | | 3 | 3 | | 3 | | … | 0 | … | 21 |
| Pool Pumps | 7.0 | 4 | 0.676 | 3 | | 3 | 3 | | 3 | | … | 0 | … | 20 |
| Dishwashers | 11.0 | 3 | 0.620 | 2 | | 2 | 2 | | 2 | | … | 2 | … | 19 |
| Air Conditioners | 12.0 | 2 | 0.676 | 2 | | 2 | 2 | | 2 | | … | 2 | … | 20 |
| Freezers | 22.0 | 2 | 0.676 | 1 | | 1 | 1 | | 1 | | … | 1 | … | 32 |
| 2023 CPAS |  | 562 | 0.666 | 374 | | 374 | 374 | | 374 | | … | 356 | … | 4,856 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 6 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 19 | … |  |
| WAML | 13.0 |  |  |  |  | | |  | |  |  |  |  |  |

### Conclusions and Recommendations

Based on the results of this evaluation, the evaluation team offers the following key findings and recommendations for the Retail Products Initiative moving forward.

* **Key Finding 1:** Initiative tracking data is generally clear, comprehensive, and free of data entry errors, gaps, or inconsistencies. Tracking data also included all necessary measure-level detail to inform verified savings calculations in accordance with the IL-TRM V11.0, allowing evaluators to establish defensible verified savings estimates and identify nearly all differences between ex ante and verified savings.
  + Recommendation: Continue to track detailed measure specifications and ex ante savings assumptions for all records.
* **Key Finding 2:** By targeting specific retailers and retail channels that disproportionately serve lower-income customers, the Initiative was found to have effectively delivered incentives to large numbers of IQ customers across all product categories. In particular, the vast majority of LED lighting was sold through dollar stores, thrift stores, and other retailers in proximity to ZIP codes with higher incidences of IQ customers. Throughout 2023, 93% of all units sold through incentive-based channels were considered IQ.
  + Recommendation: Continue to target discount retailers and those in proximity to ZIP codes with high incidences of IQ customers to maximize Initiative reach to IQ AIC customers.
* **Key Finding 3:** A limited number of EISA non-exempt LED lighting sales, including 2,900 standard LEDs, 1,598 specialty LEDs, and 232 LED fixtures, occurred after June 30, 2023 at non-IQ store locations. For these sales, an LED baseline is assumed and zero verified savings are assigned.
  + Recommendation: Ensure that only EISA-exempt LED lighting is sold to market rate customers (i.e., at non-IQ store locations) in order for it to qualify for savings.

## Income Qualified Initiative – Single Family Offerings

### Initiative Description

The IQ Initiative encompasses nearly all of AIC’s low and moderate income targeted energy efficiency offerings, including efforts targeted at both single and multifamily customers. This section of the report provides results for five single family-focused offerings included in the IQ Initiative:

* Single Family Channel
* CAA Channel
* Joint Utility Channel
* Smart Savers Channel
* MHAS Channel

This section of the report does not include the IQ Initiative’s Multifamily channel, for which evaluation findings are reported in Section 3.3, or IQ-focused kit and measure distribution offerings (specifically IQ Community mobile home kits, Joint Utility kits, and several ad-hoc measure distributions), for which evaluation findings are reported in Section 3.5.

### Initiative Annual Savings Summary

Table 26 presents the IQ Initiative Single Family Offerings annual savings achieved in 2023. The 2023 Income Qualified Initiative Single Family Offerings achieved 9,402 MWh, 2.50 MW, and 1,019,793 therms in verified net savings. The Initiative also produced 9,772 therms in verified net propane savings in 2023 which are not included in this section but are detailed further in Appendix B.

Table 26. 2023 Income Qualified Initiative Single Family Offerings Annual Savings

|  |  |  |  |
| --- | --- | --- | --- |
|  | Electric Energy Savings (MWh) | Electric Demand Savings (MW) | Gas Savings (Therms) |
| Ex Ante Gross Savings | 9,446 | 2.55 | 1,041,247 |
| Gross Realization Rate | 100% | 98% | 98% |
| Verified Gross Savings | 9,405 | 2.50 | 1,020,016 |
| NTGRa | 1.000 | 1.000 | 1.000 |
| Verified Net Savings | 9,402 | 2.50 | 1,019,793 |

a The NTGR is not exactly 100% due to an NTGR of 0.999 for the Smart Savers Channel to account for a limited number of potential MR participants. More detail is provided in Section 3.2.6.

### Single Family Channel

#### Channel Description

The Single Family channel is AIC’s utility-funded, whole home weatherization program for low and moderate income customers. Leidos oversees the implementation of this channel in coordination with Walker-Miller Energy Services and BPI-certified AIC Program Allies.

The channel provides no-cost Building Performance Institute (BPI) energy audits that identify building envelope and HVAC retrofit opportunities for their low-income customers. During the audit, implementation staff also install direct install (DI) measures such as LEDs, showerheads, faucet aerators, advanced power strips, pipe insulation, and advanced thermostats at no cost. Following the audit, customers may also receive additional HVAC and building envelope retrofits, such as air sealing and insulation improvements, central air conditioner replacements, or air source heat pump (ASHP) replacements. Low-income customers receive all retrofits at no cost (Tier 1 – incentive at 100%), while moderate-income customers may have a copayment (Tier 2 - incentive at 90%). In partnership with AIC, the Energy Assistance Foundation offers a program called Warm Neighbors Cool Friends™,[[19]](#footnote-19) which provides grant funding to help offset the out-of-pocket costs for Tier 2 customers within AIC territory. The grant funding is offered on a first come first serve basis and can be applied to energy efficiency measures, as well as costs related to building envelope and HVAC upgrades (excluding air conditioners).

The channel also provides health and safety assistance to enable measure installations and/or to improve the living conditions of AIC customers. Common health and safety measures implemented include venting exhaust fans outside, repairing or replacing vapor barriers, and installing or replacing carbon monoxide alarms.

##### Summary of Key Implementation Changes

We summarize key changes to the Single Family channel’s design and implementation in 2023 below:

* The implementation team launched new marketing efforts using the Propel software application[[20]](#footnote-20) and also increased marketing and outreach efforts via email and direct mail. Staff reported that these activities contributed to establishing a strong pipeline of channel projects early in 2023.
* The channel exhausted funds for health and safety remediation in the middle of 2023. AIC approved additional funding for “showstoppers,” like replacement of knob and tube wiring, but the channel paused other types of health and safety remediation work. As such, in the latter half of the year, the implementation team shifted focus to establishing strategies to better manage funding for health and safety assistance in 2024, such as setting guidelines and a maximum budget for health and safety per participating home. The implementation team also came up with a system to calculate health and safety remediation costs upfront and hired a coordinator to help manage health and safety related projects.
* Two new offerings were launched in 2023:
  + Tree Planting, which is a partnership with municipalities to plant shade trees in IQ neighborhoods.
  + IQ New Construction (in partnership with Habitat for Humanity®), which includes the installation of smaller EE products and high efficiency building envelope and HVAC measures in newly constructed homes for IQ residents.
* The Single Family Channel stopped distributing Safe and Virtual Energy Efficiency (SAVE) Kits after 2022.

#### Participation Summary

The Single Family channel provided energy efficiency services to 2,294 homes in 2023, nearly double the amount of homes served in 2022 (1,241). More than half (56%) of participants received only DI measures, compared to 25% in 2022, suggesting that much of this growth is fueled by additional DI, not retrofits. Some of these customers may complete additional retrofits in 2024. Table 27 summarizes the number of homes served, by project type. More detail on the percentage of customers who received each type of measure is available in Appendix D. While not depicted in the table below, 618 customers (26%)[[21]](#footnote-21) received health and safety measures. Half of customers who received building envelope or HVAC retrofits also received health and safety services, reflecting that these services are most commonly provided in preparation for larger retrofits.

Table 27. 2023 Single Family Channel Participation Summary

| Project Type | Total |
| --- | --- |
| Number of single family homes served | 2,294 |
| DI measures only | 1,276 |
| Full participation: DI + building envelope or HVAC retrofits | 531 |
| Building envelope or HVAC retrofits only | 487 |

Source: We determined unique homes based on electric or gas account numbers. These counts exclude 85 unique account numbers with only "Other" measures (based on the “product family” field in the tracking data). "Other" measures have no ex ante savings estimates and include Administrative Cost, Program Support, Health and Safety, Authorized Measure, and Program Support.

In addition to the traditional Single Family channel offerings, one Tree Planting project (including 100 shade trees) and one IQ New Construction project (including measures such as induction cooktops and other high efficiency appliances) were completed in 2023.

#### Savings Detail

Table 28 presents the ex ante, verified gross, and verified net electric energy savings achieved through the Single Family channel in 2023.

Table 28. 2023 Single Family Channel Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Centrally Ducted ASHP - Replaces Electric Resistance | 577 | 100% | 577 | 1.000 | 577 |
| Air Sealing | 329 | 99% | 327 | 1.000 | 327 |
| Standard LED | 324 | 100% | 323 | 1.000 | 323 |
| Furnace Blower Motor | 312 | 103% | 320 | 1.000 | 320 |
| Attic Insulation | 270 | 100% | 269 | 1.000 | 269 |
| Central Air Conditioner (ER)a | 202 | 99% | 201 | 1.000 | 201 |
| Advanced Thermostat | 181 | 100% | 181 | 1.000 | 181 |
| Bathroom Exhaust Fan | 175 | 100% | 175 | 1.000 | 175 |
| Advanced Power Strip - Tier 1 | 141 | 100% | 141 | 1.000 | 141 |
| Specialty LED | 132 | 104% | 137 | 1.000 | 137 |
| Heat Pump Water Heater | 101 | 103% | 104 | 1.000 | 104 |
| Crawl Space Insulation | 100 | 100% | 100 | 1.000 | 100 |
| Wall Insulation | 50 | 95% | 48 | 1.000 | 48 |
| Pipe Insulation | 45 | 102% | 46 | 1.000 | 46 |
| Faucet Aerator | 30 | 102% | 31 | 1.000 | 31 |
| Showerhead | 26 | 101% | 26 | 1.000 | 26 |
| Duct Sealing | 20 | 78% | 16 | 1.000 | 16 |
| Rim Joist Insulation | 17 | 99% | 17 | 1.000 | 17 |
| Ductless Heat Pump (ER)a | 16 | 56% | 9 | 1.000 | 9 |
| Ductless Heat Pump (TOS)b | 14 | 222% | 31 | 1.000 | 31 |
| Centrally Ducted ASHP - Replaces HP (ER)a | 14 | 94% | 13 | 1.000 | 13 |
| Room Air Conditioner (ER)a | 10 | 100% | 10 | 1.000 | 10 |
| Tree Planting | 6 | 100% | 6 | 1.000 | 6 |
| Knee Wall Insulation | 5 | 93% | 5 | 1.000 | 5 |
| Centrally Ducted ASHP (TOS)b | 5 | 100% | 5 | 1.000 | 5 |
| Central Air Conditioner (TOS)b | 4 | 100% | 4 | 1.000 | 4 |
| Door Sweep | 2 | 155% | 3 | 1.000 | 3 |
| Heat Pump Dryer | <1 | 100% | <1 | 1.000 | <1 |
| Clothes Washer | <1 | 100% | <1 | 1.000 | <1 |
| Refrigerator | <1 | 100% | <1 | 1.000 | <1 |
| ENERGY STAR Dishwasher | <1 | 100% | <1 | 1.000 | <1 |
| Induction Cooktop | <1 | 100% | <1 | 1.000 | <1 |
| Total | 3,106 | 101% | 3,123 | 1.000 | 3,123 |

a Early retirement.

b Time-of-sale.

Table 29 presents the ex ante, verified gross, and verified net electric demand savings achieved through the Single Family Channel in 2023.

Table 29. 2023 Single Family Channel Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Centrally Ducted ASHP - Replaces Electric Resistance | 0.04 | 108% | 0.04 | 1.000 | 0.04 |
| Air Sealing | 0.19 | 100% | 0.19 | 1.000 | 0.19 |
| Standard LED | 0.04 | 100% | 0.04 | 1.000 | 0.04 |
| Furnace Blower Motor | 0.09 | 101% | 0.09 | 1.000 | 0.09 |
| Attic Insulation | 0.12 | 100% | 0.12 | 1.000 | 0.12 |
| Central Air Conditioner (ER) | 0.15 | 101% | 0.15 | 1.000 | 0.15 |
| Advanced Thermostat | 0.08 | 100% | 0.08 | 1.000 | 0.08 |
| Bathroom Exhaust Fan | 0.02 | 101% | 0.02 | 1.000 | 0.02 |
| Advanced Power Strip - Tier 1 | 0.02 | 100% | 0.02 | 1.000 | 0.02 |
| Specialty LED | 0.02 | 104% | 0.02 | 1.000 | 0.02 |
| Heat Pump Water Heater | 0.00 | 103% | 0.00 | 1.000 | 0.00 |
| Crawl Space Insulation | 0.02 | 100% | 0.02 | 1.000 | 0.02 |
| Wall Insulation | 0.03 | 92% | 0.02 | 1.000 | 0.02 |
| Pipe Insulation | 0.01 | 102% | 0.01 | 1.000 | 0.01 |
| Faucet Aerator | 0.01 | 102% | 0.01 | 1.000 | 0.01 |
| Showerhead | 0.002 | 102% | 0.002 | 1.000 | 0.002 |
| Duct Sealing | 0.01 | 129% | 0.01 | 1.000 | 0.01 |
| Rim Joist Insulation | 0.01 | 98% | 0.01 | 1.000 | 0.01 |
| Ductless Heat Pump (ER) | (0.001) | -16% | 0.0002 | 1.000 | 0.0002 |
| Ductless Heat Pump (TOS) | 0.001 | 103% | 0.001 | 1.000 | 0.001 |
| Centrally Ducted ASHP - Replaces HP (ER) | 0.003 | 100% | 0.003 | 1.000 | 0.003 |
| Room Air Conditioner (ER) | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Tree Planting | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Knee Wall Insulation | 0.002 | 100% | 0.002 | 1.000 | 0.002 |
| Centrally Ducted ASHP (TOS) | 0.001 | 100% | 0.001 | 1.000 | 0.001 |
| Central Air Conditioner (TOS) | 0.004 | 100% | 0.004 | 1.000 | 0.004 |
| Door Sweep | 0 | N/A | 0.00003 | 1.000 | 0.00003 |
| Heat Pump Dryer | 0.00002 | 100% | 0.00002 | 1.000 | 0.00002 |
| Clothes Washer | 0.00001 | 100% | 0.00001 | 1.000 | 0.00001 |
| Refrigerator | 0.00001 | 100% | 0.00001 | 1.000 | 0.00001 |
| ENERGY STAR Dishwasher | 0.00001 | 100% | 0.00001 | 1.000 | 0.00001 |
| Total | 0.87 | 101% | 0.87 | 1.000 | 0.87 |

Table 30 presents the ex ante, verified gross, and verified net gas savings achieved through the Single Family channel in 2023. The channel also achieved non-AIC natural gas savings, which cannot be claimed against AIC’s natural gas savings goals but are presented in Appendix B.

Table 30. 2023 Single Family Channel Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Air Sealing | 47,447 | 100% | 47,546 | 1.000 | 47,546 |
| Attic Insulation | 56,761 | 100% | 56,786 | 1.000 | 56,786 |
| Advanced Thermostat | 34,110 | 100% | 34,110 | 1.000 | 34,110 |
| Crawl Space Insulation | 24,153 | 100% | 24,199 | 1.000 | 24,199 |
| Wall Insulation | 15,403 | 109% | 16,779 | 1.000 | 16,779 |
| Pipe Insulation | 10,294 | 100% | 10,327 | 1.000 | 10,327 |
| Faucet Aerator | 3,620 | 99% | 3,593 | 1.000 | 3,593 |
| Showerhead | 3,130 | 100% | 3,119 | 1.000 | 3,119 |
| Duct Sealing | 5,384 | 62% | 3,342 | 1.000 | 3,342 |
| Rim Joist Insulation | 4,599 | 100% | 4,611 | 1.000 | 4,611 |
| Knee Wall Insulation | 1,408 | 101% | 1,419 | 1.000 | 1,419 |
| Door Sweep | 418 | 90% | 377 | 1.000 | 377 |
| Clothes Washer | 2 | 100% | 2 | 1.000 | 2 |
| ENERGY STAR Dishwasher | 1 | 100% | 1 | 1.000 | 1 |
| Gas Furnace (ER) | 156,279 | 100% | 157,054 | 1.000 | 157,054 |
| Gas Furnace (TOS) | 9,765 | 100% | 9,765 | 1.000 | 9,765 |
| Gas Boiler (ER) | 9,268 | 100% | 9,269 | 1.000 | 9,269 |
| Gas Boiler (TOS) | 592 | 100% | 592 | 1.000 | 592 |
| Gas Water Heater | 4,771 | 100% | 4,771 | 1.000 | 4,771 |
| Total | 387,406 | 100% | 387,663 | 1.000 | 387,663 |

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on the ones with significant impacts on channel savings, that affected all measures in a category, or had particularly low realization rates.

We identified several cross-cutting discrepancies, i.e., that affected multiple measure categories.

* The evaluation team applied a heating degree day value that correlated to the heating city in the database, whereas the implementation team applied a heating degree day value correlated to a different heating city to calculate ex ante savings. This resulted in lower verified energy and demand savings. This discrepancy affected relatively few measures in the following categories: Air Sealing (n=1), Rim Joist Insulation (n=4), Wall Insulation (n=3), Crawlspace Insulation (n=4), Attic Insulation (n=4), and Knee Wall Insulation (n=2).
* The evaluation team applied the cooling efficiency as provided in the tracking database, whereas the implementation team applied the default cooling efficiency from IL-TRM V11.0 or a cooling efficiency from an unknown source (depending on the case) to calculate ex ante savings. This resulted in higher or lower verified energy and demand savings depending on the case. This discrepancy affected less than 15% of measures in the following categories: Duct Sealing (n=4), Attic Insulation (n=9), Rim Joist Insulation (n=20), and Crawlspace Insulation (16), and a stronger effect on Wall Insulation (n=4), and Knee Wall Insulation (n=2).
* The evaluation team applied the heating efficiency as provided in the tracking database, whereas the implementation team applied the default heating efficiency from IL-TRM V11.0 or a heating efficiency from an unknown source (depending on the case) to calculate ex ante savings. This resulted in higher or lower verified energy and gas savings depending on the case. This discrepancy affected less than 15% of measures in the following categories: Air Sealing (n=3), Rim Joist Insulation (n=22), Attic Insulation (n=15), Crawlspace Insulation (n=12), Wall Insulation (n=3), and Knee Wall Insulation (n=3).

We identified several additional discrepancies for specific measure categories.

* Centrally Ducted Air Source Heat Pumps – Replaces HP (ER) (19% of ex ante energy and 5% of demand savings): The gross realization rate for Centrally Ducted Air Source Heat Pumps – Replaces HP (ER) was 94% for kWh and 100% for kW.
  + In 4% of measures, (n=2), the evaluation team applied the heating efficiency from the IL-TRM V11.0 based on the type of existing heating equipment, whereas the implementation team applied the existing heating efficiency from the IL-TRM V10.0, resulting in lower verified energy savings.
* Furnace Blower Motor (10% of ex ante energy and 10% of demand savings): The gross realization rate for Furnace Blower Motor was 103% for kWh and 101% for kW.
  + In 5% of measures, (n=28), the evaluation team applied the furnace capacity factor from the IL-TRM V11.0 that corresponded to the new heating system capacity, whereas the implementation team applied the furnace capacity factor from the IL-TRM V11.0 that corresponded to a heating system capacity lower than what is in the tracking data, resulting in higher verified energy savings.
* Duct Sealing (<1% of ex ante energy and demand savings and 1% of gas savings): The gross realization rate for Duct Sealing was 78% for kWh, 129% for kW, and 62% for therms.
  + In 84% of measures, (n=16), the evaluation team did not calculate electric heating savings since the primary heating type is non-electric, whereas the implementation claimed savings for electric heating, resulting in lower verified energy and gas savings.
  + In 5% of measures, (n=1), the evaluation team identified a manual entry error in the tracking database for the cooling efficiency, resulting in significantly higher verified demand savings.
* Door Sweep (<1% of ex ante energy, demand, and gas savings): The gross realization rate for Door Sweep was 155% for kWh, N/A for kW, and 90% for therms.
  + In 100% of measures, (n=118), the evaluation team applied heating fuel weights from the IL-TRM V11.0 since the primary heating type is unspecified in the tracking database, whereas the implementation team applied savings from an unknown source, resulting in lower verified energy and gas savings.
  + In 100% of measures, (n=118), the evaluation team applied cooling fuel weights from the IL-TRM V11.0 since the primary cooling type is unspecified in the tracking database, whereas the implementation team excluded cooling savings, resulting in higher verified energy and demand savings. This change superseded the reductions in verified savings mentioned above.

### Community Action Agency Channel

#### Channel Description

The Community Action Agency (CAA) channel provides comprehensive energy efficiency and health and safety improvements to low-income customers in AIC service territory who are Illinois Home Weatherization Assistance Program (IHWAP)-eligible. The CAA channel’s key distinction from the Single Family channel is that CAA channel projects are not entirely funded by AIC. Rather, CAA channel projects use a combination of AIC and IHWAP funding, and AIC claims all savings from measures they co-fund. The AIC components of the CAA channel are implemented primarily by Walker-Miller Energy Services. Walker-Miller engages with community action agencies (CAAs) to ensure those agencies have sufficient funds, resources, support, and training to complete AIC projects. CAAs are responsible for recruiting AIC IQ customers and project execution through a process. CAAs first provide a BPI energy assessment that identifies energy savings opportunities and produces a retrofit scope of work. During the assessment, these agencies also install energy-efficient DI measures such as LEDs, showerheads, faucet aerators, advanced power strips, pipe insulation, and advanced thermostats at no cost to qualifying customers. Following the assessment, customers typically receive additional building envelope and HVAC retrofits based on the scope of work. Additionally, AIC pays for 50% of the costs of any health and safety services provided through the channel.

##### Summary of Key Implementation Changes

We summarize key changes to the CAA Channel’s design and implementation in 2023 below:

* The implementation team conducted a CAA Staffing Pilot that was initiated in 2022. The goal of the CAA Staffing Pilot was to provide long-term solutions to CAAs’ ongoing staffing and resource capacity issues that affected nearly all CAAs partnered with the IQ Initiative. In 2023, the CAA Staffing Pilot completed the following three phases:
  + Phase 1: Assigned existing Walker-Miller staff to help CAAs with energy assessments (begun in 2022 and finished in 2023);
  + Phase 2: Hired and trained new staff called Traveling Specialists or Traveling Assessors to help with energy assessments;
  + Phase 3: Identified CAAs with staffing needs and worked on placement of Traveling Specialists with CAAs in need, utilizing AIC funds to cover the salary and associated costs of the Traveling Specialists.
* In September 2023, after spending the remaining AIC funding for the CAA Staffing Pilot, the Illinois Association of Community Action Agencies (IACAA) transitioned the Traveling Specialists from being solely utility funded to a fee-for-service model.
* CAAs created new kinds of marketing and outreach materials for the purposes of staff recruitment and hiring.
* The implementation team initiated a program that recognized and awarded CAAs for their performance as well as other outcomes. The recognition program was reported to have incentivized CAAs as well as improved CAAs’ relationship with other implementation partners.

#### Participation Summary

In 2023, the CAA channel completed projects in 322 homes, as shown in Table 31. While the channel fell short of its 2023 annual goal to serve 410 households, participation grew slightly compared to 2022 (310 homes). The majority (88%) of participants received both DI measures and larger retrofits, while the rest received only retrofits (11%). Very few customers (1%) received only DI measures. More detail on the percentage of customers who received each type of measure is available in Appendix D. While not depicted in the table below, 286 customers (88%)[[22]](#footnote-22) received health and safety services.

Table 31. 2023 Community Action Agency Channel Participation Summary

| Project Type | Total |
| --- | --- |
| Number of single family homes served | 322 |
| Full participation: DI + building envelope or HVAC retrofits | 284 |
| Building envelope or HVAC retrofits only | 35 |
| DI measures only | 3 |

Source: We determined unique homes based on electric or gas account numbers. These counts exclude two unique account numbers with only "Other" measures (based on the “product family” field in the tracking data). "Other" measures have no ex ante savings estimates and include Administrative Cost, Program Support, Health and Safety, Authorized Measure, and Program Support.

#### Savings Detail

Table 32 presents the ex ante, verified gross, and verified net electric energy savings achieved through the CAA channel in 2023.

Table 32. 2023 Community Action Agency Channel Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Air Sealing | 273 | 100% | 272 | 1.000 | 272 |
| Standard LED | 179 | 100% | 179 | 1.000 | 179 |
| Attic Insulation | 141 | 99% | 139 | 1.000 | 139 |
| Centrally Ducted ASHP - Replaces Electric Resistance | 125 | 100% | 125 | 1.000 | 125 |
| Furnace Blower Motor | 72 | 102% | 73 | 1.000 | 73 |
| Bathroom Exhaust Fan | 57 | 98% | 56 | 1.000 | 56 |
| Crawl Space Insulation | 56 | 97% | 55 | 1.000 | 55 |
| Pipe Insulation | 36 | 107% | 39 | 1.000 | 39 |
| Heat Pump Water Heater | 33 | 99% | 33 | 1.000 | 33 |
| Wall Insulation | 28 | 100% | 28 | 1.000 | 28 |
| Ductless Heat Pump (ER) | 27 | 75% | 20 | 1.000 | 20 |
| Floor Insulation | 26 | 99% | 25 | 1.000 | 25 |
| Specialty LED | 13 | 100% | 13 | 1.000 | 13 |
| Showerhead | 11 | 100% | 11 | 1.000 | 11 |
| Advanced Thermostat | 10 | 100% | 10 | 1.000 | 10 |
| Faucet Aerator | 7 | 100% | 7 | 1.000 | 7 |
| Room Air Conditioner (ER) | 6 | 100% | 6 | 1.000 | 6 |
| Rim Joist Insulation | 6 | 100% | 6 | 1.000 | 6 |
| Ductless Heat Pump (TOS) | 3 | 80% | 2 | 1.000 | 2 |
| Knee Wall Insulation | 1 | 100% | 1 | 1.000 | 1 |
| Centrally Ducted ASHP (TOS) | 1 | 100% | 1 | 1.000 | 1 |
| Total | 1,111 | 99% | 1,101 | 1.000 | 1,101 |

Table 33 presents the ex ante, verified gross, and verified net electric demand savings achieved through the CAA channel in 2023.

Table 33. 2023 Community Action Agency Channel Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Air Sealing | 0.11 | 99% | 0.11 | 1.000 | 0.11 |
| Standard LED | 0.02 | 100% | 0.02 | 1.000 | 0.02 |
| Attic Insulation | 0.05 | 95% | 0.05 | 1.000 | 0.05 |
| Centrally Ducted ASHP - Replaces Electric Resistance | (0.01) | 100% | (0.01) | 1.000 | (0.01) |
| Furnace Blower Motor | 0.02 | 100% | 0.02 | 1.000 | 0.02 |
| Bathroom Exhaust Fan | 0.01 | 98% | 0.01 | 1.000 | 0.01 |
| Crawl Space Insulation | 0.01 | 90% | 0.01 | 1.000 | 0.01 |
| Pipe Insulation | 0.004 | 107% | 0.004 | 1.000 | 0.004 |
| Heat Pump Water Heater | 0.002 | 99% | 0.002 | 1.000 | 0.002 |
| Wall Insulation | 0.01 | 99% | 0.01 | 1.000 | 0.01 |
| Ductless Heat Pump (ER) | 0.003 | 24% | 0.001 | 1.000 | 0.001 |
| Floor Insulation | 0.004 | 92% | 0.003 | 1.000 | 0.003 |
| Specialty LED | 0.002 | 99% | 0.002 | 1.000 | 0.002 |
| Showerhead | 0.001 | 100% | 0.001 | 1.000 | 0.001 |
| Advanced Thermostat | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Faucet Aerator | 0.004 | 100% | 0.004 | 1.000 | 0.004 |
| Room Air Conditioner (ER) | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Rim Joist Insulation | 0.002 | 97% | 0.002 | 1.000 | 0.002 |
| Ductless Heat Pump (TOS) | 0.00004 | 100% | 0.00004 | 1.000 | 0.00004 |
| Knee Wall Insulation | 0.001 | 100% | 0.001 | 1.000 | 0.001 |
| Centrally Ducted ASHP (TOS) | 0.0004 | 100% | 0.0004 | 1.000 | 0.0004 |
| Total | 0.26 | 97% | 0.25 | 1.000 | 0.25 |

Table 34 presents the ex ante, verified gross, and verified net gas savings achieved through the CAA channel in 2023. The channel also achieved non-AIC natural gas savings, which cannot be claimed against AIC’s natural gas savings goals but are presented in Appendix B.

Table 34. 2023 Community Action Agency Channel Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Air Sealing | 22,894 | 100% | 22,919 | 1.000 | 22,919 |
| Attic Insulation | 19,189 | 101% | 19,472 | 1.000 | 19,472 |
| Crawl Space Insulation | 11,446 | 97% | 11,063 | 1.000 | 11,063 |
| Pipe Insulation | 2,828 | 107% | 3,017 | 1.000 | 3,017 |
| Wall Insulation | 5,842 | 102% | 5,931 | 1.000 | 5,931 |
| Floor Insulation | 2,119 | 105% | 2,220 | 1.000 | 2,220 |
| Showerhead | 686 | 100% | 686 | 1.000 | 686 |
| Advanced Thermostat | 1,522 | 100% | 1,522 | 1.000 | 1,522 |
| Faucet Aerator | 543 | 100% | 545 | 1.000 | 545 |
| Rim Joist Insulation | 1,252 | 101% | 1,260 | 1.000 | 1,260 |
| Knee Wall Insulation | 261 | 100% | 261 | 1.000 | 261 |
| Gas Boiler (ER) | 6,724 | 109% | 7,336 | 1.000 | 7,336 |
| Gas Boiler (TOS) | 120 | 100% | 120 | 1.000 | 120 |
| Gas Furnace (ER) | 31,796 | 100% | 31,798 | 1.000 | 31,798 |
| Gas Furnace (TOS) | 512 | 100% | 511 | 1.000 | 511 |
| Gas Water Heater | 4,338 | 100% | 4,338 | 1.000 | 4,338 |
| Total | 112,071 | 101% | 112,999 | 1.000 | 112,999 |

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report those with significant impacts on channel savings, affected all measures in a category, or had particularly low realization rates.

We identified several cross-cutting discrepancies, i.e., those discrepancies that affected multiple measure categories.

* The evaluation team applied a heating degree day value that correlated to the heating city in the database, whereas the implementation team applied a heating degree day value correlated to a different heating city to calculate ex ante savings. This resulted in lower verified energy and demand savings. This discrepancy affected relatively few measures in the following categories: Air Sealing (n=1), Rim Joist Insulation (n=3), and Wall Insulation (n=4), Crawlspace Insulation (n=5), Attic Insulation (n=11), and Floor Insulation (n=2).
* The evaluation team applied the cooling efficiency as provided in the tracking database, whereas the implementation team applied the default cooling efficiency from IL-TRM V11.0 or a cooling efficiency from an unknown source (depending on the case) to calculate ex ante savings. This resulted in higher or lower verified energy and demand savings depending on the case. This discrepancy affected less than 15% of measures in the following categories: Air Sealing (n=7), Rim Joist Insulation (n=24), and Wall Insulation (7), and a stronger effect on Crawlspace Insulation (n=22), and Attic Insulation (41). However, this discrepancy affected over a quarter of Floor Insulation measures (n=9).
* The evaluation team applied the heating efficiency as provided in the tracking database, whereas the implementation team applied the default heating efficiency from IL-TRM V11.0 or a heating efficiency from an unknown source (depending on the case) to calculate ex ante savings. This resulted in higher or lower verified energy and gas savings depending on the case. This discrepancy affected less than 15% of measures in the following categories: Air Sealing (n=6), Rim Joist Insulation (n=20), and Attic Insulation (n=31), Crawlspace Insulation (n=10), Wall Insulation (n=6), and Floor Insulation (n=5).

We identified several additional discrepancies for specific measure categories.

* Furnace Blower Motor (7% of ex ante energy and 9% of demand savings): The gross realization rate for Furnace Blower Motor was 102% for kWh and 100% for kW.
  + In 5% of measures, (n=6), the evaluation team applied the furnace capacity factor from the IL-TRM V11.0 that corresponded to the new heating system capacity, whereas the implementation team applied the furnace capacity factor from the IL-TRM V11.0 that corresponded to a heating system capacity lower than what is in the tracking data, resulting in higher verified energy savings.
* Pipe Insulation (3% of ex ante energy savings, 2% of demand savings, and 3% of gas savings): The gross realization rate for Pipe Insulation was 107% for kWh, kW, and therms.
  + In 100% of measures, (n=199), the evaluation team applied the average deemed savings from the IL-TRM V11.0 for Copper and PEX piping for vertical pipe configuration for the first three linear feet of pipe insulation and horizontal configuration for the remaining linear feet, whereas the implementation team applied the deemed savings for unknown pipe type and configuration from the IL-TRM V11.0, resulting in higher verified energy and gas savings.
* Ductless Heat Pump (TOS and ER) (3% of ex ante energy and 1% of demand savings): The gross realization rate for Ductless Heat Pump (TOS) was 80% for kWh and 100% for kW. The gross realization rate for Ductless Heat Pump (ER) was 75% for kWh and 24% for kW.
  + In 100% of measures, (n=4), the evaluation team applied full displacement assumptions from the IL-TRM V11.0, whereas the implementation team assumed partial displacement. Partial displacement heat load factors assume backup heating is available at lower temperatures, however, it is unknown whether backup heating exists in these homes. As such, the evaluation team chose the more conservative approach by applying full displacement assumptions, resulting in lower verified energy and demand savings.
* Gas Boiler (ER and TOS) (6% of gas savings): The gross realization rate for Gas Boiler (TOS) was 100% for gas. The gross realization rate for Gas Boiler (ER) was 109% for gas.
  + In 4% of measures, (n=1), the evaluation team applied the existing heating efficiency from the tracking data since the project was an early retirement case, whereas the implementation team calculated savings for a Time-of-Sale (TOS) project and applied the baseline efficiency from the IL-TRM V11.0, resulting in higher verified gas savings.

### Joint Utility Channel

#### Channel Description

Similar to the Single Family channel’s design, the Joint Utility channel provides direct install, HVAC, and building envelope retrofits to participating single family customer homes through select Program Allies. However, this channel is implemented via a partnership between AIC and Nicor Gas to serve IQ customers in the shared utility territory, largely in the Bloomington-Normal (BN) area, but also in parts of Rantoul and Champaign counties. Measures are similar to the Single Family channel, however, as the Joint Utility channel is funded jointly by AIC and Nicor Gas, AIC typically pays for and claims savings from only electric efficiency measures provided through the channel. While the Joint Utility channel offers gas efficiency measures (such as high efficiency furnaces) to participating customers, those measures are typically funded solely by Nicor Gas and AIC does not claim credit for them in most cases. AIC and Nicor Gas partner with Resource Innovations to implement this channel.

##### Summary of Key Implementation Changes

We summarize key changes to the Joint Utility channel’s design and implementation in 2023 below:

* In 2023, AIC paid for gas measures included in 25 Joint Utility channel projects as allowed under 220 ILCS 5/8-103B(b-25). These savings are reported separately in Appendix B.
* The Joint Utility channel recruited and added more Program Allies, for a total of five Allies. With the additional Program Allies, the Joint Utility channel was able to expand offerings to Rantoul and Champaign counties.
* Resource Innovations also hired a part-time staff member. This staff helped with customer outreach for the channel. There were also some staffing changes at Resource Innovations that they report enhanced the implementation of the channel in 2023.
* The Joint Utility channel also distributed both BN Community Kits and BN Holiday Kits in partnership with the Market Development Initiative to help ensure that the goals of the channel were met.
* There were also some changes to health and safety remediation work covered by the IQ Initiative for single family participants. These changes are further described in 3.2.3.

#### Participation Summary

The Joint Utility channel performed well in 2023 and, for the first time since its creation, met its participation goals for the year. The channel completed installation of DI measures and/or building envelope or HVAC retrofits in a total of 98 participant homes, compared to the goal to serve 80 homes. Table 35 shows the number of participants served and describes the types of projects AIC funded for the Joint Utility channel. Note, this summary does not fully represent the customer experience, as they may have received gas-only measures funded by Nicor Gas. More detail on the percentage of customers who received each type of measure is available in Appendix D. While not depicted in the table below, 13 customers (13%) received health and safety services.

Table 35. 2023 Joint Utility Channel Participation Summary (AIC-Funded Measures)

| Project Type | Total |
| --- | --- |
| Number of single family homes served | 98 |
| Full participation (DI + building envelope or HVAC retrofits) | 79 |
| DI only | 11 |
| Building envelope or HVAC retrofits only | 8 |

Source: We determined unique homes based on electric or gas account numbers.

An additional 335 participants received only energy saving kits through the channel, specifically BN Community Kits and/or BN Holiday Kits (340 total kits). This chapter summarizes savings from HVAC and building envelope retrofits only. BN Community Kit and BN Holiday Kit energy savings are included in the Kits Initiatives chapter, see Section 3.5.7.

#### Savings Detail

Table 36 presents the ex ante, verified gross, and verified net electric energy savings achieved through the Joint Utility channel in 2023.

Table 36. 2023 Joint Utility Channel Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Standard LED | 21 | 100% | 21 | 1.000 | 21 |
| Furnace Blower Motor | 17 | 102% | 18 | 1.000 | 18 |
| Air Sealing | 15 | 100% | 15 | 1.000 | 15 |
| Advanced Thermostat | 13 | 96% | 12 | 1.000 | 12 |
| Advanced Power Strip - Tier 1 | 9 | 100% | 9 | 1.000 | 9 |
| Specialty LED | 7 | 103% | 7 | 1.000 | 7 |
| Central Air Conditioner (ER) | 6 | 100% | 6 | 1.000 | 6 |
| Bathroom Exhaust Fan | 5 | 101% | 5 | 1.000 | 5 |
| Attic Insulation | 5 | 100% | 5 | 1.000 | 5 |
| Showerhead | 2 | 100% | 2 | 1.000 | 2 |
| Pipe Insulation | 2 | 101% | 2 | 1.000 | 2 |
| Faucet Aerator | 2 | 100% | 2 | 1.000 | 2 |
| Central Air Conditioner (TOS) | <1 | 100% | <1 | 1.000 | <1 |
| Wall Insulation | <1 | 100% | <1 | 1.000 | <1 |
| Rim Joist Insulation | <1 | 100% | <1 | 1.000 | <1 |
| Total | 105 | 100% | 105 | 1.000 | 105 |

Table 37 presents the ex ante, verified gross, and verified net electric demand savings achieved through the Joint Utility channel in 2023. The channel also achieved non-AIC natural gas savings, which cannot be claimed against AIC’s natural gas savings goals but are presented in Appendix B.

Table 37. 2023 Joint Utility Channel Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Standard LED | 0.003 | 100% | 0.003 | 1.000 | 0.003 |
| Furnace Blower Motor | 0.01 | 96% | 0.01 | 1.000 | 0.01 |
| Air Sealing | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Advanced Thermostat | 0.01 | 96% | 0.01 | 1.000 | 0.01 |
| Advanced Power Strip - Tier 1 | 0.001 | 100% | 0.001 | 1.000 | 0.001 |
| Specialty LED | 0.001 | 102% | 0.001 | 1.000 | 0.001 |
| Central Air Conditioner (ER) | 0.004 | 100% | 0.004 | 1.000 | 0.004 |
| Bathroom Exhaust Fan | 0.001 | 101% | 0.001 | 1.000 | 0.001 |
| Attic Insulation | 0.003 | 125% | 0.003 | 1.000 | 0.003 |
| Showerhead | 0.0002 | 98% | 0.0002 | 1.000 | 0.0002 |
| Pipe Insulation | 0.0002 | 101% | 0.0002 | 1.000 | 0.0002 |
| Faucet Aerator | 0.0003 | 100% | 0.0003 | 1.000 | 0.0003 |
| Central Air Conditioner (TOS) | 0.0003 | 100% | 0.0003 | 1.000 | 0.0003 |
| Wall Insulation | 0.0001 | 100% | 0.0001 | 1.000 | 0.0001 |
| Rim Joist Insulation | 0.0001 | 100% | 0.0001 | 1.000 | 0.0001 |
| Total | 0.04 | 100% | 0.04 | 1.000 | 0.04 |

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on the ones with significant impacts on channel savings.

* Furnace Blower Motor (16% of ex ante energy and demand savings): The gross realization rate for Furnace Blower Motor was 102% for kWh and 96% for kW.
  + In 6% of measures, (n=2), the evaluation team applied assumptions from the IL-TRM V11.0 for “Furnace, No Cooling System” since a new central cooling system was installed through the channel, and the efficiency of the new cooling equipment already accounts for motor savings from cooling. The implementation team applied assumptions from the IL-TRM V11.0 for “Existing CAC”, resulting in higher verified energy savings and lower verified demand savings.
* Advanced Thermostat (12% of ex ante energy and 22% of demand savings): The gross realization rate for Advanced Thermostat was 96% for kWh and kW.
  + In 5% of measures, (n=3), when the project also installed a new cooling system through the channel, the evaluation team applied the cooling efficiency and capacity from the tracking database for the newly installed central cooling system, whereas the implementation team applied the cooling efficiency and capacity for the existing central cooling system, resulting in lower verified energy and demand savings.
* Attic Insulation (5% of ex ante energy and 7% of demand savings): The gross realization rate for Attic Insulation was 100% for kWh and 125% for kW.
  + In 67% of measures, (n=18), the evaluation team identified an inconsistency in demand savings between the reported demand savings and parameters in the “kW Formula 2 Converted” database field, resulting in higher verified demand savings. This appears to be a data tracking error: if the implementation team had reported the demand savings using the parameters in the “kW Formula 2 Converted” field, demand realization rates would have been 100%.

### Smart Savers Channel

#### Channel Description

The Smart Savers channel is a third-party offering implemented in 2023 by Leidos and Staples Energy that provides advanced thermostats at no cost to IQ customers. The overarching goals of the Smart Savers channel are to achieve energy savings through advanced thermostat installation, reach customers who have not previously benefited from AIC’s Residential Program, and act as an entry point into other AIC energy efficiency offerings.

Participants are targeted based on their residency in target ZIP codes that consist of, by census data definitions, 30% or more residents that are at or below 200% of the Federal Poverty Level. Customers in target IQ ZIP codes may learn about the Smart Savers channel in a variety of ways, including through their AIC utility bill, email, direct mail, and social media messaging. Customers may apply online or by phone for a free advanced thermostat to install in their homes. In 2023, single family customers who participated in the channel could self-install the thermostat, or have it installed at no cost by a Program Ally if they were in a Program Ally service area. Multifamily family properties could also participate but were required to participate through a Program Ally, also at no cost.

##### Summary of Key Implementation Changes

We summarize key changes made in 2023 to the Smart Savers channel design and implementation below:

* Staples Energy joined the Smart Savers channel implementation team in 2023. Staples Energy is responsible for managing the IQ Initiative’s Program Ally network, which includes the recruitment and training of Program Allies. As such, Staples Energy has focused on expanding Program Ally service coverage of target IQ ZIP codes. Staples Energy cited the successful recruitment and training of diverse Program Allies as a key success in 2023. Looking forward, Staples Energy aims to expand the Program Ally network to cover 100% of target IQ ZIP codes in 2024, with a focus on recruiting additional Program Allies in rural areas.
* Implementation staff employed an enhanced marketing strategy in 2023, which played a pivotal role in exceeding participation goals. Implementation staff specifically credited the September “Google Blitz” with having drastically increased program visibility and participation in the last few months of 2023.[[23]](#footnote-23)
* The Smart Savers channel emphasized customer education and satisfaction for installations performed by Program Allies. In 2023, implementation staff required Program Allies to collect pre- and post-installation feedback from customers to measure education and satisfaction.
* The Smart Savers channel originally qualified 241 ZIP codes to be served in 2023. In October of 2023, the implementation team expanded this coverage by adding 12 ZIP codes to accommodate participants in the Smart Self Reliance Pilot (SSRP).[[24]](#footnote-24) Through this pilot, Senior Services Plus, a CBO partner, directly referred IQ clients they serve for Smart Savers channel participation.

#### Participation Summary

According to the implementation team, the Smart Savers channel successfully met its participation targets in 2023. The Channel distributed over 9,000 thermostats: 7,617 thermostats to customers for self-installation and 1,622 through Program Allies. Most thermostats were installed in single family homes (93%), but the channel also installed over 600 thermostats across nine multifamily properties. Table 38 summarizes participation by installation type and home type.

Table 38. Smart Savers Channel Participation Summary

| Installation Type | Home Type | Quantity |
| --- | --- | --- |
| Self-Install | Single Family | 7,617 |
| Program Ally | Single Family | 956 |
| Multifamily | 666 |
| Total | | 9,239 |

The Smart Savers channel served customers across 262 unique ZIP codes in the AIC service territory. Of these, all 262 ZIP codes received at least one self-install thermostat, and 60 ZIP codes were served by Program Allies, as shown in Table 39.

Table 39. Smart Savers Channel Number of ZIP Codes Served

| Installation Type | Home Type | Number of ZIP Codes |
| --- | --- | --- |
| Self-Install | Single Family | 262 |
| Program Ally | Single Family | 55 |
| Multifamily | 5 |
| Total | | 262 |

#### Savings Detail

In our review of the tracking data, the evaluation team identified nine ZIP codes that were served but are not associated with the Smart Savers channel. As such, we treated these cases as market rate participants in net savings calculations. This issue affected 155 thermostats, or 2% of the total distributed, leading to a NTGR slightly less than 1.000.

Table 40 presents the ex ante, verified gross, and verified net electric energy savings achieved through the Smart Savers channel in 2023.

Table 40. 2023 Smart Savers Channel Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat | 4,942 | 97% | 4,807 | 0.999 | 4,804 |
| Total | 4,942 | 97% | 4,807 | 0.999 | 4,804 |

Table 41 presents the ex ante, verified gross, and verified net electric demand savings achieved through the Smart Savers channel in 2023.

Table 41. 2023 Smart Savers Channel Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat | 1.33 | 92% | 1.23 | 0.999 | 1.22 |
| Total | 1.33 | 92% | 1.23 | 0.999 | 1.22 |

Table 42 presents the ex ante, verified gross, and verified net gas savings achieved through the Smart Savers channel in 2023. The channel also achieved non-AIC natural gas and propane savings, which cannot be claimed against AIC’s natural gas savings goals but are presented in Appendix B.

Table 42. 2023 Smart Savers Channel Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat | 487,592 | 96% | 468,036 | 1.000 | 467,813 |
| Total | 487,592 | 96% | 468,036 | 1.000 | 467,813 |

While the analysis identified and characterized all discrepancies, we only report on the ones with significant impacts on channel savings. The primary driver of realization rates less than 100% was the incorrect application of ISRs. In 66% of measures (n=6,087), the evaluation team applied an ISR of 90% for cooling since the channel data indicates self-installation, whereas the implementation team applied an ISR of 100% for cooling, resulting in lower verified energy and demand savings.

### Mobile Homes and Air Sealing Channel

#### Channel Description

The IQ Initiative’s Mobile Homes & Air Sealing (MHAS) channel is a third party offering implemented by Future Energy Enterprises (FUTEE) that delivers energy efficiency and other improvements to IQ customers living in mobile homes. The MHAS channel provides kits with energy saving products, advanced thermostats, and larger building envelope and HVAC retrofits, including some mobile home-specific measures like “belly board” (i.e., subfloor) insulation. Customers also receive energy literacy education and certain health and safety measures, such as carbon monoxide (CO) and smoke detectors and fire extinguishers. In addition, AIC and its partners are actively recruiting and training program allies to work on mobile home projects, as well as developing partnerships with community-based organizations (CBOs) for channel delivery and community engagement.[[25]](#footnote-25)

##### Summary of Key Implementation Changes

Key changes to MHAS channel design and implementation in 2023 are described below:

* With the help of new partnerships, the channel successfully expanded its offerings into two new target regions: East St. Louis and Decatur.
* The channel kicked off with a new reservation process that provided program allies with the opportunity to have AIC and Leidos review their work scope before executing. This new process intends to ensure project scopes include all services that are necessary in the home, and that each project addresses all energy efficiency improvement opportunities.
* FUTEE scaled back their outreach efforts, giving delivery partner Champaign County Regional Planning Commission (CCRPC) primary control over marketing and outreach in the Champaign-Urbana area.
* MHAS channel staff arranged and offered a special training opportunity for Program Allies with the Building Performance Center (BPC). The BPC-provided trainer had extensive knowledge and experience working specifically with mobile homes and helped to improve program allies’ best practices when serving MHAS channel participants.
* HVAC equipment purchasing responsibilities transitioned from FUTEE to program allies, after the MHAS channel moved away from bulk purchasing.
* The Energy Snapshot database, developed internally by a Program Ally, replaced an Excel spreadsheet as the project tracking tool used by program allies.

#### Participation Summary

Table 43 summarizes MHAS channel participation in 2023. The MHAS channel provided energy efficiency services to a total of 248 customers in 2023. Most of these customers (57%) received building envelope and/or HVAC retrofits, as well as a mobile home kit that included energy saving products such as LEDs and faucets aerators. One-fifth of customers (20%) received only a mobile home kit. Some of these customers may have been in the middle of the participation process at the end of 2023 and could potentially receive additional retrofits in 2024. More detail as to the percentage of customers who received each type of measure is available in Appendix D. While not depicted in the table below, 112 customers (44%)[[26]](#footnote-26) received health and safety services.

Table 43. 2023 Mobile Homes & Air Sealing Channel Participation Summary

|  |  |
| --- | --- |
| Project Type | Total |
| Number of customers served | 248 |
| Full participation: kit + building envelope or HVAC retrofits | 141 |
| Kit only | 100 |
| Building envelope or HVAC retrofits only | 7 |

Notes: We determined unique homes based on electric or gas account numbers. We excluded four customers who did not receive any measures. One duplicate mobile home kit was identified in the tracking data as a result of data transfer issue and excluded from analysis.

As shown in Table 44, the MHAS channel served customers across eight counties within AIC service territory. Most customers were located in Champaign County where AIC has historically focused channel efforts. St. Clair and Macon counties were the next most common regions served by the channel, both of which were target areas established by AIC for channel expansion in 2023. Small numbers of projects were also completed in other counties near the primary target counties. Taken together, this demonstrates significant territorial growth for the channel since inception and suggests participation will continue to spread across new regions in 2024.

Table 44. Mobile Homes & Air Sealing Channel Participation by County

| Column | Column |
| --- | --- |
| Champaign | 201 |
| St. Clair | 16 |
| Macon | 15 |
| Madison | 9 |
| Piatt | 3 |
| Jefferson | 2 |
| Coles | 1 |
| Christian | 1 |
| Total | 248 |

#### Savings Detail

This chapter summarizes savings from HVAC and building envelope retrofits only. Mobile home kits energy savings are included in the Kits Initiatives chapter (see Section 3.5.6). Table 45 presents the ex ante, verified gross, and verified net electric energy savings achieved through the MHAS channel in 2023.

Table 45. 2023 Mobile Homes & Air Sealing Channel Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Furnace Blower Motor | 52 | 101% | 52 | 1.000 | 52 |
| Centrally Ducted Air Source Heat Pumps (ER) | 32 | 100% | 32 | 1.000 | 32 |
| Advanced Thermostat | 29 | 100% | 29 | 1.000 | 29 |
| Air Sealing | 25 | 96% | 24 | 1.000 | 24 |
| Floor Insulation | 25 | 100% | 25 | 1.000 | 25 |
| Bathroom Exhaust Fan | 8 | 111% | 9 | 1.000 | 9 |
| Ductless Heat Pump (TOS) | 4 | 211% | 9 | 1.000 | 9 |
| Central Air Conditioner (ER) | 4 | 1953% | 78 | 1.000 | 78 |
| Attic Insulation | 3 | 100% | 3 | 1.000 | 3 |
| Centrally Ducted Air Source Heat Pumps (TOS) | 1 | 100% | 1 | 1.000 | 1 |
| Central Air Conditioner (TOS) | 0 | N/A | 6 | 1.000 | 6 |
| Duct Sealing a | 0 | N/A | 0 | 1.000 | 0 |
| Total | 183 | 147% | 269 | 1.000 | 269 |

a Duct sealing savings are included in Air Sealing.

Table 46 presents the ex ante, verified gross, and verified net electric demand savings achieved through the MHAS channel in 2023.

Table 46. 2023 Mobile Homes & Air Sealing Channel Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Furnace Blower Motor | 0.004 | 101% | 0.004 | 1.000 | 0.004 |
| Centrally Ducted Air Source Heat Pumps (ER) | -0.00002 | 100% | -0.00002 | 1.000 | -0.00002 |
| Advanced Thermostat | 0.02 | 100% | 0.02 | 1.000 | 0.02 |
| Air Sealing | 0.01 | 95% | 0.01 | 1.000 | 0.01 |
| Floor Insulation | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Bathroom Exhaust Fan | 0.001 | 111% | 0.0 | 1.000 | 0.0 |
| Ductless Heat Pump (TOS) | 0.0001 | 100% | 0.0001 | 1.000 | 0.0001 |
| Central Air Conditioner (ER)) | 0.001 | 4,306% | 0.06 | 1.000 | 0.06 |
| Attic Insulation | 0.002 | 100% | 0.002 | 1.000 | 0.002 |
| Centrally Ducted Air Source Heat Pumps (TOS) | 0.0002 | 100% | 0.0002 | 1.000 | 0.0002 |
| Central Air Conditioner (TOS) | 0.0002 | 2,134% | 0.004 | 1.000 | 0.004 |
| Duct Sealing a | 0 | N/A | 0 | 1.000 | 0 |
| Total | 0.05 | 231% | 0.11 | 1.000 | 0.11 |

a Duct sealing savings are included in Air Sealing.

Table 47 presents the ex ante, verified gross, and verified net gas savings achieved through the MHAS channel in 2023.

Table 47. 2023 MHAS Channel Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat | 6,798 | 100% | 6,798 | 1.000 | 6,798 |
| Air Sealing | 4,920 | 94% | 4,626 | 1.000 | 4,626 |
| Floor Insulation | 5,872 | 100% | 5,873 | 1.000 | 5,873 |
| Attic Insulation | 783 | 100% | 783 | 1.000 | 783 |
| Gas Furnace (ER) | 35,805 | 93% | 33,237 | 1.000 | 33,237 |
| Duct Sealing a | 0 | N/A | 0 | 1.000 | 0 |
| Total | 54,178 | 95% | 51,317 | 1.000 | 51,317 |

a Duct sealing savings are included in Air Sealing.

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on the ones with significant impacts on channel savings.

* Air Sealing (14% of ex ante energy savings, 31% of demand savings, and 9% of gas savings): The gross realization rate for Air Sealing was 96% for kWh, 95% for kW, and 94% for therms.
  + In 6% of measures, (n=7), the evaluation team applied the heating efficiency from the tracking database, which is the IL-TRM V11.0 default when the heating efficiency is unknown, whereas the implementation team derated the unknown default efficiency value from IL-TRM V11.0, resulting in lower verified gas savings.
  + In 3% of measures, (n=3), when the tracking data was missing values for reduced CFM, the evaluation team calculated the ratio between existing and reduced CFM across records in the tracking data (where these values were available), then applied that ratio to the existing CFM in missing cases. The implementation team applied reduced CFM values equal to zero, resulting in lower verified energy, demand, and gas savings.
* Ductless Heat Pump (2% of ex ante energy savings and <1% of demand savings): The gross realization rate for Ductless Heat Pump was 211% for kWh and 100% for kW.
  + In 100% of measures, (n=1), the evaluation team applied the baseline efficiency from the IL-TRM V11.0 for the existing heating type in the tracking database, whereas the implementation team applied a baseline efficiency from the IL-TRM V11.0 for unknown existing heating type that was lower in comparison, resulting in higher verified energy savings.
  + In 100% of measures, (n=1), the evaluation team applied the heat load factor from the IL-TRM V11.0 for partial displacement and simultaneous operation with existing heating type based on a review of the project documentation, whereas the implementation team applied the heat load factor for partial displacement with switchover temperatures greater than 24 degrees Fahrenheit that was lower in comparison, resulting in higher verified energy savings.
* Central Air Conditioner (TOS and ER) (2% of ex ante energy savings and 3% of demand savings): The gross realization rate for Central Air Conditioner (TOS) was 2,134% for kW, and there were no ex-ante kWh. The gross realization rate for Central Air Conditioner (ER) was 1,953% for kWh and 4,306% for kW.
  + In 74% of measures, (n=81), for projects that installed systems with a cooling efficiency of 13 SEER[[27]](#footnote-27) , the evaluation team calculated savings as early retirement projects since the existing cooling equipment are in working condition but highly inefficient, whereas the implementation team either did not include ex ante savings (n=66) or applied a new cooling efficiency higher than the cooling efficiency specified in the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) directory (n=15), resulting in higher verified energy and demand savings.
  + In 9% of measures, (n=10), the evaluation team applied the efficiency of the new air conditioner to align with what was provided in the AHRI directory for the model number specified in the tracking database, whereas the implementation team applied an efficiency that was higher than the installed equipment rating, resulting in lower verified energy and demand savings.
  + In 17% of measures, (n=18), the evaluation team included energy and demand savings since the customer received electric service from AIC, whereas the implementation team did not include energy and demand savings, resulting in higher verified energy and demand savings. This change superseded the reductions in verified savings mentioned above.
* Gas Furnace (66% of ex ante gas savings): The gross realization rate for Gas Furnace was 93% for therms.
  + In 10% of measures, (n=12), the evaluation team applied the heating efficiency from the tracking database, which is the IL-TRM V11.0 default when the heating efficiency is unknown, whereas the implementation team derated the unknown default efficiency value from IL-TRM V11.0, resulting in lower verified gas savings.

### Cumulative Persisting Annual Savings

Table 48 summarizes CPAS and WAML for the 2023 Income Qualified Initiative Single Family Offerings by channel. The total verified gross savings for the Initiative are summarized, and CPAS in 2023–2026 and 2030 are presented. The WAML for the Initiative is 12.7 years. CPAS and WAML for each Channel at a measure level are presented in Table 49 through Table 53. Note that in 2023, AIC converted a range of fossil fuel savings produced by the Income Qualified Initiative to CPAS for the purposes of goal attainment, including savings of fuels not provided by AIC and not detailed in the body of this report. Further details on non-AIC savings can be found in Appendix B, and further detail on converted CPAS can be found in Appendix C.

Table 48. 2023 Income Qualified Initiative Single Family Channels CPAS and WAML

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Channel | WAML | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Single Family | 14.2 | 3,123 | 1.000 | 3,123 | | 3,123 | 3,123 | | 3,123 | | … | 2,489 | … | 40,970 |
| CAA | 15.8 | 1,101 | 1.000 | 1,101 | | 1,101 | 1,101 | | 1,101 | | … | 1,024 | … | 16,403 |
| Joint Utility | 11.6 | 105 | 1.000 | 105 | | 105 | 105 | | 105 | | … | 74 | … | 1,127 |
| Smart Savers | 11.0 | 4,807 | 0.999 | 4,804 | | 4,804 | 4,804 | | 4,804 | | … | 4,804 | … | 52,843 |
| MHAS | 11.5 | 269 | 1.000 | 269 | | 269 | 269 | | 269 | | … | 139 | … | 2,987 |
| 2023 CPAS |  | 9,405 | 1.000 | 9,402 | | 9,402 | 9,402 | | 9,402 | | … | 8,531 | … | 114,330 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 150 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 871 | … |  |
| WAML | 12.7 |  |  |  |  | | |  | |  |  |  |  |  |

Table 49. 2023 Income Qualified Initiative – Single Family Channel CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | 2024 | 2025 | 2026 | … | 2030 | … |
| Centrally Ducted Air Source Heat Pumps - Replaces Electric Resistance | 16.0 | 577 | 1.000 | 577 | 577 | 577 | 577 | … | 577 | … | 9,234 |
| Air Sealing | 20.0 | 327 | 1.000 | 327 | 327 | 327 | 327 | … | 327 | … | 5,841 |
| Standard LED | 8.0 | 323 | 1.000 | 323 | 323 | 323 | 323 | … | 323 | … | 2,582 |
| Furnace Blower Motor | 6.0 | 320 | 1.000 | 320 | 320 | 320 | 320 | … | 0 | … | 1,918 |
| Attic Insulation | 20.0 | 269 | 1.000 | 269 | 269 | 269 | 269 | … | 269 | … | 4,895 |
| Central Air Conditioner (ER) | 18.0 | 201 | 1.000 | 201 | 201 | 201 | 201 | … | 42 | … | 1,714 |
| Advanced Thermostat | 11.0 | 181 | 1.000 | 181 | 181 | 181 | 181 | … | 181 | … | 1,990 |
| Bathroom Exhaust Fan | 19.0 | 175 | 1.000 | 175 | 175 | 175 | 175 | … | 175 | … | 3,334 |
| Advanced Power Strip - Tier 1 | 7.0 | 141 | 1.000 | 141 | 141 | 141 | 141 | … | 0 | … | 984 |
| Specialty LED | 8.0 | 137 | 1.000 | 137 | 137 | 137 | 137 | … | 137 | … | 1,098 |
| Heat Pump Water Heater | 15.0 | 104 | 1.000 | 104 | 104 | 104 | 104 | … | 104 | … | 1,556 |
| Crawl Space Insulation | 20.0 | 100 | 1.000 | 100 | 100 | 100 | 100 | … | 100 | … | 1,853 |
| Wall Insulation | 20.0 | 48 | 1.000 | 48 | 48 | 48 | 48 | … | 48 | … | 863 |
| Pipe Insulation | 15.0 | 46 | 1.000 | 46 | 46 | 46 | 46 | … | 46 | … | 697 |
| Faucet Aerator | 10.0 | 31 | 1.000 | 31 | 31 | 31 | 31 | … | 31 | … | 306 |
| Showerhead | 10.0 | 26 | 1.000 | 26 | 26 | 26 | 26 | … | 26 | … | 263 |
| Duct Sealing | 20.0 | 16 | 1.000 | 16 | 16 | 16 | 16 | … | 16 | … | 278 |
| Rim Joist Insulation | 20.0 | 17 | 1.000 | 17 | 17 | 17 | 17 | … | 17 | … | 320 |
| Ductless Heat Pump (ER) | 15.0 | 9 | 1.000 | 9 | 9 | 9 | 9 | … | 9 | … | 136 |
| Ductless Heat Pump (TOS) | 15.0 | 31 | 1.000 | 31 | 31 | 31 | 31 | … | 31 | … | 466 |
| Centrally Ducted Air Source Heat Pumps - Replaces HP (ER) | 16.0 | 13 | 1.000 | 13 | 13 | 13 | 13 | … | 2 | … | 102 |
| Room Air Conditioner (ER) | 12.0 | 10 | 1.000 | 10 | 10 | 10 | 10 | … | 5 | … | 87 |
| Tree Planting | 25.0 | 6 | 1.000 | 6 | 6 | 6 | 6 | … | 6 | … | 142 |
| Knee Wall Insulation | 20.0 | 5 | 1.000 | 5 | 5 | 5 | 5 | … | 5 | … | 93 |
| Centrally Ducted Air Source Heat Pumps (TOS) | 16.0 | 5 | 1.000 | 5 | 5 | 5 | 5 | … | 5 | … | 81 |
| Central Air Conditioner (TOS) | 18.0 | 4 | 1.000 | 4 | 4 | 4 | 4 | … | 4 | … | 76 |
| Door Sweep | 20.0 | 3 | 1.000 | 3 | 3 | 3 | 3 | … | 3 | … | 59 |
| Heat Pump Dryer | 16.0 | 0.1 | 1.000 | 0.1 | 0.1 | 0.1 | 0.1 | … | 0.1 | … | 2 |
| Clothes Washer | 14.0 | 0.1 | 1.000 | 0.1 | 0.1 | 0.1 | 0.1 | … | 0.1 | … | 1 |
| Refrigerator | 15.0 | 0.04 | 1.000 | 0.04 | 0.04 | 0.04 | 0.04 | … | 0.04 | … | 1 |
| ENERGY STAR Dishwasher | 11.0 | 0.02 | 1.000 | 0.02 | 0.02 | 0.02 | 0.02 | … | 0.02 | … | 0.2 |
| Induction Cooktop | 16.0 | 0.01 | 1.000 | 0.01 | 0.01 | 0.01 | 0.01 | … | 0.01 | … | 0.2 |
| 2023 CPAS |  | 3,123 | 1.000 | 3,123 | 3,123 | 3,123 | 3,123 | … | 2,489 | … | 40,970 |
| Expiring 2023 CPAS |  |  |  | 0 | 0 | 0 | 0 | … | 141 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | 0 | 0 | 0 | … | 634 | … |  |
| WAML | 14.2 |  |  |  |  |  |  |  |  |  |  |

Table 50. 2023 Income Qualified Initiative – CAA Channel CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Air Sealing | 20.0 | 272 | 1.000 | 272 | | 272 | 272 | | 272 | | … | 272 | … | 4,918 |
| Standard LED | 8.0 | 179 | 1.000 | 179 | | 179 | 179 | | 179 | | … | 179 | … | 1,433 |
| Attic Insulation | 20.0 | 139 | 1.000 | 139 | | 139 | 139 | | 139 | | … | 139 | … | 2,536 |
| Centrally Ducted Air Source Heat Pumps - Replaces Electric Resistance (ER) | 16.0 | 125 | 1.000 | 125 | | 125 | 125 | | 125 | | … | 125 | … | 1,998 |
| Furnace Blower Motor | 6.0 | 73 | 1.000 | 73 | | 73 | 73 | | 73 | | … | 0 | … | 439 |
| Bathroom Exhaust Fan | 19.0 | 56 | 1.000 | 56 | | 56 | 56 | | 56 | | … | 56 | … | 1,061 |
| Crawl Space Insulation | 20.0 | 55 | 1.000 | 55 | | 55 | 55 | | 55 | | … | 55 | … | 1,017 |
| Pipe Insulation | 15.0 | 39 | 1.000 | 39 | | 39 | 39 | | 39 | | … | 39 | … | 578 |
| Heat Pump Water Heater | 15.0 | 33 | 1.000 | 33 | | 33 | 33 | | 33 | | … | 33 | … | 494 |
| Wall Insulation | 20.0 | 28 | 1.000 | 28 | | 28 | 28 | | 28 | | … | 28 | … | 518 |
| Ductless Heat Pump (ER) | 15.0 | 20 | 1.000 | 20 | | 20 | 20 | | 20 | | … | 20 | … | 302 |
| Floor Insulation | 20.0 | 25 | 1.000 | 25 | | 25 | 25 | | 25 | | … | 25 | … | 487 |
| Specialty LED | 8.0 | 13 | 1.000 | 13 | | 13 | 13 | | 13 | | … | 13 | … | 106 |
| Showerhead | 10.0 | 11 | 1.000 | 11 | | 11 | 11 | | 11 | | … | 11 | … | 113 |
| Advanced Thermostat | 11.0 | 10 | 1.000 | 10 | | 10 | 10 | | 10 | | … | 10 | … | 107 |
| Faucet Aerator | 10.0 | 7 | 1.000 | 7 | | 7 | 7 | | 7 | | … | 7 | … | 67 |
| Room Air Conditioner (ER) | 12.0 | 6 | 1.000 | 6 | | 6 | 6 | | 6 | | … | 3 | … | 54 |
| Rim Joist Insulation | 20.0 | 6 | 1.000 | 6 | | 6 | 6 | | 6 | | … | 6 | … | 112 |
| Ductless Heat Pump (TOS) | 15.0 | 2 | 1.000 | 2 | | 2 | 2 | | 2 | | … | 2 | … | 36 |
| Knee Wall Insulation | 20.0 | 1 | 1.000 | 1 | | 1 | 1 | | 1 | | … | 1 | … | 17 |
| Centrally Ducted Air Source Heat Pumps (TOS) | 16.0 | 1 | 1.000 | 1 | | 1 | 1 | | 1 | | … | 1 | … | 10 |
| 2023 CPAS |  | 1,101 | 1.000 | 1,101 | | 1,101 | 1,101 | | 1,101 | | … | 1,024 | … | 16,403 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 0 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 77 | … |  |
| WAML | 15.8 |  |  |  |  | | |  | |  |  |  |  |  |

Table 51. 2023 Joint Utility Channel CPAS and WAML

| Measure | WAML | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Standard LED | 8.0 | 21 | 1.000 | 21 | | 21 | 21 | | 21 | | … | 21 | … | 168 |
| Furnace Blower Motor | 6.0 | 18 | 1.000 | 18 | | 18 | 18 | | 18 | | … | 0 | … | 105 |
| Air Sealing | 20.0 | 15 | 1.000 | 15 | | 15 | 15 | | 15 | | … | 15 | … | 268 |
| Advanced Thermostat | 11.0 | 12 | 1.000 | 12 | | 12 | 12 | | 12 | | … | 12 | … | 137 |
| Advanced Power Strip - Tier 1 | 7.0 | 9 | 1.000 | 9 | | 9 | 9 | | 9 | | … | 0 | … | 62 |
| Specialty LED | 8.0 | 7 | 1.000 | 7 | | 7 | 7 | | 7 | | … | 7 | … | 59 |
| Central Air Conditioner (ER) | 18.0 | 6 | 1.000 | 6 | | 6 | 6 | | 6 | | … | 1 | … | 47 |
| Bathroom Exhaust Fan | 19.0 | 5 | 1.000 | 5 | | 5 | 5 | | 5 | | … | 5 | … | 104 |
| Attic Insulation | 20.0 | 5 | 1.000 | 5 | | 5 | 5 | | 5 | | … | 5 | … | 98 |
| Showerhead | 10.0 | 2 | 1.000 | 2 | | 2 | 2 | | 2 | | … | 2 | … | 22 |
| Pipe Insulation | 15.0 | 2 | 1.000 | 2 | | 2 | 2 | | 2 | | … | 2 | … | 31 |
| Faucet Aerator | 10.0 | 2 | 1.000 | 2 | | 2 | 2 | | 2 | | … | 2 | … | 15 |
| Central Air Conditioner (TOS) | 18.0 | 0.3 | 1.000 | 0.3 | | 0.3 | 0.3 | | 0.3 | | … | 0.3 | … | 5 |
| Wall Insulation | 20.0 | 0.2 | 1.000 | 0.2 | | 0.2 | 0.2 | | 0.2 | | … | 0.2 | … | 3 |
| Rim Joist Insulation | 20.0 | 0.2 | 1.000 | 0.2 | | 0.2 | 0.2 | | 0.2 | | … | 0.2 | … | 3 |
| 2023 CPAS |  | 105 | 1.000 | 105 | | 105 | 105 | | 105 | | … | 74 | … | 1,127 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 9 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 31 | … |  |
| WAML | 11.6 |  |  |  |  | | |  | |  |  |  |  |  |

Table 52. 2023 Income Qualified Initiative – Smart Savers Channel CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Advanced Thermostat | 11.0 | 4,807 | 0.999 | 4,804 | | 4,804 | 4,804 | | 4,804 | | … | 4,804 | … | 52,843 |
| 2023 CPAS |  | 4,807 | 0.999 | 4,804 | | 4,804 | 4,804 | | 4,804 | | … | 4,804 | … | 52,843 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 0 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 0 | … |  |
| WAML | 11.0 |  |  |  |  | | |  | |  |  |  |  |  |

Table 53. 2023 Mobile Homes & Air Sealing Channel CPAS and WAML

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Furnace Blower Motor | 6.0 | 52 | 1.000 | 52 | | 52 | 52 | | 52 | | … | 0 | … | 314 |
| Centrally Ducted Air Source Heat Pumps (ER) | 16.0 | 32 | 1.000 | 32 | | 32 | 32 | | 32 | | … | 33 | … | 527 |
| Advanced Thermostat | 11.0 | 29 | 1.000 | 29 | | 29 | 29 | | 29 | | … | 29 | … | 317 |
| Air Sealing | 20.0 | 24 | 1.000 | 24 | | 24 | 24 | | 24 | | … | 24 | … | 421 |
| Floor Insulation | 20.0 | 25 | 1.000 | 25 | | 25 | 25 | | 25 | | … | 25 | … | 466 |
| Bathroom Exhaust Fan | 19.0 | 9 | 1.000 | 9 | | 9 | 9 | | 9 | | … | 9 | … | 165 |
| Ductless Heat Pump (TOS) | 15.0 | 9 | 1.000 | 9 | | 9 | 9 | | 9 | | … | 9 | … | 138 |
| Central Air Conditioner (ER) | 6.0 | 78 | 1.000 | 78 | | 78 | 78 | | 78 | | … | 0 | … | 470 |
| Attic Insulation | 20.0 | 3 | 1.000 | 3 | | 3 | 3 | | 3 | | … | 3 | … | 46 |
| Centrally Ducted Air Source Heat Pumps (TOS) | 16.0 | 1 | 1.000 | 1 | | 1 | 1 | | 1 | | … | 1 | … | 8 |
| Central Air Conditioner (TOS) | 18.0 | 6 | 1.000 | 6 | | 6 | 6 | | 6 | |  | 6 |  | 116 |
| 2023 CPAS |  | 269 | 1.000 | 269 | | 269 | 269 | | 269 | | … | 139 | … | 2,987 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 0 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 129 | … |  |
| WAML | 11.5 |  |  |  |  | | |  | |  |  |  |  |  |

### Conclusions and Recommendations

Based on the results of this evaluation, the evaluation team offers the following key findings and recommendations for the IQ Initiative Single Family Offerings moving forward.

#### Cross-Cutting

* **Key Finding 1:** For both Single Family and CAA channels, the implementation team applied a heating degree day value correlated to a heating city that misaligns with the ZIP code specified in the tracking data to calculate ex ante savings. This affected a wide array of building envelope measures, such as Air Sealing, Rim Joist Insulation, and Attic Insulation.
  + Recommendation: For applicable building envelope measures, ensure ex ante savings calculations apply heating degree days for the correct heating city that corresponds to the property zip code.
* **Key Finding 2:** For both Single Family and CAA channels, the implementation team did not apply the heating and/or cooling efficiency present in the tracking database, instead relying on the IL-TRM V11.0 default or an efficiency from an unknown source. This affected a wide array of building envelope measures, such as Air Sealing, Rim Joist Insulation, and Attic Insulation.
  + Recommendation: For applicable building envelope measures, ensure ex ante savings calculations apply cooling and heating efficiencies from the tracking database, when available.

#### Single Family Channel

* **Key Finding 1:** The primary heating and cooling type is unspecified in the program tracking database for all Door Sweep measures.
  + Recommendation: Include the primary cooling and heating equipment type in the program tracking database for customers who received weatherization measures, including prescriptive air sealing measures (e.g., door sweeps).
* **Key Finding 2:** The implementation team excluded savings from cooling when the primary cooling type is unspecified in the tracking database for all Door Sweep measures.
  + Recommendation: Apply the cooling fuel weights from the IL-TRM V11.0 instead of claiming zero energy and demand savings from cooling.
* **Key Finding 3:** For several measure categories, including faucet aerators, showerheads, and water heater pipe insulation, the evaluation team verified gas savings for AIC non-gas customers for conversion under subsection (b-25), whereas the implementation team did not calculate these savings.
  + Recommendation: Include gas savings for all AIC non-gas customers where appropriate.
* **Key Finding 4:** For water heater pipe insulation, the evaluation team excluded electric savings for AIC non-electric customers, whereas the implementation team included these savings, resulting in lower verified electric savings.
  + Recommendation: Exclude electric energy savings for all AIC non-electric customers.

#### CAA Channel

* **Key Finding 1:** For Ductless Heat Pumps, the evaluation team applied full displacement assumptions from the IL-TRM V11.0, whereas the implementation team assumed partial displacement. Partial displacement heat load factors assume backup heating is available at lower temperatures, however, it is unknown whether backup heating exists in these homes.
  + Recommendation: Collect and track the presence of backup heating and whether the Ductless Heat Pump displaces all existing heating to ensure savings are calculated based on how the equipment is being used.

#### Joint Utility Channel

* **Key Finding 1:** While it had a very small effect on savings, the implementation team included energy and demand cooling savings for Standard LEDs and Specialty LEDs when the tracking data indicated that no central cooling was present.
  + Recommendation: Include cooling benefits per the IL-TRM V11.0 when central cooling is present or unknown.
* **Key Finding 2:** In some cases, the heating and cooling efficiency assumptions for HVAC and building shell measures (e.g., advanced thermostat, air sealing, attic insulation) were inconsistent with information in the tracking database.
  + Recommendation: Derate heating and cooling efficiencies as prescribed in the IL-TRM V11.0 using the actual existing efficiency and equipment age from the tracking database, otherwise rely on the default efficiencies from the IL-TRM V11.0.

#### Smart Savers Channel

* **Key Finding 1:** Several ZIP codes were served by the Smart Savers Channel that were not listed as qualifying areas in initial communications from the implementation team. Initially, the Smart Savers Channel qualified 241 ZIP codes in 2023 and then added 12 ZIP codes to accommodate participants in the SSRP. The remaining nine ZIP codes served are not qualified Smart Savers areas. Participants in these areas participated through a mixture of the self-install and Program Ally install options.
  + **Recommendation:** Review and enhance the screening process to ensure that only eligible ZIP codes are included in the Smart Savers Channel.Consider implementing a verification process to validate the eligibility of ZIP codes before approving self-install thermostats for shipment. This could include cross-referencing ZIP code data with Smart Savers eligibility data. The Channel could also consider enhancing communication and coordination between the implementation team and Program Allies to ensure alignment on qualification criteria and procedures.

#### MHAS Channel

* **Key Finding 1:** The implementation team did not calculate ex ante savings for 13 SEER Central Air Conditioners. Further, some new systems are high efficiency (e.g., 15 or 16 SEER), although discussion with the implementation team suggested that it was not possible to install these types of systems in mobile homes.
  + Recommendation: For new 13 SEER Central Air Conditioners, per discussion with the evaluation team in 2023, calculate savings as early retirement. For new systems greater than 13 SEER, calculate savings as time of sale.
  + Recommendation: If AIC is going to continue installing Central Air Conditioners in mobile homes in 2024, clarify with the evaluation team the conditions where higher efficiency systems can be installed in mobile homes.
* **Key Finding 2:** In several cases, the implementation team derated unknown heating type efficiency assumptions from the IL-TRM V11.0. The unknown heating type efficiency from the IL-TRM V11.0 should not be derated as it already accounts for equipment degradation due to age.
  + Recommendation: Derate existing heating efficiency per the IL-TRM V11.0 when the existing heating equipment age and efficiency are known, otherwise rely on the default heating efficiency from the IL-TRM V11.0, without derating it any further.
* **Key Finding 3:** There are several inconsistencies with the efficiency of new central air conditioners in the tracking database compared to the AHRI directory.
  + Recommendation: Ensure the tracking database aligns with equipment specifications for the actual installed unit and AHRI certificates.

## Multifamily Initiatives

### Initiative Description

Multifamily Initiatives include the Multifamily channel of the IQ Initiative (IQ Multifamily channel), the Public Housing Initiative, and the Multifamily Market Rate Initiative. Together, these Initiatives serve property managers and owners of subsidized or low-income housing; non-subsidized (“market rate”) multifamily and mixed-use buildings; and publicly-owned housing.[[28]](#footnote-28) While there are some differences in qualifying measures, the Multifamily Initiatives all provide comprehensive property assessments, health and safety evaluations (and remediation where necessary), tenant unit and common area DI measures (e.g., LEDs, water-savings measures, advanced thermostats), and more comprehensive building envelope and HVAC retrofits. The Initiatives are implemented by CMC Energy Services (CMC) as a subcontractor to Leidos.

While this chapter focuses specifically on the measures provided through the Multifamily Initiatives, it is important to note that the Initiatives are implemented with a “one-stop shop” (OSS) delivery model. The goal of the OSS is to seamlessly connect customers to offerings available to them across the Residential and Business Programs using a single point of contact, called an Energy Advisor (EA). In cases where participants choose to pursue additional upgrades beyond the Multifamily Initiatives, the EA continues to help the participant navigate the process, e.g., assisting with applications, deciding on project scopes, and selecting Program Allies. This delivery model ensures that properties have access to the full gamut of offerings available to them and creates an opportunity to develop a trusted, longer-term relationship with the property, allowing AIC to serve their energy efficiency needs continuously.

##### Summary of Key Implementation Changes

We summarize key 2023 changes to the design and implementation of the Multifamily Initiatives below:

* AIC added a combination low-flow showerhead and thermostatic shower valve to the list of eligible DI measures.
* For the Multifamily Market Rate Initiative, incentives for LED bulbs were discontinued mid-year.
* AIC began developing an automated system to remind customers of recommended next steps for projects.
* AIC began the process of expanding its webpage and other resources to support properties in accessing grants, financing, and tax incentives as new programs are introduced by Housing and Urban Development (HUD) and the Department of Energy (DOE).
* The implementation team began tracking participation using an interactive mapping tool to track completed projects and identify areas of expansion and targeted EA outreach.
* The implementation team improved data management processes to reduce the amount of manual entry of OSS data.
* The implementation team added an assessment coordinator. The coordinator has worked to expand the number of Program Allies available to work on multifamily properties and improve relationships with the Program Ally network. The assessment coordinator actively engages with Allies throughout the year and identifies potential leads during field visits, events, and trade shows.
* The implementation team also added an outreach coordinator for IQ Multifamily and Public Housing, who attended in-person events and expanded outreach to additional IQ and public housing properties.

### Initiative Annual Savings Summary

Together, the Multifamily Initiatives achieved annual savings of 11,251 MWh, 1.36 MW, and 139,357 therms. The IQ Multifamily channel was the largest contributor to overall electric savings (68%), followed by the Market Rate Multifamily Initiative (21%) and the Public Housing Initiative (11%). Table 54 summarizes Multifamily Initiatives annual savings achieved in 2023.

Table 54. 2023 Multifamily Initiatives Annual Savings

|  | Electric Energy Savings (MWh) | Electric Demand Savings (MW) | Gas Savings (Therms) |
| --- | --- | --- | --- |
| Ex Ante Gross Savings | 12,147 | 1.40 | 139,940 |
| Gross Realization Rate | 95% | 102% | 100% |
| Verified Gross Savings | 11,587 | 1.42 | 140,080 |
| NTGR | 0.971 | 0.960 | 0.995 |
| Verified Net Savings | 11,251 | 1.36 | 139,357 |

### IQ Multifamily Channel

#### Channel Description

Multifamily properties participating in government-sponsored programs or that house 50% or more tenants that are at or below 300% of federal poverty line (FPL), or are 80% below area median income levels, are eligible to participate in the IQ Multifamily channel offerings. The channel works to minimize costs for participating properties; all DI measures are provided at no cost to the property, incentives of $7,500 per system are offered for HVAC upgrades, and building envelope measures (such as attic insulation and air sealing upgrades) are provided at no cost if the costs fall within a $5,000 per property cap. In 2023, all participating qualified properties received building envelope measures at no cost. Lastly, any eligible health and safety needs for properties are addressed alongside retrofits.

#### Participation Summary

Overall, the IQ Multifamily channel of the Multifamily Initiative served 203 unique properties containing 2,026 individual tenant units as shown in Table 55. As reported by the implementation team, the IQ Multifamily channel maintained a consistently robust pipeline of projects throughout the year.

Table 55. 2023 IQ Multifamily Channel Participation Summary

| Participation | Count |
| --- | --- |
| Unique Projects | 203 |
| Unique Tenant Units | 2,026 |

The most common measures provided to IQ Multifamily channel properties were door sweeps, lighting, and advanced power strips as shown in Table 56. Additionally, 22% of properties received health and safety upgrades in addition to energy efficiency upgrades.

Table 56. 2023 IQ Multifamily Channel Measure Mix

|  |  |  |
| --- | --- | --- |
| Measure Category | Properties Served | Percent of Properties |
| Door Sweep | 109 | 54% |
| Standard LED | 90 | 44% |
| Advanced Power Strip - Tier 1 | 87 | 43% |
| Showerhead | 77 | 38% |
| Kitchen Faucet Aerator | 70 | 34% |
| Restrictor Shower Valve | 69 | 34% |
| Bathroom Faucet Aerator | 60 | 30% |
| Advanced Thermostat | 42 | 21% |
| Attic Insulation | 42 | 21% |
| Specialty LED | 31 | 15% |
| Ductless Heat Pump | 29 | 14% |
| Pipe Insulation | 28 | 14% |
| Centrally Ducted Air Source Heat Pumps | 25 | 12% |
| Standard LED (Common Area) | 2 | 1% |
| Wall Plate Gasket | 2 | 1% |
| Specialty LED (Common Area) | 1 | 0.5% |
| Air Sealing | 1 | 0.5% |

#### Savings Detail

Table 57 presents the ex ante, verified gross, and verified net electric energy savings achieved through the IQ Multifamily channel in 2023.

Table 57. 2023 IQ Multifamily Channel Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Centrally Ducted Air Source Heat Pumps | 2,886 | 99% | 2,859 | 1.000 | 2,859 |
| Ductless Heat Pump (ER) | 2,665 | 83% | 2,210 | 1.000 | 2,210 |
| Standard LED | 756 | 100% | 756 | 1.000 | 756 |
| Advanced Thermostat | 421 | 100% | 420 | 1.000 | 420 |
| Specialty LED | 342 | 100% | 342 | 1.000 | 342 |
| Showerhead | 285 | 100% | 285 | 1.000 | 285 |
| Standard LED (Common Area) | 276 | 100% | 276 | 1.000 | 276 |
| Kitchen Faucet Aerator | 168 | 100% | 168 | 1.000 | 168 |
| Advanced Power Strip - Tier 1 | 97 | 100% | 97 | 1.000 | 97 |
| Pipe Insulation | 57 | 100% | 57 | 1.000 | 57 |
| Restrictor Shower Valve | 51 | 100% | 51 | 1.000 | 51 |
| Attic Insulation | 29 | 89% | 26 | 1.000 | 26 |
| Door Sweep | 26 | 100% | 26 | 1.000 | 26 |
| Bathroom Faucet Aerator | 25 | 100% | 25 | 1.000 | 25 |
| Air Sealing | 20 | 104% | 21 | 1.000 | 21 |
| Wall Plate Gasket | 17 | 100% | 17 | 1.000 | 17 |
| Specialty LED (Common Area) | 7 | 100% | 7 | 1.000 | 7 |
| Total | 8,128 | 94% | 7,643 | 1.000 | 7,643 |

Table 58 presents the ex ante, verified gross, and verified net electric demand savings achieved through the IQ Multifamily channel in 2023.

Table 58. 2023 IQ Multifamily Channel Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Centrally Ducted Air Source Heat Pumps | 0.13 | 102% | 0.13 | 1.000 | 0.13 |
| Ductless Heat Pump (ER) | 0.20 | 94% | 0.19 | 1.000 | 0.19 |
| Standard LED | 0.11 | 100% | 0.11 | 1.000 | 0.11 |
| Advanced Thermostat | 0.20 | 100% | 0.20 | 1.000 | 0.20 |
| Specialty LED | 0.05 | 100% | 0.05 | 1.000 | 0.05 |
| Showerhead | 0.03 | 100% | 0.03 | 1.000 | 0.03 |
| Standard LED (Common Area) | 0.03 | 100% | 0.03 | 1.000 | 0.03 |
| Kitchen Faucet Aerator | 0.04 | 100% | 0.04 | 1.000 | 0.04 |
| Advanced Power Strip - Tier 1 | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Pipe Insulation | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Restrictor Shower Valve | 0.004 | 100% | 0.004 | 1.000 | 0.004 |
| Attic Insulation | 0.01 | 110% | 0.01 | 1.000 | 0.01 |
| Door Sweep | 0 | N/A | 0.00005 | 1.000 | 0.00005 |
| Bathroom Faucet Aerator | 0.02 | 100% | 0.02 | 1.000 | 0.02 |
| Air Sealing | 0.01 | 116% | 0.01 | 1.000 | 0.01 |
| Wall Plate Gasket | 0 | N/A | 0.002 | 1.000 | 0.002 |
| Specialty LED (Common Area) | 0.001 | 100% | 0.13 | 1.000 | 0.13 |
| Total | 0.84 | 99% | 0.84 | 1.000 | 0.84 |

Table 59 presents the ex ante, verified gross, and verified net gas savings achieved through the IQ Multifamily channel in 2023.

Table 59. 2023 IQ Multifamily Channel Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat | 38,832 | 100% | 38,832 | 1.000 | 38,832 |
| Showerhead | 25,742 | 100% | 25,742 | 1.000 | 25,742 |
| Kitchen Faucet Aerator | 12,898 | 100% | 12,898 | 1.000 | 12,898 |
| Pipe Insulation | 452 | 100% | 452 | 1.000 | 452 |
| Restrictor Shower Valve | 5,864 | 100% | 5,864 | 1.000 | 5,864 |
| Attic Insulation | 2,461 | 106% | 2,618 | 1.000 | 2,618 |
| Door Sweep | 197 | 100% | 197 | 1.000 | 197 |
| Bathroom Faucet Aerator | 779 | 100% | 779 | 1.000 | 779 |
| Air Sealing | 1,926 | 99% | 1,908 | 1.000 | 1,908 |
| Wall Plate Gasket | 386 | 100% | 386 | 1.000 | 386 |
| Total | 89,536 | 100% | 89,674 | 1.000 | 89,674 |

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on those with significant impacts on IQ Multifamily channel savings.

* Centrally Ducted Air Source Heat Pumps (36% of ex ante energy savings and 15% of demand savings): The gross realization rate for air source heat pumps was 99% for energy savings and 102% for demand savings.
  + In 77% of measures, (n=208), the evaluation team used the multifamily full load hours (FLH) Cooling value for the cooling zone provided in the tracking data. The implementation team applied a single-family building value for FLH Cooling, resulting in lower verified energy savings.
  + In 5% of measures (n=13), the evaluation team used the IL-TRM V11.0 default value for the EER of the existing equipment because the age is unknown, whereas the implementation team used a value from an unknown source, resulting in higher verified demand savings.
* Ductless Heat Pump (33% of ex ante energy savings and 23% of demand savings): The gross realization rate for ductless heat pumps is 83% for kWh and 94% for kW.
  + In 62% of measures, (n=198), the evaluation team set the heat load factor equal to one to represent full displacement, whereas the implementation team assumed partial displacement, resulting in lower verified energy savings and higher verified demand savings.

### Market Rate Multifamily Initiative

#### Initiative Description

AIC recruits properties into the Multifamily Market Rate Initiative if the property does not meet IQ Multifamily channel or Public Housing eligibility (as outlined in Sections 3.3.3 and 3.3.5). Incentives are provided at a lower reimbursement level than for IQ Multifamily channel properties. All DI measures are provided at no cost to the property, incentives of $5,000 per system are offered for HVAC upgrades and building envelope upgrades (such as attic insulation upgrades) are available to market rate properties, but the Initiative does not provide an incentive (i.e., properties pay 100% of the cost).

#### Participation Summary

The Multifamily Market Rate Initiative served 903 tenant units across 57 properties, as shown in Table 60.

Table 60. 2023 Multifamily Market Rate Initiative Participation Summary

|  |  |
| --- | --- |
| Participation | Count |
| Unique Projects | 57 |
| Unique Tenant Units | 903 |

The most commonly installed measures across participating properties in the Multifamily Market Rate Initiative were low-flow faucet aerators, advanced power strips, and wall plate gaskets, as shown in Table 61.

Table 61. 2023 Multifamily Market Rate Initiative Measure Mix

|  |  |  |
| --- | --- | --- |
| Measure Category | Properties Served | Percent of Properties |
| Advanced Power Strip - Tier 1 | 42 | 74% |
| Door Sweep | 31 | 54% |
| Showerhead | 29 | 51% |
| Kitchen Faucet Aerator | 26 | 46% |
| Advanced Thermostat | 25 | 44% |
| Bathroom Faucet Aerator | 25 | 44% |
| Restrictor Shower Valve | 24 | 42% |
| Pipe Insulation | 7 | 12% |
| Centrally Ducted Air Source Heat Pumps | 6 | 11% |
| Standard LED | 4 | 7% |
| Specialty LED (Common Area) | 1 | 2% |
| Standard LED (Common Area) | 1 | 2% |

#### Savings Detail

Table 62 presents the ex ante, verified gross, and verified net electric energy savings achieved through the MR Multifamily Initiative in 2023.

Table 62. 2023 Multifamily Market Rate Initiative Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Centrally Ducted Air Source Heat Pumps | 983 | 100% | 980 | 0.800 | 784 |
| Advanced Thermostat | 939 | 100% | 939 | 0.882 | 829 |
| Showerhead | 409 | 100% | 409 | 1.004 | 410 |
| Advanced Power Strip - Tier 1 | 94 | 99% | 93 | 0.980 | 91 |
| Kitchen Faucet Aerator | 93 | 100% | 93 | 1.004 | 93 |
| Restrictor Shower Valve | 64 | 100% | 64 | 0.800 | 51 |
| Bathroom Faucet Aerator | 51 | 100% | 51 | 1.004 | 51 |
| Specialty LED (Common Area) | 34 | 100% | 34 | 0.773 | 27 |
| Standard LED | 33 | 100% | 33 | 0.960 | 31 |
| Wall Plate Gasket | 32 | 100% | 33 | 0.861 | 28 |
| Pipe Insulation | 14 | 100% | 14 | 0.794 | 11 |
| Door Sweep | 5 | 100% | 5 | 0.861 | 4 |
| Standard LED (Common Area) | 2 | 100% | 2 | 0.773 | 1 |
| Total | 2,752 | 100% | 2,750 | 0.878 | 2,413 |

Table 63 presents the ex ante, verified gross, and verified net electric demand savings achieved through the Multifamily Market Rate Initiative in 2023.

Table 63. 2023 Multifamily Market Rate Initiative Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Centrally Ducted Air Source Heat Pumps | 0.11 | 102% | 0.11 | 0.800 | 0.09 |
| Advanced Thermostat | 0.16 | 100% | 0.16 | 0.800 | 0.13 |
| Showerhead | 0.05 | 100% | 0.05 | 1.004 | 0.05 |
| Advanced Power Strip - Tier 1 | 0.01 | 100% | 0.01 | 0.980 | 0.01 |
| Kitchen Faucet Aerator | 0.02 | 100% | 0.02 | 1.004 | 0.02 |
| Restrictor Shower Valve | 0.01 | 100% | 0.01 | 0.800 | 0.00 |
| Bathroom Faucet Aerator | 0.04 | 100% | 0.04 | 1.004 | 0.04 |
| Specialty LED (Common Area) | 0.004 | 100% | 0.004 | 0.773 | 0.003 |
| Standard LED | 0.01 | 100% | 0.01 | 0.960 | 0.01 |
| Wall Plate Gasket | 0 | N/A | 0.01 | 0.861 | 0.01 |
| Pipe Insulation | 0.002 | 100% | 0.002 | 0.794 | 0.001 |
| Door Sweep | 0 | N/A | 0.00001 | 0.861 | 0.00001 |
| Standard LED (Common Area) | 0.0003 | 100% | 0.0003 | 0.773 | 0.0002 |
| Total | 0.41 | 102% | 0.42 | 0.864 | 0.36 |

Table 64 presents the ex ante, verified gross, and verified net gas savings achieved through the Multifamily Market Rate Initiative in 2023.

Table 64. 2023 Multifamily Market Rate Initiative Gas Savings by Measure

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| Advanced Thermostat | 6,378 | 100% | 6,378 | 0.900 | 5,740 |
| Showerhead | 1,545 | 100% | 1,545 | 1.000 | 1,545 |
| Kitchen Faucet Aerator | 784 | 100% | 784 | 1.000 | 784 |
| Restrictor Shower Valve | 249 | 100% | 249 | 0.800 | 199 |
| Bathroom Faucet Aerator | 146 | 100% | 146 | 1.000 | 146 |
| Wall Plate Gasket | 176 | 100% | 176 | 0.800 | 141 |
| Pipe Insulation | 27 | 100% | 27 | 1.000 | 27 |
| Total | 9,304 | 100% | 9,304 | 0.922 | 8,581 |

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on one discrepancy with a significant impact on MR Multifamily Initiative savings.

* Centrally Ducted Air Source Heat Pumps (36% of ex ante energy savings and 26% of demand savings): The gross realization rate for air source heat pumps was 100% for energy savings and 102% for demand savings.
  + In 26% of measures (n=20), the evaluation team used the IL-TRM V11.0 default value for the EER of the existing equipment because the age is unknown, whereas the implementation team used a value from an unknown source, resulting in higher verified demand savings

### Public Housing Initiative

#### Initiative Description

The Public Housing Initiative serves public sector housing managed or owned by government entities, encompassing federal, state, county, and municipal housing authorities. Incentives offered are consistent with the IQ Multifamily channel; all DI measures are provided at no cost to the property, HVAC incentives are offered at $7,500 per system, and building envelope measures, such as attic insulation and air sealing upgrades, are provided at no cost if the costs fall within a $5,000 per property cap. In 2023, all properties received building envelope measures at no cost. Lastly, any eligible health and safety needs for properties are addressed alongside weatherization upgrades.

#### Participation Summary

The Public Housing Initiative served 98 unique properties and 1,135 tenant units.

Table 65. 2023 Public Housing Initiative Participation Summary

|  |  |
| --- | --- |
| Participation | Count |
| Unique Projects | 98 |
| Unique Tenant Units | 1,135 |

The most commonly installed measures across participating properties were advanced power strips, lighting measures, and kitchen faucet aerators as shown in Table 66. Although public housing properties qualified to receive incentives for insulation measures, no public housing properties received attic insulation in 2023 through the Initiative; the implementation team mentioned that many properties had recently had their insulation replaced through other avenues.

Table 66. 2023 Public Housing Initiative Measure Mix

|  |  |  |
| --- | --- | --- |
| Measure Category | Properties Served | Percent of Properties |
| Advanced Power Strip - Tier 1 | 65 | 66% |
| Standard LED | 51 | 52% |
| Kitchen Faucet Aerator | 43 | 44% |
| Door Sweep | 34 | 35% |
| Showerhead | 33 | 34% |
| Restrictor Shower Valve | 31 | 32% |
| Bathroom Faucet Aerator | 26 | 27% |
| Advanced Thermostat | 18 | 18% |
| Pipe Insulation | 18 | 18% |
| Specialty LED | 18 | 18% |
| Ductless Heat Pump | 11 | 11% |
| Air Sealing | 1 | 1% |
| Refrigerator | 1 | 1% |

#### Savings Detail

Table 67 presents the ex ante, verified gross, and verified net electric energy savings achieved through the Public Housing Initiative in 2023.

Table 67. 2023 Public Housing Initiative Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Ductless Heat Pump (ER) | 593 | 88% | 520 | 1.000 | 520 |
| Standard LED | 211 | 100% | 211 | 1.000 | 211 |
| Advanced Thermostat | 113 | 100% | 113 | 1.000 | 113 |
| Showerhead | 92 | 100% | 92 | 1.000 | 92 |
| Kitchen Faucet Aerator | 84 | 100% | 84 | 1.000 | 84 |
| Advanced Power Strip - Tier 1 | 77 | 100% | 77 | 1.000 | 77 |
| Specialty LED | 27 | 100% | 27 | 1.000 | 27 |
| Pipe Insulation | 27 | 100% | 27 | 1.000 | 27 |
| Restrictor Shower Valve | 20 | 100% | 20 | 1.000 | 20 |
| Standard LED (Common Area) | 9 | 100% | 9 | 1.000 | 9 |
| Wall Plate Gasket | 7 | 100% | 7 | 1.000 | 7 |
| Bathroom Faucet Aerator | 6 | 100% | 6 | 1.000 | 6 |
| Refrigerator | <1 | 100% | <1 | 1.000 | <1 |
| Door Sweep | 0 | N/A | <1 | 1.000 | <1 |
| Total | 1,266 | 94% | 1,194 | 1.000 | 1,194 |

Table 68 presents the ex ante, verified gross, and verified net electric demand savings achieved through the Public Housing Initiative in 2023.

Table 68. 2023 Public Housing Initiative Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Ductless Heat Pump (ER) | 0.03 | 166% | 0.04 | 1.000 | 0.04 |
| Standard LED | 0.03 | 100% | 0.03 | 1.000 | 0.03 |
| Advanced Thermostat | 0.04 | 100% | 0.04 | 1.000 | 0.04 |
| Showerhead | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Kitchen Faucet Aerator | 0.02 | 100% | 0.02 | 1.000 | 0.02 |
| Advanced Power Strip - Tier 1 | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Specialty LED | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Pipe Insulation | 0.003 | 100% | 0.003 | 1.000 | 0.003 |
| Restrictor Shower Valve | 0.002 | 100% | 0.002 | 1.000 | 0.002 |
| Standard LED (Common Area) | 0.001 | 100% | 0.001 | 1.000 | 0.001 |
| Wall Plate Gasket | 0 | N/A | 0.0004 | 1.000 | 0.0004 |
| Bathroom Faucet Aerator | 0.004 | 100% | 0.004 | 1.000 | 0.004 |
| Refrigerator | 0.0001 | 100% | 0.0001 | 1.000 | 0.0001 |
| Door Sweep | 0 | N/A | 0.00003 | 1.000 | 0.00003 |
| Total | 0.15 | 112% | 0.17 | 1.000 | 0.17 |

Table 69 presents the ex ante, verified gross, and verified net gas savings achieved through the Public Housing Initiative in 2023.

Table 69. 2023 Public Housing Initiative Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat | 26,435 | 100% | 26,435 | 1.000 | 26,435 |
| Showerhead | 4,523 | 100% | 4,523 | 1.000 | 4,523 |
| Kitchen Faucet Aerator | 5,362 | 100% | 5,362 | 1.000 | 5,362 |
| Pipe Insulation | 2,406 | 100% | 2,406 | 1.000 | 2,406 |
| Restrictor Shower Valve | 800 | 100% | 800 | 1.000 | 800 |
| Wall Plate Gasket | 463 | 100% | 464 | 1.000 | 464 |
| Bathroom Faucet Aerator | 679 | 100% | 679 | 1.000 | 679 |
| Door Sweep | 433 | 100% | 433 | 1.000 | 433 |
| Total | 41,101 | 100% | 41,102 | 1.000 | 41,102 |

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on one discrepancy with a significant impact on Public Housing Initiative savings.

* Ductless Heat Pump (47% of ex ante energy savings and 18% of demand savings): The gross realization rate for ductless heat pumps is 88% for kWh and 166% for kW.
  + In 30% of measures (n=26), the evaluation team set the heat load factor equal to one to represent full displacement, whereas the implementation team assumed partial displacement, resulting in lower verified energy savings.
  + In 24% of measures (n=21), the evaluation team did not award demand savings because the existing cooling equipment is listed as room air conditioning, whereas the implementation team reported negative values for demand savings for these measures, resulting in higher verified demand savings.

### Cumulative Persisting Annual Savings

Table 70 summarizes CPAS and WAML for the 2023 Multifamily Initiatives by channel or Initiative. The total verified gross savings for the Initiative are summarized, and CPAS in 2023–2026 and 2030 are presented. The WAML for the Initiative is 12.9 years. CPAS and WAML for each Channel at a measure level are presented in Table 71, Table 72, and Table 73.

Table 70. 2023 Multifamily Initiatives CPAS and WAML

| Channel/Initiative | WAML | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| IQ Multifamily Channel | 13.3 | 7,643 | 1.000 | 7,643 | | 7,643 | 7360 | | 7,360 | | … | 6960 | … | 98,486 |
| Multifamily Market Rate Initiative | 12.3 | 2,750 | 0.878 | 2,413 | | 2,413 | 2,354 | | 2,354 | | … | 2,196 | … | 28,476 |
| Public Housing Initiative | 11.8 | 1,194 | 1.000 | 1,194 | | 1,194 | 1,185 | | 1,185 | | … | 1,078 | … | 13,808 |
| 2023 CPAS |  | 11,587 | 0.971 | 11,251 | | 11,251 | 10,900 | | 10,900 | | … | 10,234 | … | 140,906 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 351 | | 0 | | … | 265 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 351 | | 351 | | … | 1,016 | … |  |
| WAML | 12.9 |  |  |  |  | | |  | |  |  |  |  |  |

Table 71. 2023 Multifamily Initiatives - IQ Multifamily Channel CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Centrally Ducted Air Source Heat Pumps | 16.0 | 2,859 | 1.000 | 2,859 | | 2,859 | 2,859 | | 2,859 | | … | 2,686 | … | 44,009 |
| Ductless Heat Pump (ER) | 15.0 | 2,210 | 1.000 | 2,210 | | 2,210 | 2,210 | | 2,210 | | … | 2,081 | … | 31,986 |
| Standard LED | 8.0 | 756 | 1.000 | 756 | | 756 | 756 | | 756 | | … | 756 | … | 6,048 |
| Advanced Thermostat | 11.0 | 420 | 1.000 | 420 | | 420 | 420 | | 420 | | … | 420 | … | 4,618 |
| Specialty LED | 8.0 | 342 | 1.000 | 342 | | 342 | 342 | | 342 | | … | 342 | … | 2,738 |
| Showerhead | 10.0 | 285 | 1.000 | 285 | | 285 | 285 | | 285 | | … | 285 | … | 2,852 |
| Standard LED (Common Area) | 2.0 | 276 | 1.000 | 276 | | 276 | 0 | | 0 | | … | 0 | … | 551 |
| Kitchen Faucet Aerator | 10.0 | 168 | 1.000 | 168 | | 168 | 168 | | 168 | | … | 168 | … | 1,677 |
| Advanced Power Strip - Tier 1 | 7.0 | 97 | 1.000 | 97 | | 97 | 97 | | 97 | | … | 0 | … | 681 |
| Pipe Insulation | 15.0 | 57 | 1.000 | 57 | | 57 | 57 | | 57 | | … | 57 | … | 850 |
| Restrictor Shower Valve | 10.0 | 51 | 1.000 | 51 | | 51 | 51 | | 51 | | … | 51 | … | 514 |
| Attic Insulation | 20.0 | 26 | 1.000 | 26 | | 26 | 26 | | 26 | | … | 26 | … | 470 |
| Door Sweep | 20.0 | 26 | 1.000 | 26 | | 26 | 26 | | 26 | | … | 26 | … | 527 |
| Bathroom Faucet Aerator | 10.0 | 25 | 1.000 | 25 | | 25 | 25 | | 25 | | … | 25 | … | 252 |
| Air Sealing | 20.0 | 21 | 1.000 | 21 | | 21 | 21 | | 21 | | … | 21 | … | 371 |
| Wall Plate Gasket | 20.0 | 17 | 1.000 | 17 | | 17 | 17 | | 17 | | … | 17 | … | 327 |
| Specialty LED (Common Area) | 2.0 | 7 | 1.000 | 7 | | 7 | 0 | | 0 | | … | 0 | … | 15 |
| 2023 CPAS |  | 7,643 | 1.000 | 7,643 | | 7,643 | 7,360 | | 7,360 | | … | 6,960 | … | 98,486 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 283 | | 0 | | … | 97 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 283 | | 283 | | … | 683 | … |  |
| WAML | 13.3 |  |  |  |  | | |  | |  |  |  |  |  |

Table 72. 2023 Multifamily Initiatives - Multifamily Market Rate Initiative CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Centrally Ducted Air Source Heat Pumps | 16.0 | 980 | 0.800 | 784 | | 784 | 784 | | 784 | | … | 717 | … | 11,880 |
| Advanced Thermostat | 11.0 | 939 | 0.882 | 829 | | 829 | 829 | | 829 | | … | 829 | … | 9,119 |
| Showerhead | 10.0 | 409 | 1.004 | 410 | | 410 | 410 | | 410 | | … | 410 | … | 4,104 |
| Advanced Power Strip - Tier 1 | 7.0 | 93 | 0.980 | 91 | | 91 | 91 | | 91 | | … | 0 | … | 639 |
| Kitchen Faucet Aerator | 10.0 | 93 | 1.004 | 93 | | 93 | 93 | | 93 | | … | 93 | … | 934 |
| Restrictor Shower Valve | 10.0 | 64 | 0.800 | 51 | | 51 | 51 | | 51 | | … | 51 | … | 514 |
| Bathroom Faucet Aerator | 10.0 | 51 | 1.004 | 51 | | 51 | 51 | | 51 | | … | 51 | … | 512 |
| Specialty LED (Common Area) | 2.0 | 34 | 0.773 | 27 | | 27 | 0 | | 0 | | … | 0 | … | 53 |
| Standard LED | 2.0 | 33 | 0.960 | 31 | | 31 | 0 | | 0 | | … | 0 | … | 63 |
| Wall Plate Gasket | 20.0 | 33 | 0.861 | 28 | | 28 | 28 | | 28 | | … | 28 | … | 409 |
| Pipe Insulation | 15.0 | 14 | 0.794 | 11 | | 11 | 11 | | 11 | | … | 11 | … | 166 |
| Door Sweep | 20.0 | 5 | 0.861 | 4 | | 4 | 4 | | 4 | | … | 4 | … | 81 |
| Standard LED (Common Area) | 2.0 | 2 | 0.773 | 1 | | 1 | 0 | | 0 | | … | 0 | … | 2 |
| 2023 CPAS |  | 2,750 | 0.878 | 2,413 | | 2,413 | 2,354 | | 2,354 | | … | 2,196 | … | 28,476 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 59 | | 0 | | … | 91 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 59 | | 59 | | … | 217 | … |  |
| WAML | 12.3 |  |  |  |  | | |  | |  |  |  |  |  |

Table 73. 2023 Multifamily Initiatives - Public Housing Initiative CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Ductless Heat Pump (ER) | 15.0 | 520 | 1.000 | 520 | | 520 | 520 | | 520 | | … | 490 | … | 7,535 |
| Standard LED | 8.0 | 211 | 1.000 | 211 | | 211 | 211 | | 211 | | … | 211 | … | 1,687 |
| Advanced Thermostat | 11.0 | 113 | 1.000 | 113 | | 113 | 113 | | 113 | | … | 113 | … | 1,246 |
| Showerhead | 10.0 | 92 | 1.000 | 92 | | 92 | 92 | | 92 | | … | 92 | … | 923 |
| Kitchen Faucet Aerator | 10.0 | 84 | 1.000 | 84 | | 84 | 84 | | 84 | | … | 84 | … | 841 |
| Advanced Power Strip - Tier 1 | 7.0 | 77 | 1.000 | 77 | | 77 | 77 | | 77 | | … | 0 | … | 537 |
| Specialty LED | 8.0 | 27 | 1.000 | 27 | | 27 | 27 | | 27 | | … | 27 | … | 219 |
| Pipe Insulation | 15.0 | 27 | 1.000 | 27 | | 27 | 27 | | 27 | | … | 27 | … | 399 |
| Restrictor Shower Valve | 10.0 | 20 | 1.000 | 20 | | 20 | 20 | | 20 | | … | 20 | … | 200 |
| Standard LED (Common Area) | 2.0 | 9 | 1.000 | 9 | | 9 | 0 | | 0 | | … | 0 | … | 18 |
| Wall Plate Gasket | 20.0 | 7 | 1.000 | 7 | | 7 | 7 | | 7 | | … | 7 | … | 138 |
| Bathroom Faucet Aerator | 10.0 | 6 | 1.000 | 6 | | 6 | 6 | | 6 | | … | 6 | … | 57 |
| Refrigerator | 15.0 | <1 | 1.000 | <1 | | <1 | <1 | | <1 | | … | <1 | … | 6 |
| Door Sweep | 20.0 | <1 | 1.000 | <1 | | <1 | <1 | | <1 | | … | <1 | … | 1 |
| 2023 CPAS |  | 1,194 | 1.000 | 1,194 | | 1,194 | 1,185 | | 1,185 | | … | 1,078 | … | 13,808 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 9 | | 0 | | … | 77 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 9 | | 9 | | … | 116 | … |  |
| WAML | 11.8 |  |  |  |  | | |  | |  |  |  |  |  |

### Conclusions and Recommendations

Based on the results of this evaluation, the evaluation team offers the following key findings and recommendations for the Multifamily Initiatives moving forward.

* **Finding 1:** In the calculation of energy savings for ductless heat pumps for both the IQ Multifamily channel and Public Housing Initiatives, the implementation team applied a heat load factor developed to account for the simultaneous use of the ductless heat pump and an auxiliary heating system. Based on the evaluation team’s review of project information, the evaluation team believes that these heat pumps are likely completely displacing existing heating and, therefore, applied the factor associated with full displacement of the existing heating system that is outlined in the IL-TRM V11.0.
  + **Recommendation:** Apply the heat load factor assumption for full displacement of the existing heating system outlined in the IL-TRM V11.0. The next version of the IL-TRM, V12.0, will approach this issue differently and will provide an opportunity to revisit the issue for the 2024 program year.
* **Finding 2:** In the calculation of savings for air source heat pumps and ductless heat pumps, the implementation team did not always indicate an age for existing cooling equipment. The IL-TRM includes a derating factor for the SEER of existing equipment to account for reduced efficiency of operation over time. The evaluation team applied the IL-TRM V11.0 assumption for unknown existing cooling equipment age and unknown SEER values because this value incorporates a default derating factor, whereas the implementation team often used a value from an unknown source.
  + **Recommendation:** Ensure that the tracking database includes the existing cooling equipment age where possible. Include the source of the SEER value in the tracking database so that is clear whether the value is derated, not derated, or from the IL-TRM. Additionally, ensure that the tracking database includes relevant information that has been provided previously in the program year for new measures.
* **Finding 3:** The tracking database in some cases did not contain the building stories for use in the calculation of air sealing measures like wall gaskets.
  + **Recommendation:** Ensure that the tracking database includes building stories, as it has in previous years.
* **Finding 4:** Across the Initiatives, the implementation team did not calculate ex ante demand savings for door sweeps and wall plate gaskets. Specifically for Public Housing, the implementation team did not team calculate energy savings for door sweeps.
  + **Recommendation:** Calculate energy and demand savings for door sweeps and wall plate gaskets.
* **Finding 5:** In some instances, the implementation team applied algorithms and assumptions that do not align with IL-TRM V11.0. As an example, the implementation team used a FLH that does not align with IL-TRM V11.0 assumptions for both the multifamily building type and the cooling/heating zone.
  + **Recommendation:** Review calculations to ensure that algorithms and assumptions are aligned to IL-TRM V11.0.
* **Finding 6:** In some instances, the savings calculations provided by the implementation team represent a different quantity of measures than is provided in the tracking database.
  + **Recommendation:** Ensure that the quantities in the tracking database align with additional project information provided.

## Single Family Market Rate Initiative

### Initiative Description

As part of the 2023 Residential Program, AIC operated the Single Family Market Rate Initiative, which delivered services to market rate residential customers through two distinct channels, the Midstream HVAC channel and the Home Efficiency channel, which are described in more detail below.

### Initiative Annual Savings Summary

Table 74 presents the Single Family Market Rate Initiative annual savings achieved in 2023. The 2023 Single Family Market Rate Initiative achieved 8,680 MWh, 1.21 MW, and 277,059 therms in verified net savings.

Table 74. 2023 Single Family Market Rate Initiative Annual Savings

|  |  |  |  |
| --- | --- | --- | --- |
|  | Electric Energy Savings (MWh) | Electric Demand Savings (MW) | Gas Savings (Therms) |
| Ex Ante Gross Savings | 12,363 | 1.72 | 342,132 |
| Gross Realization Rate | 100% | 100% | 100% |
| Verified Gross Savings | 12,362 | 1.72 | 342,353 |
| NTGR | 0.702 | 0.703 | 0.809 |
| Verified Net Savings | 8,680 | 1.21 | 277,059 |

### Midstream HVAC Channel

#### Channel Description

The Midstream HVAC channel encourages market actors, such as distributors and contractors, in AIC territory to promote and install a range of energy-efficient equipment, including ductless heat pumps, ducted air source heat pumps, central air conditioners, heat pump water heaters, advanced thermostats, and high efficiency gas furnaces. The channel offers incentives to distributors for approved sales of efficient equipment that will, in turn, lower the cost of efficient equipment for contractors, thus encouraging them to (1) pass those savings onto their customers, and (2) install more efficient HVAC and water heating equipment than they would otherwise. The midstream model alleviates the need for customers to seek out the offering themselves or submit applications, instead relying on distributors and contractors to inform and market to customers.

The channel also provides training and marketing support to distributors and contractors. Channel staff engages a network of distributors, providing co-branded marketing and educational materials along with training on participation processes and eligibility requirements. Account managers from CMC Energy Services, Inc. maintain relationships with individual distributors, enabling them to communicate programmatic changes, circulate promotional materials, and assist with issues as they arise. The Midstream HVAC channel staff also coordinate with distributors around showcases, events, and training sessions to increase contractor awareness and engagement. Any contractors servicing residential customers in AIC service territory can participate in the offering, but only those with Illinois Commerce Commission (ICC) certification can enroll as Program Allies, entitling them to being listed on the channel website and receiving additional marketing materials and informational updates.

Incentive levels vary by measure category, as shown in Table 75. Distributors receive incentives for qualifying sales after submitting equipment and customer information via an online portal managed by Leidos. Distributors are then required to pass a portion of incentives on to contractors, who in turn can provide discounts to customers. In addition to the incentive, the channel offers end-use customers an on-bill financing option, which customers can apply for through their contractor.

Table 75. Midstream HVAC Channel Incentive Levels

| Measure Category | Incentive Levels |
| --- | --- |
| Ductless Heat Pump | Up to $750 |
| Central Air Conditioner | Up to $400 |
| High Efficiency Gas Furnace | Up to $250 |
| Advanced Thermostat | Up to $125 |
| Centrally Ducted Air Source Heat Pumpa | Tier 1: Up to $750 |
| Tier 2: Up to $250 |
| Heat Pump Water Heater | Up to $1,300 |

Note: Incentive levels are per unit/system.   
a Tier 2: Units must be 16 SEER as confirmed by AHRI; Tier 1: units must also be 9.5 HSPF.

In addition to encouraging adoption of the directly incentivized equipment, the Midstream HVAC channel aims to shift the broader HVAC and water heating market within their service territory. The channel’s midstream model should theoretically help encourage increased sales of energy-efficient, eligible equipment that does not receive incentives through the channel and, therefore, are not tracked in channel tracking data. To help quantify these ‘market effects,’ Midstream HVAC channel staff collect market data from participating distributors capturing sales of non-incented high-efficiency equipment sold in or around AIC service territory. Due to limitations in 2023 market data availability, savings associated with market effects could not be quantified as part of the 2023 evaluation.

##### Summary of Key Implementation Changes

The key changes made to the Midstream HVAC channel since 2022 are below:

* The implementation team added high efficiency gas furnaces as an incentivized measure with an incentive of up to $250.
* In early 2023, the implementation team increased the advanced thermostat incentive from $100 to $125.
* In July 2023, the implementation team modified the incentive structure. In the first half of the year, incentives consisted of two components: a “pass-through” incentive that was passed to the contractor and a “pay-for-performance” incentive that could be used at the distributor’s discretion. Beginning in July, the implementation team removed this distinction and instead began allowing distributors to retain up to 25% of the total incentive amount.
* The implementation team updated contractor-facing marketing materials to include equipment tonnage to help clarify equipment eligibility requirements for contractors.

#### Participation Summary

The Midstream HVAC channel distributed more than 9,000 measures to over 6,000 participants in 2023. Ductless heat pumps and central air conditioners each accounted for just over one-quarter of total sales (28% for ductless heat pumps and 27% for Central AC), while gas furnaces made up another 21%. This represented a notable shift in measure mix from 2022, when channel sales were dominated by central air conditioners, ductless heat pumps made up just over 10% of sales, and gas furnaces were not yet offered. Sales of ducted air source heat pumps and heat pump water heaters also increased substantially from 2022 to 2023 (by about 70% and 500%, respectively). Channel staff pointed out that pandemic-era supply chain issues, which still presented a challenge for some types of equipment in 2022, had been virtually resolved coming into 2023 for the types of equipment targeted by the channel. Table 76 summarizes 2023 Midstream HVAC channel participation.

Table 76. 2023 Midstream HVAC Channel Participation Summary

| Measure Category | Measures | Participantsa |
| --- | --- | --- |
| Ductless Heat Pump | 2,522 | 1,804 |
| Central Air Conditioner | 2,472 | 2,422 |
| High Efficiency Gas Furnace | 1,930 | 1,734 |
| Advanced Thermostat | 1,148 | 1,112 |
| Centrally Ducted Air Source Heat Pump | 909 | 870 |
| Heat Pump Water Heater | 144 | 127 |
| Total | 9,125 | 6,096 |

a Values do not sum to totals because some projects include multiple measure categories.

The Midstream HVAC channel engaged 46 distributors in 2023. As seen in Table 77, distributor participation varied widely, with the top seven distributors (in terms of volume) accounting for nearly two-thirds (63%) of sales. Conversely, more than half of participating distributors sold less than 50 measures. Distributors tended to focus on either HVAC (equipment or thermostats) or water heating measures. Of the 46 distributors who sold equipment through the channel, 72% only sold HVAC measures (either HVAC equipment or thermostats), 15% only sold water heating measures, and 13% sold both.

Table 77. 2023 Midstream HVAC Channel Distributor Participation Summary

| Measures Sold (Range) | Distributors | | Measures Sold | |
| --- | --- | --- | --- | --- |
| Count | Percent | Count | Percent |
| 1,000+ | 2 | 4% | 2,324 | 25% |
| 500 – 999 | 5 | 11% | 3,444 | 38% |
| 250 – 499 | 4 | 9% | 1,659 | 18% |
| 100 – 249 | 6 | 13% | 1,097 | 12% |
| 50 – 99 | 5 | 11% | 349 | 4% |
| 1 - 49 | 24 | 52% | 252 | 3% |
| Total | 46 | 100% | 9,125 | 100% |

#### Savings Detail

Table 78 presents the ex ante, verified gross, and verified net electric energy savings achieved through the Midstream HVAC channel in 2023.

Table 78. 2023 Midstream HVAC Channel Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Ductless Heat Pump | 6,531 | 100% | 6,532 | 0.700 | 4,572 |
| Centrally Ducted Air Source Heat Pump | 3,953 | 100% | 3,953 | 0.700 | 2,767 |
| Central Air Conditioner | 1,140 | 100% | 1,139 | 0.700 | 798 |
| Heat Pump Water Heater | 366 | 100% | 366 | 0.700 | 256 |
| Advanced Thermostat | 290 | 100% | 290 | 0.754 | 219 |
| Total | 12,280 | 100% | 12,280 | 0.701 | 8,612 |

Table 79 presents the ex ante, verified gross, and verified net electric demand savings achieved through the Midstream HVAC channel in 2023.

Table 79. 2023 Midstream HVAC Channel Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Ductless Heat Pump | 0.24 | 100% | 0.24 | 0.700 | 0.17 |
| Centrally Ducted Air Source Heat Pump | 0.12 | 100% | 0.12 | 0.700 | 0.09 |
| Central Air Conditioner | 1.13 | 100% | 1.13 | 0.700 | 0.79 |
| Heat Pump Water Heater | 0.02 | 100% | 0.02 | 0.700 | 0.01 |
| Advanced Thermostat | 0.17 | 100% | 0.17 | 0.700 | 0.12 |
| Total | 1.68 | 100% | 1.68 | 0.700 | 1.17 |

Table 80 presents the ex ante, verified gross, and verified net gas savings achieved through the Midstream HVAC channel in 2023.

Table 80. 2023 Midstream HVAC Channel Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat | 55,041 | 101% | 55,402 | 0.850 | 47,092 |
| High Efficiency Gas Furnace | 268,875 | 100% | 268,730 | 0.800 | 214,984 |
| Total | 323,915 | 100% | 324,132 | 0.809 | 262,076 |

Gross realization rates were 100% across all types of savings. However, we did identify two types of substantive discrepancies between ex ante claims and verified savings, both of which had negligible impacts on overall gross realization rates. For ductless heat pump measures, ex ante savings relied on heating degree day climate zones to assign cooling parameters, resulting in slight differences between ex ante and verified savings for 12% of ductless heat pump records. Two projects included ex ante savings for ineligible measures (one with a gas furnace delivered to a customer without AIC gas service, and one with five ductless heat pumps despite the channel’s limit of two ductless heat pumps per customer). The evaluation team excluded ineligible equipment from verified savings.

### Home Efficiency Channel

#### Channel Description

The Home Efficiency channel, launched in 2021, aims to increase residential customer awareness of home energy usage and increase the efficiency of existing occupied homes through building envelope improvements. The channel aims to serve residential customers who do not qualify for the IQ Initiative, defined as those with an annual household income over 299% of the FPL, by household size.

There is no customer-facing application for the Home Efficiency channel. Program allies generate leads for the channel and customer outreach directs interested customers to contact a registered Program Ally. Leidos, the channel’s primary implementer, employs Energy Field Specialists to recruit prospective program allies and encourage them to market the channel by providing them with cobranded outreach materials and helping them develop marketing campaigns. Additionally, in some instances, IQ Initiative staff may refer applicants identified as ineligible for IQ offerings to Home Efficiency channel offerings due to income levels.

The Home Efficiency channel follows a process that first offers a Home Energy Assessment with a registered Program Ally to identify opportunities for larger building shell retrofits. Participants may need to pay for their assessment; however, the channel offers Program Allies a $100 non-project assessment stipend upon completion of assessment paperwork to encourage Program Allies to avoid charging assessment fees.

As part of the assessment, Program Allies provide participants with educational materials on indoor air quality and American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) ventilation guidelines, as well as creates a customized project report. The customized project report details the home’s current energy efficiency state, presents basic health and safety test results, identifies options for building shell retrofits, summarizes relevant available incentives, and estimates the total out-of-pocket costs for the proposed upgrades. Eligible retrofits include air sealing, bathroom exhaust fans, and various types of insulation (ceiling/attic, wall, crawlspace/basement, and rim/band joist). Following this report, participants may or may not choose to move forward with all or some of the project recommendations and associated incentives.

Home Efficiency channel participants must pay a portion of project costs. Table 81 outlines the incentives offered through the Home Efficiency channel for retrofit measures. AIC offers on-bill financing to help participants pay for projects; however, no participants used on-bill financing in 2023. Following the completion of a project, Program Allies receive a $200 project completion bonus.

Table 81. 2023 Home Efficiency Channel Incentives

| Measure | Market Rate Incentive |
| --- | --- |
| Air Sealing | $0.70/cubic feet per minute leakage reduction |
| Attic Insulation | $1.10/square foot |
| Rim Joist Insulation | $2.00/linear foot |
| Bathroom Exhaust Fan | $25.00 |
| Exterior Wall Insulation | $1.10/square foot |
| Crawlspace Insulation | $3.00/linear foot |

##### Summary of Key Implementation Changes

We summarize key changes to Home Efficiency channel design and implementation in 2023 below:

* At the channel’s launch in 2021, Leidos was hesitant to do direct-to-customer marketing as they were worried IQ eligible customers would accidentally participate in Market Rate. Given this, Leidos delegated channel marketing to Program Allies. In the fall of 2023, Leidos completed its first-ever direct marketing effort for the channel in the form of postcards to Ameren Illinois non-IQ customers. The second of the two postcard campaigns completed in 2023 included information about Inflation Reduction Act tax credits available to channel participants. The postcard campaigns led to a notable increase in channel website visits.
* The Home Efficiency channel did not directly install energy-saving products during assessments in 2023, as it had in 2022.
* The implementation team increased incentive levels in early 2023 to address inflation and supply chain issues. Measures that received incentive increases included air sealing ($0.50 increased to $0.70/CFM), ceiling/attic insulation ($0.90 increased to $1.10/sq. ft.), exterior wall insulation ($0.90 increased to $1.10/sq. ft.), crawl space wall/basement sidewall insulation ($2.00 increased to $3.00/lin. ft.), and rim/band joint insulation ($1.00 increased to $2.00 lin. ft.).
* The interest rate for on-bill financing increased four times throughout 2023, increasing to 8.99% by the end of the year.

#### Participation Summary

The Home Efficiency channel completed projects with 116 participants in 2023, all of whom received building envelope retrofit measures, as shown in Table 82. While the channel did not reach its 2023 goal of 160 participants, it still achieved 76% year-over-year growth as compared to 2022, in which the channel completed building envelope retrofit measures for only 76 measures.[[29]](#footnote-29) Staff attributed this success to their actively engaged network of Program Allies and the new, customer-facing postcard marketing campaigns completed in 2023.

Table 82. 2023 Home Efficiency Channel Participation Summary

| Measure Category | Participants |
| --- | --- |
| Air Sealing | 116 |
| Attic Insulation | 103 |
| Rim Joist Insulation | 63 |
| Bathroom Exhaust Fan | 48 |
| Exterior Wall Insulation | 38 |
| Crawlspace Insulation | 32 |
| Total | 116 |

Note: Values do not sum to total because some participants received multiple measure categories.

#### Savings Detail

Table 83 presents the ex ante, verified gross, and verified net electric energy savings achieved through the Home Efficiency channel in 2023.

Table 83. 2023 Home Efficiency Channel Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Air Sealing | 31 | 99% | 31 | 0.892 | 27 |
| Attic Insulation | 27 | 98% | 26 | 0.800 | 21 |
| Bathroom Exhaust Fan | 10 | 101% | 10 | 0.800 | 8 |
| Wall Insulation | 7 | 100% | 7 | 0.800 | 6 |
| Crawlspace Insulation | 6 | 95% | 6 | 0.800 | 5 |
| Rim Joist Insulation | 1 | 98% | 1 | 0.800 | 1 |
| Total | 83 | 99% | 82 | 0.834 | 69 |

Table 84 presents the ex ante, verified gross, and verified net electric demand savings achieved through the Home Efficiency channel in 2023.

Table 84. 2023 Home Efficiency Channel Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Air Sealing | 0.02 | 100% | 0.02 | 0.891 | 0.02 |
| Attic Insulation | 0.01 | 100% | 0.01 | 0.800 | 0.01 |
| Bathroom Exhaust Fan | 0.001 | 101% | 0.001 | 0.800 | 0.001 |
| Wall Insulation | 0.005 | 100% | 0.005 | 0.800 | 0.004 |
| Crawlspace Insulation | 0.002 | 100% | 0.002 | 0.800 | 0.001 |
| Rim Joist Insulation | 0.0004 | 100% | 0.0004 | 0.800 | 0.0003 |
| Total | 0.04 | 100% | 0.04 | 0.842 | 0.03 |

Table 85 presents the ex ante, verified gross, and verified net gas savings achieved through the Home Efficiency channel in 2023.

Table 85. 2023 Home Efficiency Channel Gas Savings by Measure

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| Air Sealing | 5,077 | 100% | 5,082 | 0.880 | 4,471 |
| Attic Insulation | 6,965 | 100% | 6,964 | 0.800 | 5,572 |
| Wall Insulation | 3,652 | 100% | 3,652 | 0.800 | 2,922 |
| Crawlspace Insulation | 2,053 | 100% | 2,053 | 0.800 | 1,642 |
| Rim Joist Insulation | 470 | 100% | 470 | 0.800 | 376 |
| Total | 18,217 | 100% | 18,221 | 0.822 | 14,983 |

While the analysis identified and characterized all discrepancies, we discuss only major discrepancies between ex ante claims and the verified analysis below. An adjustment to existing heating efficiency assumptions is the main contributor to electric realization rates less than 100%, affecting Air Sealing, Attic Insulation, Crawlspace Insulation, and Rim Joist Insulation (together, 79% of ex ante energy savings). For projects with heat pumps identified as the primary heating and cooling system, the evaluation team derated existing heating efficiency using equipment age from the tracking database according to the IL-TRM V11.0 guidance, whereas the implementation team applied default heating efficiencies from the IL-TRM. This resulted in decreased verified electric energy savings.

### Cumulative Persisting Annual Savings

Table 86 summarizes CPAS and WAML for the 2023 Single Family Market Rate Initiative by channel. The total verified gross savings for the Initiative are summarized, and CPAS in 2023–2026 and 2030 are presented. The WAML for the Initiative is 15.5 years. CPAS and WAML for each channel at a measure level are presented in Table 87 and Table 88.

Table 86. 2023 Single Family Market Rate Initiative CPAS and WAML

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Channel | WAML | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Midstream HVAC | 15.5 | 12280 | 0.701 | 8,612 | | 8,612 | 8,612 | | 8,612 | | … | 8,612 | … | 133,460 |
| Home Efficiency | 19.9 | 82 | 0.834 | 69 | | 69 | 69 | | 69 | | … | 69 | … | 1,286 |
| 2023 CPAS |  | 12,362 | 0.866 | 10,703 | | 10,704 | 10,705 | | 10,706 | | … | 10,710 | … | 134,747 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 0 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 0 | … |  |
| WAML | 15.5 |  |  |  |  | | |  | |  |  |  |  |  |

Table 87. 2023 Single Family Market Rate Initiative - Midstream HVAC Channel CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Ductless Heat Pump | 15 | 6,532 | 0.700 | 4,572 | | 4,572 | 4,572 | | 4,572 | | … | 4,572 | … | 68,584 |
| Centrally Ducted Air Source Heat Pumps | 16 | 3,953 | 0.700 | 2,767 | | 2,767 | 2,767 | | 2,767 | | … | 2,767 | … | 44,273 |
| Central Air Conditioner | 18 | 1,139 | 0.700 | 798 | | 798 | 798 | | 798 | | … | 798 | … | 14,357 |
| Heat Pump Water Heater | 15 | 366 | 0.700 | 256 | | 256 | 256 | | 256 | | … | 256 | … | 3,842 |
| Advanced Thermostat | 11 | 290 | 0.754 | 219 | | 219 | 219 | | 219 | | … | 219 | … | 2,404 |
| 2023 CPAS |  | 12,280 | 0.701 | 8,612 | | 8,612 | 8,612 | | 8,612 | | … | 8,612 | … | 133,460 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 0 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 0 | … |  |
| WAML | 15.5 |  |  |  |  | | |  | |  |  |  |  |  |

Table 88. 2023 Single Family Market Rate Initiative - Home Efficiency Channel CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | 2024 | 2025 | 2026 | … | 2030 | … |
| Air Sealing | 20.0 | 31 | 0.892 | 27 | 27 | 27 | 27 | … | 27 | … | 506 |
| Attic Insulation | 20.0 | 26 | 0.800 | 21 | 21 | 21 | 21 | … | 21 | … | 396 |
| Bathroom Exhaust Fan | 19.0 | 10 | 0.800 | 8 | 8 | 8 | 8 | … | 8 | … | 160 |
| Wall Insulation | 20.0 | 7 | 0.800 | 6 | 6 | 6 | 6 | … | 6 | … | 108 |
| Crawlspace Insulation | 20.0 | 6 | 0.800 | 5 | 5 | 5 | 5 | … | 5 | … | 94 |
| Rim Joist Insulation | 20.0 | 1 | 0.800 | 1 | 1 | 1 | 1 | … | 1 | … | 21 |
| 2023 CPAS |  | 82 | 0.834 | 69 | 69 | 69 | 69 | … | 69 | … | 1,286 |
| Expiring 2023 CPAS |  |  |  | 0 | 0 | 0 | 0 | … | 0 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | 0 | 0 | 0 | … | 0 | … |  |
| WAML | 19.9 |  |  |  |  |  |  |  |  |  |  |

### Conclusions and Recommendations

Based on the results of this evaluation, the evaluation team offers the following key findings and recommendations for the Single Family Market Rate Initiative moving forward.

#### Midstream HVAC Channel

* **Key Finding 1:** For both ducted and non-ducted heat pumps, the IL-TRM V11.0 specifies that if the existing system is unknown (e.g., midstream offerings), savings should be apportioned between the Fuel Switch and Non-Fuel Switch Scenario. The evaluation team assumes that the existing system is an electric system for all midstream projects, which is consistent with prior HVAC market research conducted in AIC service territory.[[30]](#footnote-30)
  + Recommendation: As the HVAC market continues to evolve, these fuel-switching assumptions should be re-evaluated. To ensure that estimated savings reflect current HVAC market trends, AIC should prioritize research to update fuel-switching assumptions for ducted and non-ducted heat pumps.
* **Key Finding 2:** The evaluation team observed that the implementation team applies the heating degree day zone to assign both heating and cooling parameters for ductless heat pump measures, resulting in incorrect assignment of some cooling parameters for 12% of records.
  + Recommendation: To maintain consistency with the IL-TRM V11.0, ensure ductless heat pump ex ante savings rely on heating degree day zones to assign heating parameters and cooling degree day zones to assign cooling parameters.

#### Home Efficiency Channel

* **Key Finding 1:** We identified an issue with existing heating efficiency assumptions across Air Sealing, Attic Insulation, Crawlspace Insulation, and Rim Joist Insulation. The implementation team applied IL-TRM default heating efficiency values for projects with heat pump systems as the primary heating and cooling equipment, although the rated heating efficiency of heat pump equipment is provided in the tracking data. While only a small number of projects (between two and four) were affected for each measure category, and the impact on savings was minimal, this finding represents a systemic issue within ex ante savings calculations.
  + Recommendation: Apply rated efficiencies of the actual existing heating and cooling systems. If the ages of the existing heating and cooling system are known, derate the efficiency value to account for degradation over time, as prescribed by the IL-TRM.

## Kits Initiatives

In this chapter, we present the results of the impact evaluation of AIC’s kit and ad hoc measure distribution efforts in 2023. AIC formally operates three kit distribution channels as part of its portfolio: the School Kits and High School Innovation channels of the Direct Distribution Initiative, and the Community Kits channel of the IQ Initiative. In addition, this chapter includes discussion of mobile home kits distributed through the MHAS channel, two types of kits distributed through the Joint Utility channel, and three additional types of measures distributed on an ad-hoc basis through the School Kits and Community Kits channels.

### Initiative Description

The objectives of AIC’s Kits Initiatives are to reach underserved communities, as well as low- to moderate-income customers with free energy saving measures and educational materials designed to engage them in energy efficiency and give them immediate tools they can use to improve their quality of life.

### Initiative Annual Savings Summary

Table 89 presents the Kits Initiatives annual savings achieved in 2023. The 2023 Kits Initiatives achieved 7,398 MWh, 1.04 MW, and 197,014 therms in verified net savings.

Table 89. 2023 Kits Initiatives Annual Savings

|  | Electric Energy Savings (MWh) | Electric Demand Savings (MW) | Gas Savings (Therms) |
| --- | --- | --- | --- |
| Ex Ante Gross Savings | 6,369 | 0.92 | 165,397 |
| Gross Realization Rate | 116% | 112% | 119% |
| Verified Gross Savings | 7,398 | 1.04 | 197,014 |
| NTGR | 1.000 | 1.000 | 1.000 |
| Verified Net Savings | 7,398 | 1.04 | 197,014 |

In addition to minor errors in ex ante savings calculations for a handful of kit measures (discussed further in this chapter), we note that the implementation team calculates kit savings outside of the Residential Program tracking database and transfers assumptions into the database, unlike for other Initiatives. This leads to minor rounding errors and differences between backup calculations provided to the evaluation team and savings recorded in the tracking database. For the purposes of internal consistency, we calculate all savings (ex ante gross, verified gross, and verified net) using measure-level savings for kits calculated at full precision and multiplied by the number of kits recorded in the tracking database. This leads to very minor disagreements between ex ante savings recorded in the tracking database and those reported here.

### School Kits Channel

#### Channel Description

The Direct Distribution Initiative’s School Kits channelprovides school presentations, curriculum, in-class activities, and energy saving kits to students in participating fifth grade classrooms with a focus on underserved communities in AIC service territory. In particular, the channel serves schools where 50% or more of the student body is participating in free or reduced-price lunch programs, or that are in designated IQ zip codes. By providing the kits in conjunction with energy conservation education in the classroom, AIC seeks to establish an interest in energy efficiency among participating students and reduce energy use in their homes. The School Kits channel is primarily implemented by National Energy Foundation (NEF) as a subcontractor to Leidos. In partnership with NEF, a team of Illinois-based educators deliver the school presentations.

##### Summary of Key Implementation Changes

We summarize key changes to School Kits channel design and implementation in 2023 below:

* Due to the high demand among eligible schools in AIC service territory, the School Kits channel increased the goal number of kits to be distributed to students by 1,000, to a total of 9,500 kits.
* For the second consecutive year, NEF partnered with Sparrow Energy Services to conduct additional marketing and activities in school-based community events. The additional outreach enabled them to reach not just fifth grade students, but their families as well. Implementation partners gave out free connected LED bulbs to customers they engaged with during the events.

#### Participation Summary

In 2023, the School Kits channel conducted energy efficiency education and distributed 9,500 energy saving kits to students across 155 unique schools in AIC service territory. There were 381 teachers who participated in the channel in 2023. Table 90 summarizes the measures included in each kit.

Table 90. 2023 School Kits Contents

| Measure Category | Per-Kit Quantity |
| --- | --- |
| Specialty LED | 4 |
| Advanced Power Strip – Tier 1 | 1 |
| Shower Timer | 1 |
| Showerhead | 1 |
| Kitchen Faucet Aerator | 1 |
| Pipe Insulation | 1 |
| Weatherstripping | 1 |
| Door Sweep | 1 |
| Bathroom Faucet Aerator | 1 |

In addition to the 9,500 energy saving kits, 294 connected LED bulbs were distributed during the Sparrow Energy Services community events.

#### Savings Detail

Table 91 presents the ex ante, verified gross, and verified net electric energy savings achieved through the School Kits channel in 2023.

Table 91. 2023 School Kits Channel Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Specialty LED | 1,937 | 100% | 1,937 | 1.000 | 1,937 |
| Advanced Power Strip - Tier 1 | 507 | 100% | 507 | 1.000 | 507 |
| Shower Timer | 342 | 193% | 660 | 1.000 | 660 |
| Showerhead | 337 | 193% | 651 | 1.000 | 651 |
| Kitchen Faucet Aerator | 299 | 193% | 577 | 1.000 | 577 |
| Pipe Insulation | 241 | 100% | 241 | 1.000 | 241 |
| Weatherstripping | 201 | 100% | 201 | 1.000 | 201 |
| Door Sweep | 170 | 101% | 171 | 1.000 | 171 |
| Bathroom Faucet Aerator | 36 | 193% | 70 | 1.000 | 70 |
| Connected LED | 11 | 101% | 11 | 1.000 | 11 |
| Total | 4,082 | 123% | 5,027 | 1.000 | 5,027 |

Table 92 presents the ex ante, verified gross, and verified net electric demand savings achieved through the School Kits channel in 2023.

Table 92. 2023 School Kits Channel Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Specialty LED | 0.25 | 92% | 0.23 | 1.000 | 0.23 |
| Advanced Power Strip - Tier 1 | 0.06 | 100% | 0.06 | 1.000 | 0.06 |
| Shower Timer | 0.15 | 100% | 0.15 | 1.000 | 0.15 |
| Showerhead | 0.03 | 193% | 0.06 | 1.000 | 0.06 |
| Kitchen Faucet Aerator | 0.06 | 193% | 0.11 | 1.000 | 0.11 |
| Pipe Insulation | 0.03 | 100% | 0.03 | 1.000 | 0.03 |
| Weatherstripping | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Door Sweep | 0 | N/A | 0.001 | 1.000 | 0.001 |
| Bathroom Faucet Aerator | 0.04 | 193% | 0.08 | 1.000 | 0.08 |
| Connected LED | 0.001 | 101% | 0.001 | 1.000 | 0.001 |
| Total | 0.62 | 116% | 0.72 | 1.000 | 0.72 |

Table 93 presents the ex ante, verified gross, and verified net gas savings achieved through the School Kits channel in 2023.

Table 93. 2023 School Kits Channel Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Shower Timer | 14,631 | 193% | 28,235 | 1.000 | 28,235 |
| Showerhead | 14,517 | 193% | 28,009 | 1.000 | 28,009 |
| Weatherstripping | 27,141 | 100% | 27,141 | 1.000 | 27,141 |
| Door Sweep | 23,901 | 100% | 23,901 | 1.000 | 23,901 |
| Kitchen Faucet Aerator | 12,575 | 100% | 12,569 | 1.000 | 12,569 |
| Pipe Insulation | 10,756 | 100% | 10,756 | 1.000 | 10,756 |
| Bathroom Faucet Aerator | 1,514 | 193% | 2,919 | 1.000 | 2,919 |
| Total | 105,035 | 127% | 133,530 | 1.000 | 133,530 |

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on the ones with significant impacts on channel savings.

The difference in household size assumptions is the main contributor to overall kit realization rates greater than 100%. The evaluation team applied self-reported average household size using responses from participating students’ 2023 Home Energy Worksheets. The average household size is almost double the IL-TRM V11.0 assumption (4.67 compared to 2.42), resulting in higher verified energy, demand, and therm savings for faucet aerators, showerheads, and shower timers. These measures account for 25%, 45%, and 41% of kit ex ante energy, demand, and therm savings, respectively.

One additional discrepancy had a significant impact on savings.

* Specialty LED (47% of kit ex ante energy savings, 40% of kit demand savings, and 0% of kit gas savings): The gross realization rate for Specialty LED was 100% for kWh and 92% for kW.
  + The evaluation team applied the coincidence factor from the IL-TRM V11.0 for Specialty LEDs (Section 5.5.6), whereas the implementation team applied the coincidence factor for LED Fixtures (Section 5.5.9). The coincidence factor for Specialty LEDs is lower than LED Fixtures, resulting in lower verified demand savings.

### High School Innovation Channel

#### Channel Description

The Direct Distribution Initiative’s High School Innovation channel aims to introduce high school students to advanced energy literacy education through curriculum, in-class activities, and the distribution of energy saving kits. In particular, the channel serves schools where 50% or more of the student body is participating in free or reduced-price lunch programs, or that are in designated IQ zip codes. In-class presentations target science and math classrooms such as economics, chemistry, and biology classes. After each presentation, students receive energy saving kits they can take home. The High School Innovation channel is primarily implemented by National Energy Foundation (NEF) as a subcontractor to Leidos. In partnership with NEF, a team of Illinois-based educators deliver the in-class school presentations.

##### Summary of Key Implementation Changes

We summarize key changes to High School Innovation channel design and implementation in 2023 below:

* Sparrow Energy Services supported NEF as part of the implementation team and helped NEF design and implement an after-school Innovation Camp for high school students. The camp focused on energy education, energy efficiency behaviors, and energy industry career opportunities.

#### Participation Summary

In 2023, the High School Innovation channel conducted energy efficiency education and distributed 2,500 energy saving kits to students across 29 unique schools in AIC service territory. There were 45 teachers who participated in the Channel in 2023. Table 94 summarizes the measures included in each kit.

Table 94. 2023 High School Innovation Kit Contents

| Measure Category | Per-Kit Quantity |
| --- | --- |
| Specialty LED | 3 |
| Showerhead | 1 |
| LED Desk Lamp | 1 |
| Pipe Insulation | 1 |
| Weatherstripping | 1 |
| Outlet Gaskets | 10 |
| Bathroom Faucet Aerator | 1 |

#### Savings Detail

Table 95 presents the ex ante, verified gross, and verified net electric energy savings achieved through the High School Innovation channel in 2023.

Table 95. 2023 High School Innovation Channel Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Specialty LED | 382 | 100% | 382 | 1.000 | 382 |
| Showerhead | 89 | 181% | 161 | 1.000 | 161 |
| LED Desk Lamp | 80 | 100% | 80 | 1.000 | 80 |
| Pipe Insulation | 63 | 100% | 63 | 1.000 | 63 |
| Weatherstripping | 53 | 100% | 53 | 1.000 | 53 |
| Outlet Gaskets | 37 | 100% | 37 | 1.000 | 37 |
| Bathroom Faucet Aerator | 10 | 181% | 17 | 1.000 | 17 |
| Total | 713 | 111% | 793 | 1.000 | 793 |

Table 96 presents the ex ante, verified gross, and verified net electric demand savings achieved through the High School Innovation channel in 2023.

Table 96. 2023 High School Innovation Channel Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Specialty LED | 0.05 | 92% | 0.05 0.050.01 | 1.000 | 0.05 0.050.01 |
| Showerhead | 0.01 | 181% | 0.01 0.010.01 | 1.000 | 0.01 0.010.01 |
| LED Desk Lamp | 0.01 | 100% | 0.01 0.01 | 1.000 | 0.01 0.01 |
| Pipe Insulation | 0.01 | 100% | 0.01 0.01 | 1.000 | 0.01 0.01 |
| Weatherstripping | 0.002 | 100% | 0.002 0.00 | 1.000 | 0.002 0.00 |
| Outlet Gaskets | 0.01 | 100% | 0.01 0.01 | 1.000 | 0.01 0.01 |
| Bathroom Faucet Aerator | 0.01 | 181% | 0.02 0.02 | 1.000 | 0.02 0.02 |
| Total | 0.10 | 111% | 0.11 | 1.000 | 0.11 |

Table 97 presents the ex ante, verified gross, and verified net gas savings achieved through the High School Innovation channel in 2023.

Table 97. 2023 High School Innovation Channel Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Showerhead | 3,820 | 181% | 6,913 | 1.000 | 6,913 |
| Pipe Insulation | 2,831 | 100% | 2,831 | 1.000 | 2,831 |
| Weatherstripping | 7,142 | 100% | 7,142 | 1.000 | 7,142 |
| Outlet Gaskets | 3,261 | 100% | 3,261 | 1.000 | 3,261 |
| Bathroom Faucet Aerator | 398 | 181% | 720 | 1.000 | 720 |
| Total | 17,452 | 120% | 20,867 | 1.000 | 20,867 |

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on the ones with significant impacts on channel savings.

The difference in household size assumptions is the main contributor to overall kit realization rates greater than 100%. The evaluation team applied self-reported average household size using responses from participating students’ 2023 Home Energy Worksheets. The average household size is almost double the IL-TRM V11.0 assumption (4.38 compared to 2.42), resulting in higher verified energy, demand, and therm savings for bathroom faucet aerators and showerheads. These measures account for 14%, 18%, and 24% of kit ex ante energy, demand, and therm savings, respectively.

One additional discrepancy had a significant impact on savings.

* Specialty LED (54% of kit ex ante energy savings and 48% of kit demand savings): The gross realization rate for Specialty LED was 100% for kWh and 92% for kW.
  + The evaluation team applied the coincidence factor from the IL-TRM V11.0 for Specialty LEDs (Section 5.5.6), whereas the implementation team applied the coincidence factor for LED Fixtures (Section 5.5.9). The coincidence factor for Specialty LEDs is lower than LED Fixtures, resulting in lower verified demand savings.

### IQ Community Kits Channel

#### Channel Description

The IQ Initiative’s IQ Community Kits channel provides energy saving kits and educational materials to AIC low- to moderate-income customers in under-served/challenged communities at community events or following home visits conducted as part of the IQ Initiative. The objective of the channel is to partner with community-based organizations (CBOs) to provide do-it-yourself, no-cost energy savings measures that will help improve the quality of life for AIC customers and spark interest in additional AIC energy efficiency offerings. The channel is implemented by Resource Innovations.

##### Summary of Key Implementation Changes

We summarize key changes to IQ Community Kits channel design and implementation in 2023 below:

* AIC planned to distribute energy saving kits to college students living off campus through a new effort referred to as “Power University.” These kits instead were repurposed and distributed through the Joint Utility channel, referred to as the BN Holiday Kits.

#### Participation Summary

In 2023, the IQ Community Kits channel distributed 2,965 energy saving kits to AIC low- to moderate-income customers in under-served/challenged communities. Table 98 summarizes the measures distributed through the IQ Community Kits channel in 2023.

Table 98. 2023 IQ Community Kit Contents

| Measure Category | Per-Kit Quantity |
| --- | --- |
| Standard LED | 6 |
| Advanced Power Strip – Tier 1 | 1 |
| Showerhead | 2 |
| Pipe Insulation | 2 |
| Kitchen Faucet Aerator | 1 |
| Door Sweep | 1 |
| Bathroom Faucet Aerator | 2 |

In addition, channel staff delivered 500 Standard LED bulbs and 500 advanced power strips at bill pay events offered by AIC.

#### Savings Detail

Table 99 presents the ex ante, verified gross, and verified net electric energy savings achieved through the IQ Community Kits channel in 2023.

Table 99. 2023 IQ Community Kits Channel Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Standard LED | 640 | 100% | 640 | 1.000 | 640 |
| Advanced Power Strip - Tier 1 | 246 | 100% | 246 | 1.000 | 246 |
| Showerhead | 216 | 100% | 216 | 1.000 | 216 |
| Pipe Insulation | 87 | 100% | 87 | 1.000 | 87 |
| Kitchen Faucet Aerator | 86 | 100% | 86 | 1.000 | 86 |
| Door Sweep | 33 | 101% | 34 | 1.000 | 34 |
| Bathroom Faucet Aerator | 21 | 100% | 21 | 1.000 | 21 |
| Total | 1,330 | 100% | 1,330 | 1.000 | 1,330 |

Table 100 presents the ex ante, verified gross, and verified net electric demand savings achieved through the IQ Community Kits channel in 2023.

Table 100. 2023 IQ Community Kits Channel Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Standard LED | 0.08 | 100% | 0.08 | 1.000 | 0.08 |
| Advanced Power Strip - Tier 1 | 0.03 | 100% | 0.03 | 1.000 | 0.03 |
| Showerhead | 0.02 | 100% | 0.02 | 1.000 | 0.02 |
| Pipe Insulation | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Kitchen Faucet Aerator | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Door Sweep | 0 | N/A | 0.0003 | 1.000 | 0.0003 |
| Bathroom Faucet Aerator | 0.02 | 100% | 0.02 | 1.000 | 0.02 |
| Total | 0.17 | 100% | 0.17 | 1.000 | 0.17 |

Table 101 presents the ex ante, verified gross, and verified net gas savings achieved through the IQ Community Kits channel in 2023.

Table 101. 2023 IQ Community Kits Channel Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Showerhead | 18,871 | 100% | 18,868 | 1.000 | 18,868 |
| Pipe Insulation | 8,968 | 93% | 8,353 | 1.000 | 8,353 |
| Kitchen Faucet Aerator | 7,253 | 100% | 7,249 | 1.000 | 7,249 |
| Door Sweep | 4,051 | 100% | 4,051 | 1.000 | 4,051 |
| Bathroom Faucet Aerator | 1,746 | 100% | 1,745 | 1.000 | 1,745 |
| Total | 40,889 | 98% | 40,266 | 1.000 | 40,266 |

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on the ones with significant impacts on channel savings.

* Pipe Insulation (7% of kit ex ante energy savings, 6% of kit demand savings, and 22% of kit gas savings): The gross realization rate for Pipe Insulation was 100% for kWh, 100% for kW, and 93% for therms.
  + The evaluation team applied the average deemed savings from the IL-TRM V11.0 for ¾” Copper and ¾” PEX piping for vertical pipe configuration, whereas the implementation team applied the average deemed savings from the IL-TRM V11.0 for Copper and PEX piping, but erroneously included a value for ¾” PEX piping (2.70) that is higher than what is presented in the IL-TRM V11.0 (2.20), resulting in lower verified therm savings.

### Mobile Home Kits

#### Channel Description

AIC provided kits of energy saving products to mobile home customers through the IQ Initiative’s MHAS Channel. See Section 3.2.7 for more detail.

#### Participation Summary

In 2023, 242 Mobile Home Kits were distributed through the MHAS Channel.[[31]](#footnote-31) Table 102 summarizes the measures included in each kit.

Table 102. 2023 Mobile Home Kit Contents

| Measure Category | Per-Kit Quantity |
| --- | --- |
| Standard LED | 12 |
| Advanced Power Strip – Tier 1 | 1 |
| Showerhead | 1 |
| Kitchen Faucet Aerator | 1 |
| Thermostatic Restrictor Shower Valve | 1 |
| Bathroom Faucet Aerator | 1 |

#### Savings Detail

Table 103 presents the ex ante, verified gross, and verified net electric energy savings achieved through Mobile Home Kits in 2023.

Table 103. 2023 Mobile Home Kits Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| Standard LED | 113 | 100% | 113 | 1.000 | 113 |
| Advanced Power Strip - Tier 1 | 22 | 100% | 22 | 1.000 | 22 |
| Showerhead | 10 | 133% | 13 | 1.000 | 13 |
| Kitchen Faucet Aerator | 8 | 105% | 8 | 1.000 | 8 |
| Thermostatic Restrictor Shower Valve | 1 | 179% | 3 | 1.000 | 3 |
| Bathroom Faucet Aerator | 1 | 179% | 2 | 1.000 | 2 |
| Total | 156 | 103% | 161 | 1.000 | 161 |

Table 104 presents the ex ante, verified gross, and verified net electric demand savings achieved through Mobile Home Kits in 2023.

Table 104. 2023 Mobile Home Kits Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| Standard LED | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| Advanced Power Strip - Tier 1 | 0.003 | 100% | 0.003 | 1.000 | 0.003 |
| Showerhead | 0.001 | 128% | 0.001 | 1.000 | 0.001 |
| Kitchen Faucet Aerator | 0.001 | 102% | 0.001 | 1.000 | 0.001 |
| Thermostatic Restrictor Shower Valve | 0.0001 | 180% | 0.0002 | 1.000 | 0.0002 |
| Bathroom Faucet Aerator | 0.001 | 106% | 0.001 | 1.000 | 0.001 |
| Total | 0.02 | 102% | 0.02 | 1.000 | 0.02 |

Table 105 presents the ex ante, verified gross, and verified net gas savings achieved through Mobile Home Kits in 2023.

Table 105. 2023 Mobile Home Kits Gas Savings by Measure

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| Showerhead | 944 | 128% | 1,212 | 1.000 | 1,212 |
| Kitchen Faucet Aerator | 726 | 101% | 737 | 1.000 | 737 |
| Thermostatic Restrictor Shower Valve | 263 | 93% | 244 | 1.000 | 244 |
| Bathroom Faucet Aerator | 87 | 173% | 151 | 1.000 | 151 |
| Total | 2,021 | 116% | 2,344 | 1.000 | 2,344 |

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on the ones with significant impacts on Mobile Home Kits savings.

The difference in household type assumptions is the main contributor to overall Mobile Home Kits realization rates greater than 100%. The evaluation team applied mobile home assumptions from the IL-TRM V11.0, when available, and otherwise applied assumptions for single family home type when an assumption for mobile home type (i.e., household size) was not provided. The implementation team calculated weighted averages using assumptions from the IL-TRM V11.0 for single family and multifamily home types, resulting in higher verified energy, demand, and therm savings for faucet aerators, showerheads, and thermostatic restrictor shower valves. These measures account for 13%, 17%, and 100% of kit ex ante energy, demand, and therm savings, respectively.

A few additional discrepancies had a significant impact on savings.

* Showerhead (6% of kit ex ante energy savings, 4% of kit demand savings, and 47% of kit gas savings): The gross realization rate for Showerhead was 133% for kWh, 128% for kW, and 128% for therms.
  + The evaluation team applied the number of shower fixtures per household assumption from the IL-TRM V11.0 for mobile homes, whereas the implementation team applied the IL-TRM V11.0 assumption for unknown home type, which is lower in comparison, resulting in higher verified energy, demand, and therm savings.
* Thermostatic Restrictor Shower Valve (1% of kit ex ante energy savings, <1% of kit demand savings, and 13% of kit therm savings): The gross realization rate for Thermostatic Restrictor Shower Valve was 179% for kWh, 180% for kW, and 93% for therms.
  + The evaluation team applied the number of shower fixtures per household assumption from the IL-TRM V11.0 for mobile homes, whereas the implementation team applied the IL-TRM V11.0 assumption for unknown home type, which is lower in comparison, resulting in higher verified energy, demand, and therm savings.
  + The evaluation team applied the IL-TRM V11.0 ISR, whereas the implementation team applied an ISR from the IL-TRM V10.0, which is higher in comparison, resulting in lower verified energy, demand, and therm savings.
  + The evaluation team applied water heater fuel weights from the IL-TRM V11.0, whereas the implementation team applied water heater fuel weights from the IL-TRM V10.0, which are lower in comparison, resulting in higher verified electric and demand savings, but lower verified therm savings.

### Joint Utility Kits

#### Channel Description

BN Holiday Kits and BN Community Kits were distributed through the IQ Initiative’s Joint Utility channel in partnership with Nicor Gas, largely in the Bloomington-Normal area, and herein constitute the energy savings kits called Joint Utility Kits. See Section 3.2.5 for more detail.

#### Participation Summary

In 2023, 340 energy saving kits were distributed through the Joint Utility channel: 265 BN Holiday Kits and 75 BN Community Kits. Table 106 summarizes the measures included in each of the kits.

Table 106. 2023 Joint Utility Kits Contents

| Measure Category | Per-Kit Quantity |
| --- | --- |
| BN Community Kit |  |
| Standard LED | 6 |
| Specialty LED | 4 |
| Weatherstripping | 3 |
| Advanced Power Strip – Tier 1 | 1 |
| Showerhead | 1 |
| Pipe Insulation | 2 |
| Door Sweep | 2 |
| Shower Timer | 1 |
| Outlet Gaskets | 12 |
| Thermostatic Restrictor Shower Valve | 1 |
| Kitchen Faucet Aerator | 1 |
| Bathroom Faucet Aerator | 1 |
| BN Holiday Kit |  |
| Standard LED | 3 |
| LED Desk Lamp | 1 |
| Door Sweep | 1 |
| Smart Socket | 1 |

#### Savings Detail

Table 107 presents the ex ante, verified gross, and verified net electric energy savings achieved through the Joint Utility Kits in 2023.

Table 107. 2023 Joint Utility Kits Electric Energy Savings by Measure

| Measure Category | Ex Ante Gross Savings (MWh) | Gross Realization Rate | Verified Gross Savings (MWh) | NTGR | Verified Net Savings (MWh) |
| --- | --- | --- | --- | --- | --- |
| BN Community Kits |  |  |  |  |  |
| Standard LED | 11 | 100% | 11 | 1.000 | 11 |
| Specialty LED | 10 | 100% | 10 | 1.000 | 10 |
| Weatherstripping | 7 | 100% | 7 | 1.000 | 7 |
| Advanced Power Strip - Tier 1 | 5 | 100% | 5 | 1.000 | 5 |
| Showerhead | 3 | 100% | 3 | 1.000 | 3 |
| Pipe Insulation | 2 | 100% | 2 | 1.000 | 2 |
| Door Sweep | 2 | 100% | 2 | 1.000 | 2 |
| Shower Timer | 2 | 100% | 2 | 1.000 | 2 |
| Outlet Gaskets | 1 | 100% | 1 | 1.000 | 1 |
| Thermostatic Restrictor Shower Valve | 1 | 100% | 1 | 1.000 | 1 |
| Kitchen Faucet Aerator | 1 | 100% | 1 | 1.000 | 1 |
| Bathroom Faucet Aerator | 0.3 | 100% | 0.3 | 1.000 | 0.3 |
| BN Community Kits Total | 44 | 100% | 44 | 1.000 | 44 |
| BN Holiday Kits |  |  |  |  |  |
| Standard LED | 31 | 63% | 20 | 1.000 | 20 |
| LED Desk Lamp | 8 | 100% | 8 | 1.000 | 8 |
| Door Sweep | 3 | 101% | 3 | 1.000 | 3 |
| Smart Socket | 0 | N/A | 11 | 1.000 | 11 |
| BN Holiday Kits Total | 43 | 99% | 42 | 1.000 | 42 |

Table 108 presents the ex ante, verified gross, and verified net electric demand savings achieved through the Joint Utility Kits in 2023.

Table 108. 2023 Joint Utility Kits Electric Demand Savings by Measure

| Measure Category | Ex Ante Gross Savings (MW) | Gross Realization Rate | Verified Gross Savings (MW) | NTGR | Verified Net Savings (MW) |
| --- | --- | --- | --- | --- | --- |
| BN Community Kits |  |  |  |  |  |
| Standard LED | 0.001 | 100% | 0.001 | 1.000 | 0.001 |
| Specialty LED | 0.001 | 100% | 0.001 | 1.000 | 0.001 |
| Weatherstripping | 0.0003 | 104% | 0.0003 | 1.000 | 0.0003 |
| Advanced Power Strip - Tier 1 | 0.0006 | 100% | 0.0006 | 1.000 | 0.0006 |
| Showerhead | 0.0002 | 99% | 0.0002 | 1.000 | 0.0002 |
| Pipe Insulation | 0.0002 | 100% | 0.0002 | 1.000 | 0.0002 |
| Door Sweep | 0.00001 | 137% | 0.00001 | 1.000 | 0.00001 |
| Shower Timer | 0.0006 | 101% | 0.0006 | 1.000 | 0.0006 |
| Outlet Gaskets | 0.0003 | 99% | 0.0003 | 1.000 | 0.0003 |
| Thermostatic Restrictor Shower Valve | 0.0001 | 99% | 0.0001 | 1.000 | 0.0001 |
| Kitchen Faucet Aerator | 0.0001 | 96% | 0.0001 | 1.000 | 0.0001 |
| Bathroom Faucet Aerator | 0.0003 | 99% | 0.0003 | 1.000 | 0.0003 |
| BN Community Kits Total | 0.01 | 100% | 0.01 | 1.000 | 0.01 |
| BN Holiday Kits |  |  |  |  |  |
| Standard LED | 0.004 | 63% | 0.002 | 1.000 | 0.002 |
| LED Desk Lamp | 0.002 | 100% | 0.002 | 1.000 | 0.002 |
| Door Sweep | 0 | N/A | 0.00003 | 1.000 | 0.00003 |
| Smart Socket | 0 | N/A | 0.002 | 1.000 | 0.002 |
| BN Holiday Kits Total | 0.01 | 103% | 0.01 | 1.000 | 0.01 |

Table 109 presents the ex ante, verified gross, and verified net gas savings achieved through the Joint Utility Kits in 2023. Typically, AIC does not claim gas savings for Joint Utility participants since AIC is not the gas provider, however, there are four Joint Utility participants who received BN Holiday Kits that are both electric and gas AIC customers, therefore, verified savings includes gas savings for these cases.

Table 109. 2023 Joint Utility Kits Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| BN Holiday Kits |  |  |  |  |  |
| Door Sweep | 0 | N/A | 7 | 1.000 | 7 |
| BN Community Kits Total | 0 | N/A | 7 | 1.000 | 7 |

We discuss major discrepancies between ex ante claims and the verified analysis below. While the analysis identified and characterized all discrepancies, we only report on the ones with significant impacts on Joint Utility Kits savings.

* BN Holiday Kit Standard LED (73% of kit ex ante energy savings, 71% of kit demand savings, and 0% of kit gas savings): The gross realization rate for Standard LED was 63% for kWh, 63% for kW, and 0% for therms.
  + The evaluation team applied the ISR for BN Holiday Kits from the IL-TRM V11.0 for Income Eligible Direct Mail Kits, whereas the implementation team applied the IL-TRM V11.0 ISR for Community Distributed Kits which is higher in comparison, resulting in lower verified energy and demand savings.
* BN Holiday Kit Smart Socket (0% of kit ex ante energy savings, 0% of kit demand savings, and 0% of kit gas savings): The implementation team did not claim savings for smart sockets.
  + The evaluation team calculated savings for smart sockets, using the IL-TRM V12.0, because smart sockets are included in the IL-TRM V12.0. The implementation team did not claim savings for smart sockets because they are not a measure in the IL-TRM V11.0.
* BN Holiday Kit Door Sweep (8% of kit ex ante energy savings, 0% of kit demand savings, and 0% of kit gas savings): The gross realization rate for Door Sweep was 101% for kWh. The implementation team did not claim demand and gas savings for door sweeps.
  + The evaluation team calculated gas savings for door sweeps since a review of the tracking data indicated four participants as AIC gas customers, whereas the implementation team did not claim gas savings for door sweeps, resulting in higher verified gas savings.

### Cumulative Persisting Annual Savings

Table 110 summarizes CPAS and WAML for the 2023 Kits Initiatives by channel or kit. The total verified gross savings for the Initiative are summarized, and CPAS in 2023–2026 and 2030 are presented. The WAML for the Initiative is 9.1 years. CPAS and WAML for each channel or kit at a measure level are presented in Table 111 though Table 115. In 2023, AIC converted some non-AIC gas savings produced by the Joint Utility Kits to CPAS for the purposes of goal attainment; further details on these savings can be found in Appendix B and further detail on converted CPAS can be found in Appendix C.

Table 110. 2023 Kits Initiatives CPAS and WAML

| Channel/Kits | WAML | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| School Kits | 8.9 | 5,027 | 1.000 | 5,027 | | 5,027 | 4,367 | | 4,367 | | … | 3,859 | … | 44,503 |
| High School Innovation | 10.4 | 793 | 1.000 | 793 | | 793 | 793 | | 793 | | … | 793 | … | 8,189 |
| IQ Community Kits | 9.1 | 1,330 | 1.000 | 1,330 | | 1,330 | 1,330 | | 1,330 | | … | 1,084 | … | 12,056 |
| Mobile Home Kits | 8.2 | 161 | 1.000 | 161 | | 161 | 161 | | 161 | | … | 139 | … | 1,317 |
| Joint Utility Kits | 9.8 | 87 | 1.000 | 87 | | 87 | 85 | | 85 | | … | 69 | … | 846 |
| 2023 CPAS |  | 7,398 | 1.000 | 7,398 | | 7,398 | 6,736 | | 6,736 | | … | 5,944 | … | 66,910 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 662 | | 0 | | … | 792 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 662 | | 662 | | … | 1,455 | … |  |
| WAML | 9.1 |  |  |  |  | | |  | |  |  |  |  |  |

Table 111. 2023 School Kits Channel CPAS and WAML

| Measure | WAML | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | 2024 | 2025 | 2026 | … | 2030 | … |
| Specialty LED | 8.0 | 1,937 | 1.000 | 1,937 | 1,937 | 1,937 | 1,937 | … | 1,937 | … | 15,493 |
| Advanced Power Strip - Tier 1 | 7.0 | 507 | 1.000 | 507 | 507 | 507 | 507 | … | 0 | … | 3,551 |
| Shower Timer | 2.0 | 660 | 1.000 | 660 | 660 | 0 | 0 | … | 0 | … | 1,321 |
| Showerhead | 10.0 | 651 | 1.000 | 651 | 651 | 651 | 651 | … | 651 | … | 6,511 |
| Kitchen Faucet Aerator | 10.0 | 577 | 1.000 | 577 | 577 | 577 | 577 | … | 577 | … | 5,772 |
| Pipe Insulation | 15.0 | 241 | 1.000 | 241 | 241 | 241 | 241 | … | 241 | … | 3,613 |
| Weatherstripping | 20.0 | 201 | 1.000 | 201 | 201 | 201 | 201 | … | 201 | … | 4,004 |
| Door Sweep | 20.0 | 171 | 1.000 | 171 | 171 | 171 | 171 | … | 171 | … | 3,426 |
| Bathroom Faucet Aerator | 10.0 | 70 | 1.000 | 70 | 70 | 70 | 70 | … | 70 | … | 701 |
| Connected LED | 10.0 | 11 | 1.000 | 11 | 11 | 11 | 11 | … | 11 | … | 110 |
| 2023 CPAS |  | 5,027 | 1.000 | 5,027 | 5,027 | 4,367 | 4,367 | … | 3,859 | … | 44,503 |
| Expiring 2023 CPAS |  |  |  | 0 | 0 | 660 | 0 | … | 507 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | 0 | 660 | 660 | … | 1,168 | … |  |
| WAML | 8.9 |  |  |  |  |  |  |  |  |  |  |

Table 112. 2023 High School Innovation Channel CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Specialty LED | 8.0 | 382 | 1.000 | 382 | | 382 | 382 | | 382 | | … | 382 | … | 3,058 |
| Showerhead | 10.0 | 161 | 1.000 | 161 | | 161 | 161 | | 161 | | … | 161 | … | 1,607 |
| LED Desk Lamp | 8.0 | 80 | 1.000 | 80 | | 80 | 80 | | 80 | | … | 80 | … | 640 |
| Pipe Insulation | 15.0 | 63 | 1.000 | 63 | | 63 | 63 | | 63 | | … | 63 | … | 951 |
| Weatherstripping | 20.0 | 53 | 1.000 | 53 | | 53 | 53 | | 53 | | … | 53 | … | 1,054 |
| Outlet Gaskets | 20.0 | 37 | 1.000 | 37 | | 37 | 37 | | 37 | | … | 37 | … | 706 |
| Bathroom Faucet Aerator | 10.0 | 17 | 1.000 | 17 | | 17 | 17 | | 17 | | … | 17 | … | 173 |
| 2023 CPAS |  | 793 | 1.000 | 793 | | 793 | 793 | | 793 | | … | 793 | … | 8,189 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 0 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 0 | … |  |
| WAML | 10.4 |  |  |  |  | | |  | |  |  |  |  |  |

Table 113. 2023 IQ Community Kits Channel CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Standard LED | 8.0 | 640 | 1.000 | 640 | | 640 | 640 | | 640 | | … | 640 | … | 5,121 |
| Advanced Power Strip - Tier 1 | 7.0 | 246 | 1.000 | 246 | | 246 | 246 | | 246 | | … | 0 | … | 1,723 |
| Showerhead | 10.0 | 216 | 1.000 | 216 | | 216 | 216 | | 216 | | … | 216 | … | 2,163 |
| Pipe Insulation | 15.0 | 87 | 1.000 | 87 | | 87 | 87 | | 87 | | … | 87 | … | 1,310 |
| Kitchen Faucet Aerator | 10.0 | 86 | 1.000 | 86 | | 86 | 86 | | 86 | | … | 86 | … | 858 |
| Door Sweep | 20.0 | 34 | 1.000 | 34 | | 34 | 34 | | 34 | | … | 34 | … | 669 |
| Bathroom Faucet Aerator | 10.0 | 21 | 1.000 | 21 | | 21 | 21 | | 21 | | … | 21 | … | 211 |
| 2023 CPAS |  | 1,330 | 1.000 | 1,330 | | 1,330 | 1,330 | | 1,330 | | … | 1,084 | … | 12,056 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 246 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 246 | … |  |
| WAML | 9.1 |  |  |  |  | | |  | |  |  |  |  |  |

Table 114. 2023 Mobile Home Kits CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Standard LED | 8.0 | 113 | 1.000 | 113 | | 113 | 113 | | 113 | | … | 113 | … | 918 |
| Advanced Power Strip - Tier 1 | 7.0 | 22 | 1.000 | 22 | | 22 | 22 | | 22 | | … | 0 | … | 157 |
| Showerhead | 10.0 | 13 | 1.000 | 13 | | 13 | 13 | | 13 | | … | 13 | … | 131 |
| Kitchen Faucet Aerator | 10.0 | 8 | 1.000 | 8 | | 8 | 8 | | 8 | | … | 8 | … | 83 |
| Thermostatic Restrictor Shower Valve | 10.0 | 3 | 1.000 | 3 | | 3 | 3 | | 3 | | … | 3 | … | 26 |
| Bathroom Faucet Aerator | 10.0 | 2 | 1.000 | 2 | | 2 | 2 | | 2 | | … | 2 | … | 17 |
| 2023 CPAS |  | 161 | 1.000 | 161 | | 161 | 161 | | 161 | | … | 139 | … | 1,317 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 22 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 0 | | 0 | | … | 22 | … |  |
| WAML | 8.2 |  |  |  |  | | |  | |  |  |  |  |  |

Table 115. 2023 Joint Utility Kits CPAS and WAML

| Measure | Measure Life | Annual Verified Gross Savings (MWh) | NTGR | CPAS – Verified Net Savings (MWh) | | | | | | | | | | Lifetime Savings (MWh) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2023 | | 2024 | 2025 | | 2026 | | … | 2030 | … |
| Standard LED | 8.0 | 31 | 1.000 | 31 | | 31 | 31 | | 31 | | … | 31 | … | 248 |
| Smart Socket | 7.0 | 11 | 1.000 | 11 | | 11 | 11 | | 11 | | … | 0 | … | 77 |
| Specialty LED | 8.0 | 10 | 1.000 | 10 | | 10 | 10 | | 10 | | … | 10 | … | 76 |
| LED Desk Lamp | 8.0 | 8 | 1.000 | 8 | | 8 | 8 | | 8 | | … | 8 | … | 67 |
| Weatherstripping | 20.0 | 7 | 1.000 | 7 | | 7 | 7 | | 7 | | … | 7 | … | 134 |
| Advanced Power Strip - Tier 1 | 7.0 | 5 | 1.000 | 5 | | 5 | 5 | | 5 | | … | 0 | … | 37 |
| Showerhead | 10.0 | 3 | 1.000 | 3 | | 3 | 3 | | 3 | | … | 3 | … | 27 |
| Pipe Insulation | 15.0 | 2 | 1.000 | 2 | | 2 | 2 | | 2 | | … | 2 | … | 32 |
| Door Sweep | 20.0 | 5 | 1.000 | 5 | | 5 | 5 | | 5 | | … | 5 | … | 109 |
| Shower Timer | 2.0 | 2 | 1.000 | 2 | | 2 | 2 | | 2 | | … | 2 | … | 4 |
| Outlet Gaskets | 20.0 | 1 | 1.000 | 1 | | 1 | 1 | | 1 | | … | 1 | … | 18 |
| Thermostatic Restrictor Shower Valve | 10.0 | 1 | 1.000 | 1 | | 1 | 1 | | 1 | | … | 1 | … | 9 |
| Kitchen Faucet Aerator | 10.0 | 1 | 1.000 | 1 | | 1 | 1 | | 1 | | … | 1 | … | 7 |
| Bathroom Faucet Aerator | 10.0 | 0.3 | 1.000 | 0.3 | | 0.3 | 0.3 | | 0.3 | | … | 0.3 | … | 3 |
| 2023 CPAS |  | 87 | 1.000 | 87 | | 87 | 85 | | 85 | | … | 69 | … | 846 |
| Expiring 2023 CPAS |  |  |  | 0 | | 0 | 2 | | 0 | | … | 16 | … |  |
| Expired 2023 CPAS |  |  |  | 0 | | 0 | 2 | | 2 | | … | 18 | … |  |
| WAML | 9.8 |  |  |  |  | | |  | |  |  |  |  |  |

### 

### Conclusions and Recommendations

Based on the results of this evaluation, the evaluation team offers the following key findings and recommendations for the Kits Initiatives moving forward.

#### Cross-Cutting

* **Key Finding 1:** While it had a very small effect on savings, the implementation team excluded energy and demand cooling savings for door sweeps in School Kits, High School Innovation Kits, IQ Community Kits, and BN Holiday Kits.
  + Recommendation: Calculate cooling savings by applying cooling formulas and assumptions from the IL-TRM V11.0.

#### School Kits and High School Innovation Channels

* **Key Finding 1:** The implementation team applied the household size assumptions for unknown home type from the IL-TRM V11.0, whereas the evaluation team revised savings to incorporate self-reported household size.
  + Recommendation: Continue to use IL-TRM defaults and the evaluation team will update the household size annually based on Home Energy Worksheet data.

#### Mobile Home Kits

* **Key Finding 1:** The implementation team applied two different kit savings values in the tracking database. The evaluation team uses a separate source for ex ante savings, so this did not affect realization rates, but this finding does indicate a data tracking issue.
  + Recommendation: Ensure that the same kit value is applied for all cases.
* **Key Finding 2:** The implementation team either applied assumptions for unknown home type or weighted averages for single family and multifamily home types using the IL-TRM V11.0. This was the main drivers of ex ante and verified savings discrepancies for the kits.
  + Recommendation: Apply mobile home assumptions from the IL-TRM V11.0, when available, otherwise rely on assumptions for single family home type when the IL-TRM V11.0 does not provide an assumption for mobile home type (i.e., household size).

#### Joint Utility Kits

* **Key Finding 1:** BN Community Kits apply rounded values for demand savings instead of applying values with full precision. This has a very small effect on energy savings but does represent a data tracking issue.
  + Recommendation: Apply measure-level savings with full precision instead of rounded values.
* **Key Finding 2:** BN Holiday Kits do not include ex ante savings for smart sockets, which is likely because the IL-TRM V11.0 does not include them.
  + Recommendation: Calculate savings for smart sockets using the savings assumptions from the IL-TRM V12.0.
* **Key Finding 3:** AIC is not the gas provider for most Joint Utility channel participants; Nicor Gas (who the Joint Utility channel is administered in partnership with) typically claims the gas savings. However, tracking data identified four participants receiving BN Holiday Kits who are AIC gas customers.

1. Impact Analysis Methodology

Retail Products Initiative

Gross Impact Methodology – Incentive-Based Channels

The evaluation team calculated verified savings for the incentive-based channels of the Retail Products Initiative by applying savings algorithms from the IL-TRM V11.0 to known information from initiative tracking data. We leveraged the wide range of measure specifications and participant information (e.g., LED wattage, bulb type, heating and cooling equipment type) from tracking data to inform savings assumptions. For parameters not informed by information from tracking data, the evaluation team relied on default recommendations from the IL-TRM V11.0. Table 116 lists the measures in the Retail Products Initiative incentive-based channels, their corresponding IL-TRM entry, and whether or not TRM errata applied to the measure in the 2023 evaluation.

Table 116. 2023 Retail Products Initiative Incentive-Based Channels Measures Evaluated

| IL-TRM Measure Name | IL-TRM Measure | Errata Applied? |
| --- | --- | --- |
| ENERGY STAR Air Purifier/Cleaner | 5.1.1 | No errata present |
| ENERGY STAR Clothes Washers | 5.1.2 | No errata present |
| ENERGY STAR Dehumidifier | 5.1.3 | No errata present |
| ENERGY STAR Freezer | 5.1.5 | No errata present |
| ENERGY STAR and CEE Tier 2 Refrigerator | 5.1.6 | No errata present |
| ENERGY STAR Room Air Conditioner | 5.1.7 | No errata present |
| ENERGY STAR Clothes Dryer | 5.1.10 | No errata present |
| ENERGY STAR Water Coolers | 5.1.11 | No errata present |
| Advanced Power Strip – Tier 1 | 5.2.1 | No errata present |
| Smart Sockets | 5.2.4 (V12.0) | No errata present |
| Advanced Thermostats | 5.3.16 | No errata present |
| High Efficiency Bathroom Exhaust Fan | 5.3.9 | No errata present |
| Domestic Hot Water Pipe Insulation | 5.4.1 | No errata present |
| Gas Water Heater | 5.4.2 | No errata present |
| Heat Pump Water Heaters | 5.4.3 | No errata present |
| Low Flow Faucet Aerators | 5.4.4 | No errata present |
| Low Flow Showerheads | 5.4.5 | No errata present |
| LED Specialty Lamps | 5.5.6 & 4.5.4 | No errata present |
| LED Screw Based Omnidirectional Bulbs | 5.5.8 & 4.5.4 | No errata present |
| LED Fixtures | 5.5.9 & 4.5.4 | No errata present |
| LED Nightlights | 5.5.11 | No errata present |
| Connected LED Lamps | 5.5.12 & 5.5.6/5.5.8 | No errata present |
| Air Sealing | 5.6.1 | No errata present |
| High Efficiency Pool Pumps | 5.7.1 | No errata present |

Measure Lives and Cumulative Persisting Annual Savings

The evaluation team applied measure lives, baseline shifts, and mid-life adjustments from the IL-TRM V11.0 to calculate CPAS.

Gross Impact Methodology – Efficient Choice Tool

The evaluation team calculated verified savings for the ECT channel of the Retail Products Initiative by applying savings algorithms from the IL-TRM V11.0 to estimated counts of products purchased by customers that engaged with the ECT website. To estimate counts of products purchased by ECT website visitors, we rely on unique active shoppers counts provided by Enervee (defined by Enervee as ECT website visitors that conducted at least one of ten specific actions on the site based on observed traffic), to which we apply survey-based purchase rates based on primary survey-based research conducted in 2021 and 2022. The survey-based purchase rates account for the portion of ECT website unique active shoppers who purchase non-incentivized, energy-efficient products (and in the case of advanced power strips, the average number of units purchased). Table 117 lists the measures in the Retail Products Initiative ECT channel, their corresponding IL-TRM entry, and whether or not TRM errata applied to the measure in the 2023 evaluation.

Table 117. 2023 Retail Products Initiative Efficient Choice Tool Channel Measures Evaluated

| IL-TRM Measure Name | IL-TRM Measure | Errata Applied? |
| --- | --- | --- |
| ENERGY STAR Air Purifier/Cleaner | 5.1.1 | No errata present |
| ENERGY STAR Clothes Washers | 5.1.2 | No errata present |
| ENERGY STAR Dehumidifier | 5.1.3 | No errata present |
| ENERGY STAR Freezer | 5.1.5 | No errata present |
| ENERGY STAR and CEE Tier 2 Refrigerator | 5.1.6 | No errata present |
| ENERGY STAR Room Air Conditioner | 5.1.7 | No errata present |
| ENERGY STAR Clothes Dryer | 5.1.10 | No errata present |
| Advanced Power Strip – Tier 1 | 5.2.1 | No errata present |
| ENERGY STAR Television | 5.2.3 | No errata present |
| Advanced Thermostats | 5.3.16 | No errata present |
| Gas Water Heater | 5.4.2 | No errata present |
| Heat Pump Water Heaters | 5.4.3 | No errata present |
| Air Sealing | 5.6.1 | No errata present |
| High Efficiency Pool Pumps | 5.7.1 | No errata present |

#### Purchase Rates for 2023

A key component in the evaluation of the ECT channel is the purchase rate. In our 2020 through 2022 evaluations of the ECT channel, we conducted primary research with customers who used the ECT to estimate purchase rates. In 2023, we did not conduct primary research and instead chose to use data collected in past years to deem a purchase rate that can be used for the 2023 ECT evaluation. Table 118 presents purchase rates from our 2020-2022 survey-based evaluations of the ECT channel. We also present an average purchase rate from the 2021-2022 evaluations, which we recommend be deemed for the 2023 ECT.[[32]](#footnote-32) We chose to use only purchase rates from the 2021 and 2022 evaluation prospectively because the 2020 evaluation studied a pilot implementation of the ECT that exhibited somewhat different behavior, and was evaluated slightly differently,[[33]](#footnote-33) than the full 2021 and 2022 implementations of the ECT for AIC. Our researched 2021 and 2022 purchase rates remained reasonably consistent year-to-year for most measures.

Table 118. 2020-2022 Efficient Choice Tool Channel Purchase Rates

| Measure | 2020 Evaluation | 2021 Evaluation | 2022 Evaluation | 2021-2022 Average |
| --- | --- | --- | --- | --- |
| Advanced Power Strips | 42.1% | 15.8% | 13.2% | **28.3%a** |
| Advanced Thermostats | 49.8% | 5.6% | 5.7% | **5.7%** |
| Air Conditioners | 25.8% | 20.8% | 21.0% | **20.9%** |
| Air Purifiers | 29.7% | 11.7% | 13.6% | **12.6%** |
| Clothes Washers | 29.1% | 16.4% | 16.5% | **16.5%** |
| Dehumidifiers | 23.8% | 20.3% | 18.0% | **19.1%** |
| Dishwashers | 30.0% | 30.8% | 19.6% | **25.2%** |
| Electric Clothes Dryers | 24.9% | 15.5% | 12.9% | **14.2%** |
| Freezers | 25.9% | 20.9% | 17.1% | **19.0%** |
| Gas Clothes Dryers | 19.7% | 13.1% | 15.9% | **14.5%** |
| Gas Water Heaters | 15.4% | 13.7% | 19.3% | **16.5%** |
| Heat Pump Water Heaters | 1.1% | 1.5% | 7.9% | **4.7%** |
| Pool Pumps | N/A | 11.7% | 6.5% | **9.1%** |
| Refrigerators | 21.8% | 21.8% | 13.6% | **17.7%** |
| Televisions | 40.2% | 25.0% | 30.3% | **27.7%** |

*Source: Opinion Dynamics survey analysis.*

*a. The applied purchase rate for advanced power strips reflects the average purchase rate from past survey waves (14.5%) multiplied by the average number of measures per purchase (1.95).*

Measure Lives and Cumulative Persisting Annual Savings

The evaluation team applied measure lives, baseline shifts, and mid-life adjustments from the IL-TRM V11.0 to calculate CPAS.

Net Impact Methodology

The evaluation team applied SAG-approved NTGRs to verified gross savings to calculate verified net savings. NTGRs applied vary depending on whether sales are assumed to reach market rate or IQ customers. Because the incentive-based channels of the Retail Products Initiative do not verify customer income, we estimate the IQ allocation using a consistent methodology and apply NTGRs accordingly.

* For POP channel LED lighting, IQ allocations are deemed 100% by the IL-TRM V11.0 for dollar stores, thrift stores, and any retail store that is closest to a community with a zip code that has 65% of family households with an income less than or equal to 299% of the FPL for their household size.
* For POP channel non-lighting, IQ allocations are based on United States Census Bureau American Community Survey (ACS) data for all census tracts within a 10-mile radius of each store location. Each participating store location has an assigned percentage representing its expected incidence of IQ customers, and by extension, the expected portion of sales going to IQ customers. This approach does not apply to sales from thrift stores, for which IQ allocation is deemed at 100% in the absence of adequate research but with the understanding that these types of retailers tend to attract a higher proportion of IQ customers than other retail channels.
* For Downstream Rebate and Online Marketplace offerings, tracking data included customer addresses from rebate applications, allowing for assignment of IQ allocations based on individual participant ZIP codes. These IQ allocations use household-level data from ACS data to calculate the percentage of population that is IQ for each ZIP code in AIC’s service territory. The evaluation team used these ZIP code-based IQ allocations to estimate the portion of purchases by each IQ participants based on the incidence of IQ customers in that ZIP code.
* All ECT channel-attributed purchases of products use market rate NTGRs.

Table 119 outlines the SAG-approved NTGR values applied to verified gross savings to calculate verified net savings.

Table 119. 2023 SAG-Approved Retail Products Initiative NTGRs

| Channel | Measure Category | Market Rate NTGR | IQ NTGR |
| --- | --- | --- | --- |
| Incentive-Based Channels | Advanced Thermostat (Cooling) | 0.800 | 1.000 |
| Advanced Thermostat (Heating) | 0.900 |
| Incentive-Based Channels | Air Purifiers | 0.790 | 1.000 |
| Incentive-Based Channels | Bathroom Vent Fans | 0.660 | 1.000 |
| Incentive-Based Channels | Clothes Washers | 0.630 | 1.000 |
| Incentive-Based Channels | Dehumidifiers | 0.670 | 1.000 |
| Efficient Choice Tool Channel | Dishwashers | 0.620 | 1.000 |
| Incentive-Based Channels | ENERGY STAR Clothes Dryer | 0.670 | 1.000 |
| Efficient Choice Tool Channel | 0.610 |
| Incentive-Based Channels | ENERGY STAR Dishwasher | 0.800 | 1.000 |
| Incentive-Based Channels | ENERGY STAR Room AC | 0.720 | 1.000 |
| Incentive-Based Channels | Faucet Aerator | 0.800 | 1.000 |
| Incentive-Based Channels | Freezers | 0.630 | 1.000 |
| Incentive-Based Channels | Heat Pump Clothes Dryer | 0.800 | 1.000 |
| Incentive-Based Channels | HPWH | 0.800 | 1.000 |
| Incentive-Based Channels | LED Lighting | 0.690a | 1.000 |
| Incentive-Based Channels | Pipe Insulation | 0.800 | 1.000 |
| Incentive-Based Channels | Pool Pumps | 0.760 | 1.000 |
| Incentive-Based Channels | Refrigerators | 0.650 | 1.000 |
| Efficient Choice Tool Channel | 0.620 |
| Incentive-Based Channels | Showerhead | 0.800 | 1.000 |
| Incentive-Based Channels | Showerhead Kits | 0.800 | 1.000 |
| Incentive-Based Channels | Smart Sockets | 0.800b | 1.000 |
| Efficient Choice Tool Channel | Televisions | 0.800 | 1.000 |
| Incentive-Based Channels | Tier 1 Advanced Power Strips | 0.860 | 1.000 |
| Incentive-Based Channels | Wall Plate Gasket | 0.800 | 1.000 |
| Incentive-Based Channels | Water Dispensers | 0.670 | 1.000 |
| Incentive-Based Channels | Weatherstripping | 0.800 | 1.000 |
| Efficient Choice Tool Channel | All Other Measures | 0.676 | 1.000 |
| a Includes Big Box, DIY, or Warehouse stores in, or in proximity to, IQ ZIP codes  b Default value was used when SAG recommendation was not available. | | | | |

Measure Lives and Cumulative Persisting Annual Savings

The evaluation team applied measure lives, baseline shifts, and mid-life adjustments from the IL-TRM V11.0 to calculate CPAS.

Income Qualified Initiative – Single Family Offerings

Gross Impact Methodology

The evaluation team calculated verified savings for the IQ Initiative Single Family Offerings by applying savings algorithms from the IL-TRM V11.0. The team leveraged initiative tracking data such as primary heating and cooling type, the delivery mechanism (e.g., direct install, leave-behind), LED wattage, LED lamp type, project location (e.g., for weather-dependent variables), and installed measure location (e.g., for faucet aerators) to inform savings assumptions. For variables outside these parameters, the evaluation team typically relied on defaults from the IL-TRM V11.0. Table 120 lists the measures in the IQ Initiative Single Family Offerings, their corresponding IL-TRM entry, and whether or not TRM errata applied to the measure in the 2023 evaluation.

Table 120. 2023 Income Qualified Initiative Single Family Offerings Measures Evaluated

| IL-TRM Measure Name | IL-TRM Measure | Errata Applied? |
| --- | --- | --- |
| ENERGY STAR Clothes Dryer | 5.1.10 | No |
| Income Qualified: ENERGY STAR and CEE Tier 2 Room Air Conditioner | 5.1.13 | No |
| Residential Induction Cooktop | 5.1.14 | No |
| ENERGY STAR Clothes Washer | 5.1.2 | Errata are not relevant to 2023 impact evaluation |
| ENERGY STAR Dishwasher | 5.1.4 | Errata are not relevant to 2023 impact evaluation |
| ENERGY STAR, CEE Tier 2 or CEE Tier 3 Refrigerator | 5.1.6 | No |
| Advanced Power Strip - Tier 1 | 5.2.1 | No |
| Centrally Ducted Air Source Heat Pump | 5.3.1 | Yes |
| Ductless Heat Pumps | 5.3.12 | Yes |
| Advanced Thermostats | 5.3.16 | No |
| Central Air Conditioning | 5.3.3 | Yes |
| Duct Insulation and Sealing | 5.3.4 | No |
| Furnace Blower Motor | 5.3.5 | No |
| Gas High Efficiency Boiler | 5.3.6 | No |
| Gas High Efficiency Furnace | 5.3.7 | No |
| Gas High Efficiency Furnace | 5.3.7 | No |
| High Efficiency Bathroom Exhaust Fan | 5.3.9 | No |
| Domestic Hot Water Pipe Insulation | 5.4.1 | Errata are not relevant to 2023 impact evaluation |
| Gas Water Heater | 5.4.2 | No |
| Heat Pump Water Heaters | 5.4.3 | No |
| Low Flow Faucet Aerators | 5.4.4 | Errata are not relevant to 2023 impact evaluation |
| Low Flow Showerheads | 5.4.5 | Errata are not relevant to 2023 impact evaluation |
| LED Specialty Lamps | 5.5.6 | Errata are not relevant to 2023 impact evaluation |
| LED Screw Based Omnidirectional Bulbs | 5.5.8 | Errata are not relevant to 2023 impact evaluation |
| Air Sealing | 5.6.1 | No |
| Basement Sidewall Insulation | 5.6.2 | No |
| Floor Insulation Above Crawlspace | 5.6.3 | No |
| Wall Insulation | 5.6.4 | No |
| Ceiling/Attic Insulation | 5.6.5 | No |
| Rim/Band Joist Insulation | 5.6.6 | No |
| Tree Planting | 5.7.5 | No |

#### Measure Lives and Cumulative Persisting Annual Savings

The evaluation team applied measure lives, baseline shifts, and mid-life adjustments from the IL-TRM V11.0 to calculate CPAS.

Net Impact Methodology

The evaluation team applied SAG-approved 2023 NTGRs to verified gross savings to calculate verified net savings. SAG-approved NTGRs for the IQ Initiative are 1.000 for all measures. Therefore, gross savings are equivalent to net savings.

The one exception is the Smart Savers channel. In 2% of cases, advanced thermostats were provided to ZIP codes we could not verify as IQ-qualifying. The evaluation team treated these cases as Market Rate, applying NTGRs of 0.800 for cooling and 0.900 for cooling. The resulting overall NTGR for the Smart Savers channel was 0.999.

Multifamily Initiatives

Gross Impact Methodology

The evaluation team calculated verified savings for the Multifamily Initiatives by applying savings algorithms from the IL-TRM V11.0. The team leveraged initiative tracking data such as primary heating and cooling type, the delivery mechanism (e.g., direct install, leave-behind), LED wattage, LED lamp type, project location (e.g., for weather-dependent variables), and installed measure location (e.g., for faucet aerators) to inform savings assumptions. For variables outside these parameters, the evaluation team typically relied on defaults from the IL-TRM V11.0. Table 121 lists the measures in the Multifamily Initiatives, their corresponding IL-TRM entry, and whether TRM errata applied to the measure in the 2023 evaluation.

Table 121. 2023 Multifamily Initiatives Measures Evaluated

| IL-TRM Measure Name | IL-TRM Measure | Errata Applied? |
| --- | --- | --- |
| LED Bulbs and Fixtures | 4.5.4 | Errata are not relevant to 2023 impact evaluation |
| ENERGY STAR and CEE Tier 2 Refrigerator | 5.1.6 | No |
| ENERGY STAR and CEE Tier 2 Room Air Conditioner | 5.1.7 | No |
| Advanced Power Strip - Tier 1 | 5.2.1 | No |
| Centrally Ducted Air Source Heat Pumps | 5.3.1 | No |
| Ductless Heat Pumps | 5.3.12 | No |
| Advanced Thermostats | 5.3.16 | No |
| Domestic Hot Water Pipe Insulation | 5.4.1 | No |
| Low Flow Faucet Aerators | 5.4.4 | No |
| Low Flow Showerheads | 5.4.5 | No |
| Thermostatic Restrictor Shower Valve | 5.4.8 | No |
| LED Specialty Lamps | 5.5.6 | Errata are not relevant to 2023 impact evaluation |
| LED Screw Based Omnidirectional Bulbs | 5.5.8 | Errata are not relevant to 2023 impact evaluation |
| Air Sealing | 5.6.1 | No |
| Basement Sidewall Insulation | 5.6.2 | No |
| Ceiling/Attic Insulation | 5.6.5 | No |
| Rim/Band Joist Insulation | 5.6.6 | No |

#### Measure Lives and Cumulative Persisting Annual Savings

The evaluation team applied measure lives, baseline shifts, and mid-life adjustments from the IL-TRM V11.0 to calculate CPAS.

Net Impact Methodology

The evaluation team applied SAG-approved 2023 NTGRs to the verified gross savings to calculate verified net savings. Table 122 outlines the SAG-approved NTGR values applied to verified gross savings to calculate verified net savings.

Table 122. 2023 SAG-Approved Multifamily Initiatives NTGRs

| Initiative/Channel | Measure Category | Electric NTGR | Gas NTGR |
| --- | --- | --- | --- |
| IQ Multifamily | All Measures | 1.000 | 1.000 |
| Public Housing | All Measures | 1.000 | 1.000 |
| MR Multifamily | Centrally Ducted Air Source Heat Pumps | 0.800 | N/A |
| Advanced Thermostat - Cooling | 0.800 | N/A |
| Advanced Thermostat - Heating | 0.900 | 0.900 |
| Showerhead | 1.004 | 1.000 |
| Advanced Power Strips – Tier 1 | 0.980 | N/A |
| Kitchen Faucet Aerator | 1.004 | 1.000 |
| Restrictor Shower Valve | 0.800 | 0.800 |
| Bathroom Faucet Aerator | 1.004 | 1.000 |
| Specialty LED (Common Area) | 0.800 | 0.800 |
| Standard LED | 0.960 | N/A |
| Wall Plate Gasket | 0.861 | 0.800 |
| Pipe Insulation | 0.794 | 1.000 |
| Door Sweep | 0.861 | 0.800 |
| Standard LED (Common Area) | 0.800 | 0.800 |

Market Rate Single Family Initiative

Gross Impact Methodology

The evaluation team calculated verified savings for the Market Rate Single Family Initiative by applying savings algorithms from the IL-TRM V11.0. The team leveraged initiative tracking data such as primary heating and cooling type, new and existing heating and cooling efficiencies and capacities, project location (e.g., for weather-dependent variables), and water heater tank volumes. For variables outside these parameters, the evaluation team typically relied on defaults from the IL-TRM V11.0. Table 123 lists the measures in the Market Rate Single Family Initiative, their corresponding IL-TRM entry, and whether or not TRM errata applied to the measure in the 2023 evaluation. The TRM errata was not applied for Centrally Ducted Air Source Heat Pumps, Central Air Conditioning, and Ductless Heat Pumps because midstream savings are based on standard-size units, which were not impacted by the errata update.

Table 123. 2023 Market Rate Single Family Initiative Measures Evaluated

|  |  |  |  |
| --- | --- | --- | --- |
| Channel | IL-TRM Measure Name | IL-TRM Measure | Errata Applied? |
| Midstream HVAC | Ductless Heat Pumps | 5.3.12 | No |
| Midstream HVAC | Centrally Ducted Air Source Heat Pump | 5.3.1 | No |
| Midstream HVAC | Central Air Conditioning | 5.3.3 | No |
| Midstream HVAC | Heat Pump Water Heaters | 5.4.3 | No |
| Midstream HVAC | Advanced Thermostats | 5.3.16 | No |
| Midstream HVAC | Gas High Efficiency Furnace | 5.3.7 | No |
| Home Efficiency | High Efficiency Bathroom Exhaust Fan | 5.3.9 | No |
| Home Efficiency | Air Sealing | 5.6.1 | No |
| Home Efficiency | Basement Sidewall Insulation | 5.6.2 | No |
| Home Efficiency | Wall Insulation | 5.6.4 | No |
| Home Efficiency | Ceiling/Attic Insulation | 5.6.5 | No |
| Home Efficiency | Rim/ Band Joist Insulation | 5.6.6 | No |

#### Measure Lives and Cumulative Persisting Annual Savings

The evaluation team applied measure lives, baseline shifts, and mid-life adjustments from the IL-TRM V11.0 to calculate CPAS.

Net Impact Methodology

The evaluation team applied SAG-approved 2023 NTGRs to the verified gross savings to calculate verified net savings. Table 124 outlines the SAG-approved NTGR values applied to verified gross savings to calculate verified net savings.

Table 124. 2023 SAG-Approved Market Rate Single Family Initiative NTGRs

|  |  |  |  |
| --- | --- | --- | --- |
| Channel | Measure Category | Electric NTGR | Gas NTGR |
| Midstream HVAC | Air Conditioners and Heat Pumps | 0.700 | N/A |
| Midstream HVAC | Heat Pump Water Heaters | 0.700 | N/A |
| Midstream HVAC | Advanced Thermostats - Cooling | 0.700 | N/A |
| Midstream HVAC | Advanced Thermostats - Heating | 0.850 | 0.850 |
| Midstream HVAC | High-Efficiency Gas Furnace | N/A | 0.800 |
| Home Efficiency | Air Sealing (when insulation is also installed) | 0.900 | 0.900 |
| Home Efficiency | Air Sealing (when insulation is not also installed) | 0.800 | 0.800 |
| Home Efficiency | Attic Insulation | 0.800 | 0.800 |
| Home Efficiency | Bathroom Exhaust Fan | 0.800 | 0.800 |
| Home Efficiency | Wall Insulation | 0.800 | 0.800 |
| Home Efficiency | Crawlspace Insulation | 0.800 | 0.800 |
| Home Efficiency | Rim Joist Insulation | 0.800 | 0.800 |

Kits Initiatives

Gross Impact Methodology

The evaluation team calculated verified savings for the Kits Initiatives by applying savings algorithms and default assumptions from the IL-TRM V11.0. Note that while smart sockets, a BN Holiday Kit measure, are not included in the IL-TRM V11.0, they were recently added to the IL-TRM V12.0, and therefore the evaluation team relied on the IL-TRM V12.0 when calculating verified savings for smart sockets. Table 125 lists the measures in the Kits Initiatives, their corresponding IL-TRM entry, and whether TRM errata applied to the measure in the 2023 evaluation.

Table 125. 2023 Kits Initiatives Measures Evaluated

| IL-TRM Measure Name | IL-TRM Measure | Errata Applied? |
| --- | --- | --- |
| Advanced Power Strip – Tier 1 | 5.2.1 | No |
| Smart Sockets | 5.2.4 | No |
| Domestic Hot Water Pipe Insulation | 5.4.1 | Errata are not relevant to 2023 impact evaluation |
| Low Flow Faucet Aerators | 5.4.4 | Errata are not relevant to 2023 impact evaluation |
| Low Flow Showerheads | 5.4.5 | Errata are not relevant to 2023 impact evaluation |
| Thermostatic Restrictor Shower Valve | 5.4.8 | Errata are not relevant to 2023 impact evaluation |
| Shower Timer | 5.4.9 | Errata are not relevant to 2023 impact evaluation |
| LED Specialty Lamps | 5.5.6 | Errata are not relevant to 2023 impact evaluation |
| LED Screw Based Omnidirectional Bulbs | 5.5.8 | Errata are not relevant to 2023 impact evaluation |
| LED Fixtures | 5.5.9 | No |
| Connected LED Lamps | 5.5.12 | No |
| Air Sealing | 5.6.1 | No |

#### Measure Lives and Cumulative Persisting Annual Savings

In most cases, the evaluation team applied measure lives, baseline shifts, and mid-life adjustments from the IL-TRM V11.0 to calculate CPAS. For smart sockets, the evaluation team used IL-TRM V12.0.

Net Impact Methodology

The evaluation team applied SAG-approved 2023 NTGRs of 1.000 to the verified gross savings to calculate verified net savings for all Kits Initiatives measures.

1. Additional Impacts

Introduction

In this appendix, we provide additional quantified impacts from AIC's Residential Program that are not presented in the body of the report. Three specific types of additional inputs are provided:

* Summaries of fossil fuel impacts achieved by the Residential Program that cannot be directly claimed against AIC’s goals but can be used in cost-effectiveness testing and support savings conversions under Illinois law;
* Summaries of gas penalties that are not counted toward goal attainment but are required for cost-effectiveness analysis; and,
* Summaries of water savings and secondary electric energy savings from water supply and wastewater treatment that are required for cost-effectiveness analysis.

Additional Fossil Fuel Impacts

Some AIC customers receive natural gas service from other energy providers or use unregulated fuels such as propane to serve their energy needs. Measures that are provided by AIC to these customers through its existing programs may save units of these fuels in addition to energy sources provided by AIC. While these savings cannot be directly claimed against AIC’s energy savings goals, where possible, we quantify these impacts in this appendix to support both cost-effectiveness testing as well as savings conversions under Illinois state law.

The Retail Products Initiative, IQ Initiative (Single Family, CAA, Joint Utility, and Smart Savers channels), and Joint Utility Kits (including in the Kits Initiatives) produced quantifiable propane and/or non-AIC natural gas impacts in 2023.

Gas Heating Penalties

Per the Policy Manual, AIC is not required to account for gas heating penalties resulting from the installation of energy efficiency measures designed to save electricity when considering savings for goal attainment purposes.[[34]](#footnote-34),[[35]](#footnote-35) Therefore, we exclude those effects from all savings reported throughout the body of this report. However, these effects must be evaluated and considered as part of cost-effectiveness testing, and are therefore presented in this appendix.

In the following sections, the evaluation team focuses specifically on gas heating penalties as follows:

* **Lighting Heating Penalties.** The inclusion of waste heat factors for lighting is based on the concept that heating loads are increased to supplement the reduction in waste heat that was once provided by the existing, less-efficient lamp type. The evaluation team applied the IL-TRM waste heat factors to lamps, based on heating fuel types provided in the tracking database, to arrive at gross heating penalties. For the cases where tracking data did not provide the heating type, the team assumed natural gas heating, per the IL-TRM.
* **Furnace Blower Motor Heating Penalties.** High-efficiency fan motors operate at cooler temperatures than traditional furnace blower motors. The amount of heat that is released decreases due to cooler operating conditions. Heating equipment must make up for this loss of heat during the heating season, resulting in an increase in HVAC heating loads. The team applied IL-TRM algorithms to calculate the associated heating penalty.
* **Heat Pump Water Heater Heating Penalties.** When heat pump water heaters (HPWHs) are installed in conditioned space, they move heat from the ambient air into water stored in a tank. During the heating season, this can result in an increase in HVAC heating loads. The team applied IL-TRM algorithms to calculate the associated heating penalty.

All gas heating penalties were calculated using algorithms from the IL-TRM V11.0 (with applicable errata applied).

Secondary Electric Savings for Water Supply and Wastewater Treatment

Some measures delivered through the Residential Program produce water savings as well as energy savings. For applicable measures, the IL-TRM V11.0 includes an algorithm to calculate the secondary electric impacts of these water savings resulting from decreased electricity usage for water supply and wastewater treatment. As directly instructed in the IL-TRM, these savings may be included toward goal attainment but must be removed for the purpose of cost-effectiveness calculations. This is because secondary electric savings occur due to the displaced energy usage needed to power the water supply and wastewater treatment, but water savings are also included in the Illinois Total Resource Cost (TRC) test as gallons of water saved, and avoided water costs include the effects of this displaced energy usage. As such, secondary electric savings are excluded from the Illinois TRC to avoid double counting.

Therefore, we present these savings separately in this appendix to provide transparency on the reduced savings that will be used when conducting testing for cost-effectiveness. All secondary electric savings were calculated using algorithms from the IL-TRM V11.0.

Retail Products Initiative

Additional Fossil Fuel Impacts

A small number of advanced thermostats rebated through the Retail Products Initiative’s incentive-based channels went to participants with propane heating. Propane savings associated with 1,215 thermostats distributed to customers with propane heating are presented in Table 126.

Table 126. 2023 Retail Products Initiative Propane Savings by Measure

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Channel | Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| Incentive-Based Channels (Market Rate) | Advanced Thermostat | 65,608 | 97% | 63,336 | 0.900 | 57,003 |
| Incentive-Based Channels (Income Qualified) | Advanced Thermostat | 20,570 | 97% | 19,939 | 1.000 | 19,939 |
| Total |  | 86,178 | 97% | 83,275 | 0.924 | 76,941 |

We discuss discrepancies between ex ante claims and the verified analysis for Retail Products Initiative propane savings below.

* Advanced Thermostats (100% of ex ante propane gas savings): The gross realization rate for Advanced Thermostats was 97%.
  + In 2% of cases, the evaluation team assigned household-level savings for participants who purchased more than one advanced thermostat (in accordance with IL-TRM V11.0 guidance), whereas the implementation team included savings for each thermostat, resulting in lower verified propane gas savings.

Gas Heating Penalties

Table 127 presents gas heating penalties not reported in the body of the report for the Retail Products Initiative.

Table 127. 2023 Retail Products Initiative Gas Heating Penalties

| Channel | Measure Category | Therms |
| --- | --- | --- |
| Incentive-Based Channels  (Market Rate) | Specialty LED | -29,272 |
| Fixture LED | -75,575 |
| Nightlight LED | -15,705 |
| Heat Pump Water Heater | -80 |
| Incentive-Based Channels  (Income Qualified) | Standard LED | -1,156,183 |
| Specialty LED | -495,420 |
| Fixture LED | -388,008 |
| Nightlight LED | -108,571 |
| Connected LED | -3,668 |
| Heat Pump Water Heater | -29 |
| Efficient Choice Tool | Heat Pump Water Heater | -2,519 |
| Total Gas Penalties |  | -2,275,029 |

Secondary Electric Savings for Water Supply and Wastewater Treatment

Table 128 presents water savings and secondary electric savings for the Retail Products Initiative.

Table 128. 2023 Retail Products Initiative Secondary Electric and Water Savings by Measure

| Measure Category | Verified Gross Water Savings (Gallons) | Conversion Factor | Verified Gross Secondary Electric Savings (kWh) |
| --- | --- | --- | --- |
| Showerhead Kit (Incentive-Based Channels) | 30,173,712 | 5,010 kWh/million gala | 151,170 |
| Clothes Washer (Incentive-Based Channels) | 4,644,795 | 23,270 |
| Showerhead (Incentive-Based Channels) | 96,412 | 483 |
| Faucet Aerator (Incentive-Based Channels) | 84,882 | 425 |
| Clothes Washer (Efficient Choice Tool Channel) | 1,260,147 | 6,313 |
| Dishwasher (Efficient Choice Tool Channel) | 32,309 | 162 |
| Total | 36,292,256 | 181,823 |

a *Source: IL-TRM V11.0.*

Total Impacts for Cost-Effectiveness

Table 129 presents a summary of the 2023 Retail Products Initiative verified gross impacts adjusted for the above effects.

Table 129. 2023 Retail Products Initiative Verified Gross Impacts for Cost-Effectiveness

|  | Electric Energy (kWh) | Gas (Therms) | Non-AIC Gas (Therms) | Propane (Therms) | Water (Gallons) |
| --- | --- | --- | --- | --- | --- |
| Verified Gross Impacts for Goal Attainment | 142,273,461 | 1,527,531 | N/A | N/A | N/A |
| Gas Penalties | N/A | -2,275,029 | N/A | N/A | N/A |
| Water Savings | N/A | N/A | N/A | N/A | 36,292,256 |
| Secondary Electric Savings | -181,823 | N/A | N/A | N/A | N/A |
| Additional Fossil Fuel Impacts | N/A | N/A | N/A | 83,275 | N/A |
| Final Verified Gross Impacts for Cost-Effectiveness | 142,091,638 | -747,498 | 0 | 83,275 | 36,292,256 |

Note: All electric demand savings used in cost-effectiveness testing align with those presented in Section 3.

Income Qualified Initiative – Single Family Channels

Additional Fossil Fuel Impacts

The Single Family, CAA, Joint Utility, and Smart Savers channels produced additional fossil fuel impacts (note: the MHAS channel did not). AIC converted these savings to CPAS for the purposes of goal attainment. Those conversion-related savings are presented separately in Appendix C. Details for each channel are given below.

In 2023, AIC implemented gas efficiency measures for 64 AIC electric customers who receive gas service from other utilities as part of the Single Family channel. As allowed under 220 ILCS 5/8-103B(b-25), we verified non-AIC gas savings associated with these measures and present them in Table 130.

Table 130. 2023 Single Family Channel Non-AIC Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Pipe Insulation | 0 | N/A | 47 | 1.000 | 47 |
| Faucet Aerator | 0 | N/A | 470 | 1.000 | 470 |
| Showerhead | 0 | N/A | 274 | 1.000 | 274 |
| Door Sweep | 0 | N/A | 64 | 1.000 | 64 |
| Total | 0 | N/A | 855 | 1.000 | 855 |

In 2023, AIC completed building envelope upgrades for one AIC electric customer who received gas service from other utilities as part of the CAA channel. As allowed under 220 ILCS 5/8-103B(b-25), we verified non-AIC gas savings associated with these measures and present them in Table 131.

Table 131. 2023 CAA Channel Non-AIC Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Air Sealing | 30 | 100% | 30 | 1.000 | 30 |
| Attic Insulation | 65 | 100% | 65 | 1.000 | 65 |
| Crawl Space Insulation | 115 | 100% | 115 | 1.000 | 115 |
| Rim Joist Insulation | 11 | 100% | 11 | 1.000 | 11 |
| Total | 223 | 100% | 223 | 1.000 | 223 |

In 2023, AIC paid for gas measures included in 25 Joint Utility channel projects as allowed under 220 ILCS 5/8-103B(b-25). Non-AIC gas savings associated with the Joint Utility channel are presented in Table 132.

Table 132. 2023 Joint Utility Channel Non-AIC Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Air Sealing | 1,017 | 100% | 1,017 | 1.000 | 1,017 |
| Advanced Thermostat | 1,171 | 100% | 1,171 | 1.000 | 1,171 |
| Attic Insulation | 523 | 100% | 523 | 1.000 | 523 |
| Showerhead | 76 | 503%a | 383 | 1.000 | 383 |
| Pipe Insulation | 114 | 104% | 119 | 1.000 | 119 |
| Faucet Aerator | 109 | 264%a | 288 | 1.000 | 288 |
| Wall Insulation | 22 | 100% | 22 | 1.000 | 22 |
| Rim Joist Insulation | 23 | 100% | 23 | 1.000 | 23 |
| Gas High Efficiency Furnace (ER) | 410 | 147%b | 603 | 1.000 | 603 |
| Total | 3,465 | 120% | 4,149 | 1.000 | 4,149 |

We discuss discrepancies between ex ante claims and the verified analysis for Joint Utility channel non-AIC gas savings as follows:

* Showerheads (2% of ex ante non-AIC gas savings): The gross realization rate for Showerheads was 503%.
  + In 82% of non-AIC gas measures, (n=32), the evaluation team included gas savings when the tracking database specified the water heating fuel type as gas, whereas the implementation team did not, resulting in higher verified non-AIC gas savings.
* Faucet Aerators (3% of ex ante non-AIC gas savings): The gross realization rate for Faucet Aerators was 264%.
  + In 65% of non-AIC gas measures, (n=33), the evaluation team included gas savings when the tracking database specified the water heating fuel type was gas, whereas the implementation team did not, resulting in higher verified non-AIC gas savings.
* Gas High Efficiency Furnace (ER) (12% of ex ante non-AIC gas savings): The gross realization rate for Gas High Efficiency Furnaces (ER) was 147%.
  + In 67% of non-AIC measures, (n=2), the evaluation team calculated savings as ER based on information in the tracking database, whereas the implementation team calculated savings as TOS, resulting in higher verified non-AIC gas savings.

In 2023, AIC provided advanced thermostats to two AIC electric customers who receive gas service from other utilities as part of the Smart Savers Channel. As allowed under 220 ILCS 5/8-103B(b-25), we verified non-AIC gas savings associated with these measures and present them in Table 133.

Table 133. Smart Savers Channel Non-AIC Gas Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat | 0 | N/A | 114 | 1.000 | 114 |
| Total | 0 | N/A | 114 | 1.000 | 114 |

Similarly, AIC also provided advanced thermostats to 143 AIC electric customers who use propane for heating. As allowed under 220 ILCS 5/8-103B(b-25), we verified propane savings associated with these measures and present them in Table 134.

Table 134. Smart Savers Channel Propane Savings by Measure

| Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat | 11,016 | 89% | 9,772 | 0.998 | 9,755 |
| Total | 11,016 | 89% | 9,772 | 0.998 | 9,755 |

We discuss discrepancies between ex ante claims and the verified analysis for Smart Savers Channel propane gas savings below.

* Advanced Thermostats (100% of ex ante propane gas savings): The gross realization rate for Advanced Thermostats was 89%.
  + In <1% of measures, (n=1), the evaluation team applied the household heating consumption for gas-heated single-family homes that aligned with the project location shown in the tracking data, whereas the implementation team applied the household heating consumption for electric-heated single-family homes for an unknown location, resulting in lower verified propane savings.

Gas Heating Penalties

Table 135 presents gas penalties not reported in the body of the report for the Income Qualified Initiative Single Family Offerings. The Smart Savers Channel did not produce gas penalties.

Table 135. 2023 Income Qualified Initiative Single Family Offerings Gas Heating Penalties

| Channel | Measure Category | Therms |
| --- | --- | --- |
| Single Family | Standard LED | -5,547 |
| Specialty LED | -2,404 |
| Furnace Blower Motor | -2,593 |
| Heat Pump Water Heater | -22 |
| CAA | Standard LED | -3,076 |
| Furnace Blower Motor | -573 |
| Heat Pump Water Heater | -9 |
| Specialty LED | -226 |
| Joint Utility | Standard LED | -464 |
| Specialty LED | -159 |
| Furnace Blower Motor | -150 |
| MHAS | Furnace Blower Motor | -469 |
| Total Gas Penalties |  | -15,693 |

Secondary Electric Savings for Water Supply and Wastewater Treatment

Table 136 presents water savings and secondary electric savings for the IQ Initiative Single Family Offerings. The Smart Savers and MHAS channels did not produce secondary electric savings for water supply and wastewater treatment in 2023.

Table 136. 2023 Income Qualified Initiative Single Family Offerings Secondary Electric and Water Savings by Measure

| Channel | Measure Category | Verified Gross Water Savings (Gallons) | Conversion Factor | Verified Gross Secondary Electric Savings (kWh) |
| --- | --- | --- | --- | --- |
| Single Family | Showerhead | 807,140 | 5,010 kWh/million gala | 4,044 |
| Faucet Aerator | 1,157,056 | 5,797 |
| CAA | Showerhead | 209,113 | 1,048 |
| Faucet Aerator | 186,220 | 933 |
| Joint Utility | Showerhead | 84,898 | 425 |
| Faucet Aerator | 75,841 | 380 |
| Total | | 2,520,268 | 12,627 |

a Source: IL-TRM V11.0.

Total Impacts for Cost-Effectiveness

Table 137 presents a summary of the 2023 Income Qualified Initiative Single Family Offerings verified gross impacts adjusted for the above effects.

Table 137. 2023 Income Qualified Initiative Single Family Offerings Verified Gross Impacts for Cost-Effectiveness

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Electric Energy (kWh) | Gas (Therms) | Non-AIC Gas (Therms) | Propane (Therms) | Water (Gallons) |
| Verified Gross Impacts for Goal Attainment | 9,405,416 | 1,020,016 | N/A | N/A | N/A |
| Gas Penalties | N/A | -15,693 | N/A | N/A | N/A |
| Water Savings | N/A | N/A | N/A | N/A | 2,520,268 |
| Secondary Electric Savings | -12,627 | N/A | N/A | N/A | N/A |
| Additional Fossil Fuel Impacts | N/A | N/A | 5,341 | 9,772 | N/A |
| Final Verified Gross Impacts for Cost-Effectiveness | 9,392,789 | 1,004,323 | 5,341 | 9,772 | 2,520,268 |

Note: All electric demand savings used in cost-effectiveness testing align with those presented in Section 3.

Multifamily Initiatives

Additional Fossil Fuel Impacts

There were no additional fossil fuel impacts for the Multifamily Initiatives.

Gas Heating Penalties

Table 138 presents gas penalties not reported in the body of the report for the Multifamily Initiatives.

Table 138. 2023 Multifamily Initiatives Gas Heating Penalties

| Channel | Measure Category | Therms |
| --- | --- | --- |
| IQ Multifamily | Standard LED | -14,281 |
| Specialty LED | -7,563 |
| Standard LED (Common Area) | -5,047 |
| Specialty LED (Common Area) | -114 |
| MR Multifamily | Standard LED | -16 |
| Public Housing | Standard LED | -2,982 |
| Specialty LED | -89 |
| Standard LED (Common Area) | -157 |
| Total Gas Penalties | | -30,250 |

Secondary Electric Savings for Water Supply and Wastewater Treatment

Table 139 presents water savings and secondary electric savings for the Multifamily Initiatives.

Table 139. 2023 Multifamily Initiatives Secondary Electric and Water Savings by Measure

| Channel/Initiative | Measure Category | Verified Gross Water Savings (Gallons) | Conversion Factor | Verified Gross Secondary Electric Savings (kWh) |
| --- | --- | --- | --- | --- |
| IQ Multifamily | Faucet Aerator | 4,281,076 | 5,010 kWh/million gala | 21,448 |
| Showerhead | 6,122,217 | 30,672 |
| Restrictor Shower Valve | 1,290,355 | 6,465 |
| MR Multifamily | Faucet Aerator | 1,564,009 | 7,836 |
| Showerhead | 3,379,872 | 16,933 |
| Restrictor Shower Valve | 532,036 | 2,665 |
| Public Housing | Faucet Aerator | 1,934,890 | 9,694 |
| Showerhead | 1,400,597 | 7,017 |
| Restrictor Shower Valve | 276,120 | 1,383 |
| Total | | 20,781,172 | 104,114 |

a Source: IL-TRM V11.0.

Total Impacts for Cost-Effectiveness

Table 140 presents a summary of the 2023 Multifamily Initiatives verified gross impacts adjusted for the above effects.

Table 140. 2023 Multifamily Initiatives Verified Gross Impacts for Cost-Effectiveness

|  | Electric Energy (kWh) | Gas (Therms) | Water (Gallons) |
| --- | --- | --- | --- |
| Verified Gross Impacts for Goal Attainment | 11,587,139 | 140,080 | N/A |
| Gas Penalties | N/A | -30,250 | N/A |
| Water Savings | N/A | N/A | 20,781,172 |
| Secondary Electric Savings | -104,114 | N/A | N/A |
| Additional Fossil Fuel Impacts | N/A | N/A | N/A |
| Final Verified Gross Impacts for Cost-Effectiveness | 11,483,025 | 109,830 | 20,781,172 |

Note: All electric demand savings used in cost-effectiveness testing align with those presented in Section 3.

Single Family Market Rate Initiative

Additional Fossil Fuel Impacts

None of the measures in the 2023 Single Family Market Rate Initiative have additional fossil fuel impacts.

Gas Heating Penalties

Table 141 presents gas penalties not reported in the body of the report for the Single Family Market Rate Initiative.

Table 141. 2023 Single Family Market Rate Initiative Gas Heating Penalties

|  |  |  |
| --- | --- | --- |
| Channel | Measure Category | Therms |
| Midstream HVAC | Heat Pump Water Heater | -142 |
| Total Gas Penalties |  | -142 |

Secondary Electric Savings for Water Supply and Wastewater Treatment

None of the measures in the 2023 Market Rate Single Family Initiative have water savings or secondary electric savings.

Total Impacts for Cost-Effectiveness

Table 142 presents a summary of the 2023 Single Family Market Rate Initiative verified gross impacts adjusted for the above effects.

Table 142. 2023 Single Family Market Rate Initiative Verified Gross Impacts for Cost-Effectiveness

|  | Electric Energy (kWh) | Gas (Therms) | Non-AIC Gas (Therms) | Propane (Therms) | Water (Gallons) |
| --- | --- | --- | --- | --- | --- |
| Verified Gross Impacts for Goal Attainment | 12,362,185 | 342,353 | N/A | N/A | N/A |
| Gas Penalties | N/A | -142 | N/A | N/A | N/A |
| Water Savings | N/A | N/A | N/A | N/A | 0 |
| Secondary Electric Savings | 0 | N/A | N/A | N/A | N/A |
| Final Verified Gross Impacts for Cost-Effectiveness | 12,362,185 | 342,212 | 0 | 0 | 0 |

Note: All electric demand savings used in cost-effectiveness testing align with those presented in Section 3.

Kits Initiatives

Additional Fossil Fuel Impacts

Four Holiday Kits distributed through the Joint Utility Kits channel produced non-AIC gas savings in 2023. Additional fossil fuel impacts associated with Joint Utility Kits are presented in Table 143.

Table 143. 2023 Kits Initiatives Gas Savings by Measure

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Kit | Measure Category | Ex Ante Gross Savings (Therms) | Gross Realization Rate | Verified Gross Savings (Therms) | NTGR | Verified Net Savings (Therms) |
| Joint Utility Kits | Door Sweep | 464 | 100% | 464 | 1.000 | 464 |
| Total |  | 464 | 100% | 464 | 1.000 | 464 |

Gas Heating Penalties

Table 144 presents gas penalties not reported in the body of the report for the Kits Initiatives.

Table 144. 2023 Kits Initiatives Gas Heating Penalties

| Channel/Kit | Measure Category | Therms |
| --- | --- | --- |
| School Kits | Specialty LED | -38,101 |
| Connected LED | -199 |
| High School Innovation | Specialty LED | -7,481 |
| LED Desk Lamp | -1,558 |
| IQ Community Kits | Standard LED | -10,869 |
| Mobile Home Kits | Standard LED | -2,088 |
| Joint Utility Kits | Standard LED | -603 |
| Specialty LED | -187 |
| LED Desk Lamp | -163 |
| Total Gas Penalties |  | -61,248 |

Secondary Electric Savings for Water Supply and Wastewater Treatment

Table 145 presents water savings and secondary electric savings for the Kits Initiatives.

Table 145. 2023 Kits Initiatives Secondary Electric and Water Savings by Measure

| Channel/Kit | Measure Category | Verified Gross Water Savings (Gallons) | Conversion Factor | Verified Gross Secondary Electric Savings (kWh) |
| --- | --- | --- | --- | --- |
| School Kits | Kitchen Faucet Aerator | 10,188,666 | 5,010 kWh/million gala | 51,045 |
| Shower Timer | 9,966,627 | 49,933 |
| Showerhead | 9,826,337 | 49,230 |
| Bathroom Faucet Aerator | 1,457,702 | 7,303 |
| High School Innovation | Showerhead | 2,425,299 | 12,151 |
| Bathroom Faucet Aerator | 359,784 | 1,803 |
| IQ Community Kits | Showerhead | 6,102,706 | 30,575 |
| Kitchen Faucet Aerator | 2,807,443 | 14,065 |
| Bathroom Faucet Aerator | 803,327 | 4,025 |
| Mobile Home Kits | Showerhead | 332,360 | 1,665 |
| Kitchen Faucet Aerator | 242,396 | 1,214 |
| Thermostatic Restrictor Shower Valve | 66,923 | 335 |
| Bathroom Faucet Aerator | 58,956 | 295 |
| Joint Utility Kits | Showerhead | 74,807 | 375 |
| Shower Timer | 55,498 | 278 |
| Thermostatic Restrictor Shower Valve | 23,599 | 118 |
| Kitchen Faucet Aerator | 22,319 | 112 |
| Bathroom Faucet Aerator | 9,520 | 48 |
| Total | | 44,824,270 | 224,570 |

a Source: IL-TRM V11.0.

Total Impacts for Cost-Effectiveness

Table 146 through Table 150 provide a summary of verified gross impacts adjusted for the above effects for each of the kits channels included under the Kits Initiatives in 2023.

Table 146. 2023 School Kits Channel Verified Gross Impacts for Cost-Effectiveness

|  | Electric Energy (kWh) | Gas (Therms) | Non-AIC Gas (Therms) | Propane (Therms) | Water (Gallons) |
| --- | --- | --- | --- | --- | --- |
| Verified Gross Impacts for Goal Attainment | 5,027,144 | 133,530 | N/A | N/A | N/A |
| Gas Penalties | N/A | -38,300 | N/A | N/A | N/A |
| Water Savings | N/A | N/A | N/A | N/A | 31,439,332 |
| Secondary Electric Savings | -157,511 | N/A | N/A | N/A | N/A |
| Final Verified Gross Impacts for Cost-Effectiveness | 4,869,633 | 95,231 | 0 | 0 | 31,439,332 |

Note: All electric demand savings used in cost-effectiveness testing align with those presented in Section 3.

Table 147. 2023 High School Innovation Channel Verified Gross Impacts for Cost-Effectiveness

|  | Electric Energy (kWh) | Gas (Therms) | Non-AIC Gas (Therms) | Propane (Therms) | Water (Gallons) |
| --- | --- | --- | --- | --- | --- |
| Verified Gross Impacts for Goal Attainment | 793,094 | 20,867 | N/A | N/A | N/A |
| Gas Penalties | N/A | -9,039 | N/A | N/A | N/A |
| Water Savings | N/A | N/A | N/A | N/A | 2,785,083 |
| Secondary Electric Savings | -13,953 | N/A | N/A | N/A | N/A |
| Final Verified Gross Impacts for Cost-Effectiveness | 779,141 | 11,828 | 0 | 0 | 2,785,083 |

Note: All electric demand savings used in cost-effectiveness testing align with those presented in Section 3.

Table 148. 2023 IQ Community Kits Channel Verified Gross Impacts for Cost-Effectiveness

|  | Electric Energy (kWh) | Gas (Therms) | Non-AIC Gas (Therms) | Propane (Therms) | Water (Gallons) |
| --- | --- | --- | --- | --- | --- |
| Verified Gross Impacts for Goal Attainment | 1,330,324 | 40,266 | N/A | N/A | N/A |
| Gas Penalties | N/A | -10,869 | N/A | N/A | N/A |
| Water Savings | N/A | N/A | N/A | N/A | 9,713,476 |
| Secondary Electric Savings | -48,665 | N/A | N/A | N/A | N/A |
| Final Verified Gross Impacts for Cost-Effectiveness | 1,281,659 | 29,396 | 0 | 0 | 9,713,476 |

Note: All electric demand savings used in cost-effectiveness testing align with those presented in Section 3.

Table 149. 2023 Mobile Home Kits Verified Gross Impacts for Cost-Effectiveness

|  | Electric Energy (kWh) | Gas (Therms) | Non-AIC Gas (Therms) | Propane (Therms) | Water (Gallons) |
| --- | --- | --- | --- | --- | --- |
| Verified Gross Impacts for Goal Attainment | 161,009 | 2,344 | N/A | N/A | N/A |
| Gas Penalties | N/A | -2,088 | N/A | N/A | N/A |
| Water Savings | N/A | N/A | N/A | N/A | 700,635 |
| Secondary Electric Savings | -3,510 | N/A | N/A | N/A | N/A |
| Final Verified Gross Impacts for Cost-Effectiveness | 157,499 | 257 | 0 | 0 | 700,635 |

Note: All electric demand savings used in cost-effectiveness testing align with those presented in Section 3.

Table 150. 2023 Joint Utility Kits Verified Gross Impacts for Cost-Effectiveness

|  | Electric Energy (kWh) | Gas (Therms) | Non-AIC Gas (Therms) | Propane (Therms) | Water (Gallons) |
| --- | --- | --- | --- | --- | --- |
| Verified Gross Impacts for Goal Attainment | 86,844 | 7 | N/A | N/A | N/A |
| Gas Penalties | N/A | -953 | N/A | N/A | N/A |
| Water Savings | N/A | N/A | N/A | N/A | 185,743 |
| Secondary Electric Savings | -931 | N/A | N/A | N/A | N/A |
| Additional Fossil Fuel Impacts | N/A | N/A | 464 | 0 | N/A |
| Final Verified Gross Impacts for Cost-Effectiveness | 85,913 | -945 | 464 | 0 | 185,743 |

Note: All electric demand savings used in cost-effectiveness testing align with those presented in Section 3.

1. Cumulative Persisting Annual Savings

This appendix presents detailed CPAS for the Residential Program initiatives and channels. Due to many years of CPAS, tables are challenging to read; please reference the separately provided CPAS spreadsheet for additional detail as needed.

Residential Program

Table 151 provides CPAS for the 2023 Residential Program through 2048. Lifetime savings for the 2023 Residential Program through 2048 are 1,880,663 MWh.

Table 151. 2023 Residential Program CPAS and WAML





Retail Products Initiative

Table 152 provides CPAS for the 2023 Retail Products Initiative through 2046. Lifetime savings for the Initiative are 1,042,494 MWh.

Table 152. 2023 Retail Products Initiative CPAS and WAML



Income Qualified Initiative – Single Family Channels

Table 153 provides CPAS for the 2023 Income Qualified Initiative – Single Family Channels through 2048. Lifetime savings for the channels are 114,330 MWh.

Table 153. 2023 Income Qualified Initiative – Single Family Channels Initiative CPAS and WAML



Multifamily Initiatives

Table 154 provides CPAS for the 2023 Multifamily Initiatives through 2044. Lifetime savings for the Initiatives are 140,906 MWh.

Table 154. 2023 Multifamily Initiatives CPAS and WAML



Single Family Market Rate Initiative

Table 155 provides CPAS for the 2023 Single Family Market Rate Initiative through 2044. Lifetime savings for the Initiative are 134,747 MWh.

Table 155. 2023 Single Family Market Rate Initiative CPAS and WAML



Kits Initiatives

Table 156 provides CPAS for the 2023 Kits Initiatives through 2044. Lifetime savings for the Initiatives are 66,910 MWh.

Table 156. 2023 Kits Initiatives CPAS and WAML



Carryover

Table 157 presents 2023 Residential Program CPAS achieved through carryover through 2038. Lifetime savings from Residential Program carryover are 125,264 MWh.

Table 157. 2023 Residential Program Carryover Savings CPAS and WAML



(b-25) Conversions

Table 158 presents 2023 Residential Program CPAS achieved through (b-25) conversions through 2048. Lifetime savings from Residential Program (b-25) conversions are 244,981 MWh.

Table 158. 2023 Residential Program (b-25) Conversion CPAS and WAML



1. Income Qualified Initiative Participation Summary

Presented at stakeholder request, Table 159 through Table 162 provide a detailed summary of measures received by participants in the Single Family, CAA, Joint Utility[[36]](#footnote-36), and MHAS channels of the 2023 IQ Initiative, with an explicit focus on characterizing the percentage of participants in each channel that received a given measure. For the Joint Utility MHAS channels, the base includes customers who received only Joint Utility or Mobile Home kits (in order to properly characterize what proportion of channel participants received non-kit measures), but the kit measures themselves are note presented below. Kit Initiatives participation by measure is documented in Appendix F.

Table 159. Detailed 2023 Income Qualified Initiative – Single Family Channel Participation Summary

| Measure | IL-TRM Measure Name | Participants Receiving Measure | % Participants Receiving Measure (N=2,379) | Total Quantity | Unit | Average Quantity per Participant Receiving |
| --- | --- | --- | --- | --- | --- | --- |
| Centrally Ducted Air Source Heat Pumps - Replaces Electric Resistance | Centrally Ducted Air Source Heat Pumps | 49 | 2% | 49 | Systems | 1 |
| Air Sealing | Air Sealing | 861 | 36% | 832,002 | CFM | 966 |
| Standard LED | LED Screw Based Omnidirectional Bulbs | 1,181 | 50% | 7,992 | Bulbs | 7 |
| Furnace Blower Motor | Furnace Blower Motor | 589 | 25% | 598 | Motors | 1 |
| Attic Insulation | Ceiling/Attic Insulation | 834 | 35% | 934,056 | Square Feet | 1,120 |
| Central Air Conditioner (ER) | Central Air Conditioning | 116 | 5% | 117 | Systems | 1 |
| Advanced Thermostat | Advanced Thermostats | 533 | 22% | 534 | Thermostats | 1 |
| Bathroom Exhaust Fan | High Efficiency Bathroom Exhaust Fan | 806 | 34% | 806 | Fans | 1 |
| Advanced Power Strip - Tier 1 | Advanced Power Strip - Tier 1 | 1,219 | 51% | 2,286 | Strips | 2 |
| Specialty LED | LED Specialty Lamps | 757 | 32% | 4,597 | Bulbs | 6 |
| Heat Pump Water Heater | Heat Pump Water Heaters | 41 | 2% | 41 | Systems | 1 |
| Crawl Space Insulation | Basement Sidewall Insulation | 403 | 17% | 45,420 | Square Feet | 113 |
| Wall Insulation | Wall Insulation | 201 | 8% | 171,002 | Square Feet | 851 |
| Pipe Insulation | Domestic Hot Water Pipe Insulation | 866 | 36% | 6,107 | Linear Feet | 7 |
| Faucet Aerator | Low Flow Faucet Aerators | 596 | 25% | 932 | Aerators | 2 |
| Showerhead | Low Flow Showerheads | 421 | 18% | 464 | Showerheads | 1 |
| Duct Sealing | Duct Insulation and Sealing | 19 | 1% | 19 | Participants | 1 |
| Rim Joist Insulation | Rim/Band Joist Insulation | 684 | 29% | 83,573 | Linear Feet | 122 |
| Ductless Heat Pump (ER) | Ductless Heat Pumps | 3 | 0.1% | 3 | Systems | 1 |
| Ductless Heat Pump (TOS) | Ductless Heat Pumps | 11 | 0.5% | 11 | Systems | 1 |
| Centrally Ducted Air Source Heat Pumps - Replaces HP (ER) | Centrally Ducted Air Source Heat Pumps | 2 | 0.1% | 2 | Systems | 1 |
| Room Air Conditioner (ER) | ENERGY STAR Room Air Conditioner | 14 | 1% | 27 | Systems | 2 |
| Tree Planting | Tree Planting | 1 | 0.04% | 100 | Trees planted | 100 |
| Kneewall Insulation | Wall Insulation | 71 | 3% | 14,814 | Square Feet | 209 |
| Centrally Ducted Air Source Heat Pumps (TOS) | Centrally Ducted Air Source Heat Pumps | 3 | 0.1% | 3 | Systems | 1 |
| Central Air Conditioner (TOS) | Central Air Conditioning | 11 | 0.5% | 11 | Systems | 1 |
| Door Sweep | Air Sealing | 60 | 3% | 118 | Door Sweeps | 2 |
| Heat Pump Dryer | ENERGY STAR Clothes Dryer | 1 | 0.04% | 1 | Dryers | 1 |
| Clothes Washer | ENERGY STAR Clothes Washers | 1 | 0.04% | 1 | Washers | 1 |
| Refrigerator | ENERGY STAR CEE Tier 2 or CEE Tier 3 Refrigerator | 1 | 0.04% | 1 | Refrigerators | 1 |
| ENERGY STAR Dishwasher | ENERGY STAR Dishwasher | 1 | 0.04% | 1 | Dishwashers | 1 |
| Induction Cooktop | Residential Induction Cooktop | 1 | 0.04% | 1 | Cooktops | 1 |
| Gas Water Heater | Gas Water Heater | 102 | 4% | 102 | Systems | 1 |
| Furnace (ER) | Gas High Efficiency Furnace | 653 | 27% | 662 | Systems | 1 |
| Furnace (TOS) | Gas High Efficiency Furnace | 88 | 4% | 90 | Systems | 1 |
| Gas High Efficiency Boiler (ER) | Gas High Efficiency Boiler | 18 | 1% | 18 | Systems | 1 |
| Gas High Efficiency Boiler (TOS) | Gas High Efficiency Boiler | 5 | 0.2% | 5 | Systems | 1 |
| Total |  |  |  | 2,106,566 |  |  |

Table 160. Detailed 2023 Income Qualified Initiative – CAA Channel Participation Summary

| Measure | IL-TRM Measure Name | Participants Receiving Measure | % Participants Receiving Measure (N=324) | Total Quantity | Unit | Average Quantity per Participant Receiving |
| --- | --- | --- | --- | --- | --- | --- |
| Air Sealing | Air Sealing | 290 | 90% | 544,767 | CFM | 1,879 |
| Standard LED | LED Screw Based Omnidirectional Bulbs | 263 | 81% | 5,188 | Bulbs | 20 |
| Attic Insulation | Ceiling/Attic Insulation | 262 | 81% | 261,326 | Square Feet | 997 |
| Centrally Ducted Air Source Heat Pumps - Replaces Electric Resistance | Centrally Ducted Air Source Heat Pumps | 13 | 4% | 13 | Systems | 1 |
| Furnace Blower Motor | Furnace Blower Motor | 129 | 40% | 130 | Motors | 1 |
| Bathroom Exhaust Fan | High Efficiency Bathroom Exhaust Fan | 264 | 81% | 264 | Fans | 1 |
| Crawl Space Insulation | Basement Sidewall Insulation | 180 | 56% | 25,519 | Square Feet | 142 |
| Pipe Insulation | Domestic Hot Water Pipe Insulation | 184 | 57% | 2,039 | Linear Feet | 11 |
| Heat Pump Water Heater | Heat Pump Water Heaters | 13 | 4% | 13 | Systems | 1 |
| Wall Insulation | Wall Insulation | 89 | 27% | 74,522 | Square Feet | 837 |
| Ductless Heat Pump (ER) | Ductless Heat Pumps | 2 | 1% | 2 | Systems | 1 |
| Floor Insulation | Floor Insulation Above Crawlspace | 35 | 11% | 30,792 | Square Feet | 880 |
| Specialty LED | LED Specialty Lamps | 66 | 20% | 642 | Bulbs | 10 |
| Showerhead | Low Flow Showerheads | 101 | 31% | 114 | Showerheads | 1 |
| Advanced Thermostat | Advanced Thermostats | 27 | 8% | 27 | Thermostats | 1 |
| Faucet Aerator | Low Flow Faucet Aerators | 157 | 48% | 268 | Aerators | 2 |
| Room Air Conditioner (ER) | ENERGY STAR Room Air Conditioner | 10 | 3% | 19 | Systems | 2 |
| Rim Joist Insulation | Rim/Band Joist Insulation | 219 | 68% | 28,128 | Linear Feet | 128 |
| Ductless Heat Pump (TOS) | Ductless Heat Pumps | 2 | 1% | 2 | Systems | 1 |
| Knee Wall Insulation | Wall Insulation | 11 | 3% | 3,406 | Square Feet | 310 |
| Centrally Ducted Air Source Heat Pumps (TOS) | Centrally Ducted Air Source Heat Pumps | 1 | 0.3% | 1 | Systems | 1 |
| Gas Water Heater | Gas Water Heater | 84 | 26% | 84 | Systems | 1 |
| Furnace (ER) | Gas High Efficiency Furnace | 133 | 41% | 134 | Systems | 1 |
| Furnace (TOS) | Gas High Efficiency Furnace | 5 | 2% | 5 | Systems | 1 |
| Gas High Efficiency Boiler (ER) | Gas High Efficiency Boiler | 9 | 3% | 9 | Systems | 1 |
| Gas High Efficiency Boiler (TOS) | Gas High Efficiency Boiler | 1 | 0.3% | 1 | Systems | 1 |
| Total |  |  |  | 977,415 |  |  |

Table 161. Detailed 2023 Income Qualified Initiative – Joint Utility Channel Participation Summary

| Measure | IL-TRM Measure Name | Participants Receiving Measure | % Participants Receiving Measure (N=433) | Total Quantity | Unit | Average Quantity per Participant Receiving |
| --- | --- | --- | --- | --- | --- | --- |
| Standard LED | LED Screw Based Omnidirectional Bulbs | 62 | 14% | 558 | Bulbs | 9 |
| Furnace Blower Motor | Furnace Blower Motor | 35 | 8% | 35 | Motors | 1 |
| Air Sealing | Air Sealing | 44 | 10% | 46,943 | CFM | 1,067 |
| Advanced Thermostat | Advanced Thermostats | 59 | 14% | 59 | Thermostats | 1 |
| Advanced Power Strip - Tier 1 | Advanced Power Strip - Tier 1 | 63 | 15% | 88 | Strips | 1 |
| Specialty LED | LED Specialty Lamps | 41 | 9% | 244 | Bulbs | 6 |
| Central Air Conditioner (ER) | Central Air Conditioning | 2 | 0.5% | 2 | Systems | 1 |
| Bathroom Exhaust Fan | High Efficiency Bathroom Exhaust Fan | 24 | 6% | 25 | Fans | 1 |
| Attic Insulation | Ceiling/Attic Insulation | 27 | 6% | 28,126 | Square Feet | 1,042 |
| Showerhead | Low Flow Showerheads | 38 | 9% | 47 | Showerheads | 1 |
| Pipe Insulation | Domestic Hot Water Pipe Insulation | 13 | 3% | 90 | Linear Feet | 7 |
| Faucet Aerator | Low Flow Faucet Aerators | 37 | 9% | 59 | Aerators | 2 |
| Central Air Conditioner (TOS) | Central Air Conditioning | 1 | 0.2% | 1 | Systems | 1 |
| Wall Insulation | Wall Insulation | 5 | 1% | 1,002 | Square Feet | 200 |
| Rim Joist Insulation | Rim/Band Joist Insulation | 13 | 3% | 1,281 | Linear Feet | 99 |
| Furnace (ER) | Gas High Efficiency Furnace | 3 | 1% | 3 | Systems | 1 |
| Total |  |  |  | 78,563 |  |  |

Table 162. Detailed 2023 Income Qualified Initiative – MHAS Channel Participation Summary

| Measure | IL-TRM Measure Name | Participants Receiving Measure | % Participants Receiving Measure (N=252) | Total Quantity | Unit | Average Quantity per Participant Receiving |
| --- | --- | --- | --- | --- | --- | --- |
| Furnace Blower Motor | Furnace Blower Motor | 115 | 46% | 115 | Motors | 1 |
| Centrally Ducted Air Source Heat Pumps (ER) | Centrally Ducted Air Source Heat Pump | 4 | 2% | 4 | Systems | 1 |
| Advanced Thermostat | Advanced Thermostats | 122 | 48% | 122 | Thermostats | 1 |
| Air Sealing | Air Sealing | 114 | 45% | 73,302 | CFM | 643 |
| Floor Insulation | Floor Insulation Above Crawlspace | 51 | 20% | 57,255 | Square Feet | 1,123 |
| Bathroom Exhaust Fan | High Efficiency Bathroom Exhaust Fan | 36 | 14% | 36 | Fans | 1 |
| Ductless Heat Pump (TOS) | Ductless Heat Pumps | 1 | 0.4% | 1 | Systems | 1 |
| Central Air Conditioner (ER) | Central Air Conditioning | 80 | 32% | 81 | Systems | 1 |
| Attic Insulation | Ceiling/Attic Insulation | 1 | 0.4% | 2,100 | Square Feet | 2,100 |
| Centrally Ducted Air Source Heat Pumps (TOS) | Centrally Ducted Air Source Heat Pump | 1 | 0.4% | 1 | Systems | 1 |
| Central Air Conditioner (TOS) | Central Air Conditioning | 28 | 11% | 28 | Systems | 1 |
| Gas Furnace (ER) | Gas High Efficiency Furnace | 117 | 46% | 117 | Systems | 1 |
| Duct Sealing | Duct Insulation and Sealing | 7 | 3% | 7 | Participants | 1 |
| Total |  |  |  | 133,169 |  |  |

1. Multifamily Initiatives Participation Summary

This appendix is in progress and will be provided with the second draft of this report. This appendix will, to the degree possible, report participation metrics for the Multifamily Initiatives in line with the draft agreement between AIC and stakeholders developed as part of the SAG Reporting Working Group.[[37]](#footnote-37)

1. Other Initiatives Participation Summary

Table 163 through Table 170 summarize participation, by measure, for the Market Rate Single Family Initiative and Kits Initiatives, by channel and kit. Retail Products Initiative participation by measure is detailed in Section 3.1

Table 163. Midstream HVAC Channel Participation Summary

| Measure Category | IL-TRM Measure Name | Measure Quantity | Units |
| --- | --- | --- | --- |
| Ductless Heat Pump | Ductless Heat Pumps | 2,522 | Systems |
| Centrally Ducted Air Source Heat Pump | Centrally Ducted Air Source Heat Pumps | 909 | Systems |
| Central Air Conditioner | Central Air Conditioning | 2,472 | Systems |
| Heat Pump Water Heater | Heat Pump Water Heaters | 144 | Water heaters |
| Advanced Thermostat | Advanced Thermostats | 1,148 | Thermostats |
| High Efficiency Gas Furnace | Gas High Efficiency Furnace | 1,930 | Systems |
| Total |  | 9,125 |  |

Table 164. Home Efficiency Channel Participation Summary

| Measure Category | IL-TRM Measure Name | Measure Quantity | Units |
| --- | --- | --- | --- |
| Air Sealing | Air Sealing | 96,948 | CFM |
| Attic Insulation | Ceiling/Attic Insulation | 145,034 | Square feet |
| Bathroom Exhaust Fan | High Efficiency Bathroom Exhaust Fan | 48 | Fans |
| Wall Insulation | Wall Insulation | 35,521 | Square feet |
| Crawlspace Insulation | Basement Sidewall Insulation | 3,756 | Square feet |
| Rim Joist Insulation | Rim/Band Joist Insulation | 8,224 | Square feet |
| Total |  | 289,531 |  |

Table 165. School Kits Channel Participation Summary

| Measure Category | IL-TRM Measure Name | Measure Quantity | Units |
| --- | --- | --- | --- |
| Specialty LED | LED Specialty Lamps | 38,000 | Lamps |
| Advanced Power Strip – Tier 1 | Advanced Power Strip – Tier 1 | 9,500 | Power strips |
| Shower Timer | Shower Timer | 9,500 | Shower timers |
| Showerhead | Low Flow Showerheads | 9,500 | Showerheads |
| Kitchen Faucet Aerator | Low Flow Faucet Aerators | 9,500 | Aerators |
| Pipe Insulation | Domestic Hot Water Pipe Insulation | 28,500 | Linear feet |
| Weatherstripping | Air Sealing | 161,500 | Linear feet |
| Door Sweep | Air Sealing | 9,500 | Door sweeps |
| Bathroom Faucet Aerator | Low Flow Faucet Aerators | 9,500 | Aerators |
| Connected LED | Connected LED Lamps | 294 | Lamps |
| Total |  | 285,294 |  |

Table 166. High School Innovation Channel Participation Summary

| Measure Category | IL-TRM Measure Name | Measure Quantity | Units |
| --- | --- | --- | --- |
| Specialty LED | LED Specialty Lamps | 7,500 | Lamps |
| Showerhead | Low Flow Showerheads | 2,500 | Showerheads |
| LED Desk Lamp | LED Fixtures | 2,500 | Lamps |
| Pipe Insulation | Domestic Hot Water Pipe Insulation | 7,500 | Linear feet |
| Weatherstripping | Air Sealing | 42,500 | Linear feet |
| Outlet Gaskets | Air Sealing | 25,000 | Gaskets |
| Bathroom Faucet Aerator | Low Flow Faucet Aerators | 2,500 | Aerators |
| Total |  | 90,000 |  |

Table 167. IQ Community Kit Channel Participation Summary

| Measure Category | IL-TRM Measure Name | Measure Quantity | Units |
| --- | --- | --- | --- |
| Standard LED | LED Screw Based Omnidirectional Bulbs | 18,290 | Lamps |
| Advanced Power Strip – Tier 1 | Advanced Power Strip – Tier 1 | 3,465 | Power strips |
| Showerhead | Low Flow Showerheads | 5,930 | Showerheads |
| Pipe Insulation | Domestic Hot Water Pipe Insulation | 17,790 | Linear feet |
| Kitchen Faucet Aerator | Low Flow Faucet Aerators | 2,965 | Aerators |
| Door Sweep | Air Sealing | 2,965 | Door sweeps |
| Bathroom Faucet Aerator | Low Flow Faucet Aerators | 5,930 | Aerators |
| Total |  | 57,335 |  |

Table 168. BN Community Kit Participation Summary

| Measure Category | IL-TRM Measure Name | Measure Quantity | Units |
| --- | --- | --- | --- |
| Standard LED | LED Screw Based Omnidirectional Bulbs | 450 | Lamps |
| Specialty LED | LED Specialty Lamps | 300 | Lamps |
| Weatherstripping | Air Sealing | 5,175 | Linear |
| Advanced Power Strip – Tier 1 | Advanced Power Strip – Tier 1 | 75 | Power strips |
| Showerhead | Low Flow Showerheads | 75 | Showerheads |
| Pipe Insulation | Domestic Hot Water Pipe Insulation | 450 | Linear feet |
| Door Sweep | Air Sealing | 150 | Door sweeps |
| Shower Timer | Shower Timer | 75 | Shower timers |
| Outlet Gaskets | Air Sealing | 900 | Gaskets |
| Thermostatic Restrictor Shower Valve | Thermostatic Restrictor Shower Valve | 75 | Valves |
| Kitchen Faucet Aerator | Low Flow Faucet Aerators | 75 | Aerators |
| Bathroom Faucet Aerator | Low Flow Faucet Aerators | 75 | Aerators |
| Total |  | 7,875 |  |

Table 169. BN Holiday Kit Participation Summary

| Measure Category | IL-TRM Measure Name | Measure Quantity | Units |
| --- | --- | --- | --- |
| Standard LED | LED Screw Based Omnidirectional Bulbs | 795 | Lamps |
| LED Desk Lamp | LED Fixtures | 265 | Lamps |
| Door Sweep | Air Sealing | 265 | Door sweeps |
| Smart Socket | Smart Sockets | 265 | Sockets |
| Total |  | 1,590 |  |

Table 170. Mobile Home Kit Participation Summary

| Measure Category | IL-TRM Measure Name | Measure Quantity | Units |
| --- | --- | --- | --- |
| Standard LED | LED Screw Based Omnidirectional Bulbs | 2,916 | Lamps |
| Advanced Power Strip –Tier 1 | Advanced Power Strip – Tier 1 | 243 | Power strips |
| Showerhead | Low Flow Showerheads | 243 | Showerheads |
| Kitchen Faucet Aerator | Low Flow Faucet Aerators | 243 | Aerators |
| Thermostatic Restrictor Shower Valve | Thermostatic Restrictor Shower Valve | 243 | Valves |
| Bathroom Faucet Aerator | Low Flow Faucet Aerators | 243 | Aerators |
| Total |  | 4,131 |  |

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Description automatically generated

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1. Illinois Energy Efficiency Stakeholder Advisory Group. *Weighted Average Measure Life Report.* 2018 accessed at: <https://www.ilsag.info/wp-content/uploads/SAG_files/SAG_Reports/SAG_WAML_Report_Final_2-20-18.pdf> [↑](#footnote-ref-1)
2. Ibid. [↑](#footnote-ref-2)
3. The annual total savings requirement is the AAIG plus the additional savings that need to be acquired on an annual basis to replace any savings from measures at the end of their measure life before progress can be counted toward AAIG. [↑](#footnote-ref-3)
4. Prior to the passage of CEJA, the (b-25) savings conversion was capped at 10% of AAIG, rather than the annual total savings requirement. [↑](#footnote-ref-4)
5. Opinion Dynamics. *Ameren Illinois Company Energy Efficiency Portfolio 2023 Net-to-Gross Ratios* accessed at: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/> [↑](#footnote-ref-5)
6. The process of computing savings from the residential NPSO adder is complex. See Section 2.3.1 for more detail. [↑](#footnote-ref-6)
7. Policy Manual Version 3.0 is effective as of January 1, 2024 but policies are retroactively applied to the 2023 evaluation in most cases; in some cases, Policy Manual Version 2.1 may be in effect. [↑](#footnote-ref-7)
8. In future years, the evaluation team will apply updated versions of these manuals to the evaluation of this Program as required by law, Illinois Commerce Commission orders, and changes to the manuals themselves. [↑](#footnote-ref-8)
9. Use of the IL-TRM V10.0 errata memo relates to a compromise agreement reached between Illinois stakeholders relating to the phase-out of screw-base lighting measure eligibility in Illinois and will continue through 2024. [↑](#footnote-ref-9)
10. Opinion Dynamics. *Ameren Illinois Company Lighting Carryover Savings Claimable in 2023* accessed at: <https://www.ilsag.info/wp-content/uploads/AIC-2023-Lighting-Carryover-Savings-Memo-FINAL-2024-03-02.pdf> [↑](#footnote-ref-10)
11. Opinion Dynamics. *Ameren Illinois Company Energy Efficiency Portfolio 2023 Net-to-Gross Ratios* accessed at: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/> [↑](#footnote-ref-11)
12. The ENERGY STAR® name and mark are registered trademarks owned by the US Environmental Protection Agency (USEPA). [↑](#footnote-ref-12)
13. The ECT channel has been discontinued as of January 1, 2024. [↑](#footnote-ref-13)
14. Note that the ECT channel has been discontinued as of January 1, 2024. [↑](#footnote-ref-14)
15. An Enervee Score of 50 indicates that a product is in the 50th percentile of Enervee’s market catalogue when ranked based on efficiency. [↑](#footnote-ref-15)
16. YOUSAVE estimates are based on assumptions about the number of years a product will be used, the amount of product usage, and the cost of energy (defaulted to the typical residential rate for the AIC service territory). These assumptions can be adjusted by the shopper to customize outputs. [↑](#footnote-ref-16)
17. CLEARCOST employs the same assumptions as YOUSAVE and can likewise be adjusted by the shopper to customize outputs. [↑](#footnote-ref-17)
18. Website traffic in this context refers to all observable site visitation and engagement. Unique active shoppers are defined by Enervee as ECT visitors that conducted at least one of ten specific actions on the site based on observed traffic. These unique active shoppers are automatically tracked by IP address, and implementer staff provide counts by month and measure category. [↑](#footnote-ref-18)
19. <https://www.warmneighborscoolfriends.org/> [↑](#footnote-ref-19)
20. Propel is an app that helps manage government benefits. [↑](#footnote-ref-20)
21. The base includes 85 customers who did not receive any energy efficiency measures. [↑](#footnote-ref-21)
22. The base includes two customers who did not receive any energy efficiency measures. [↑](#footnote-ref-22)
23. The “Google Blitz” was a marketing campaign for the Smart Saver channel. It involved email advertising, postcard distributions, and the use of flyers with QR codes to promote the channel. [↑](#footnote-ref-23)
24. The remaining nine ZIP codes that were served are not associated with the Smart Savers channel, and are considered to be treated as market rate participants. This represents 155 thermostats (2%) of the total distributed. [↑](#footnote-ref-24)
25. CBOs include CAAs and other nonprofit community organizations. Historically, AIC has established the majority of channel partnerships through existing industry relationship. [↑](#footnote-ref-25)
26. The base includes four customers who did not receive any energy efficiency measures. [↑](#footnote-ref-26)
27. Seasonal Energy Efficiency Ratio (SEER) [↑](#footnote-ref-27)
28. AIC defines “multifamily” as properties with three or more units. [↑](#footnote-ref-28)
29. Although there were 441 total Home Efficiency Market Rate participants in 2022, only 66 completed any building envelope retrofit measures. The remaining 375 participants only received DI measures, which, as previously mentioned, were removed from the channel for 2023. [↑](#footnote-ref-29)
30. https://www.ilsag.info/wp-content/uploads/AIC-Market-Effects-2021-HVAC-Market-Characterization-Report-FINAL-2021-09-15.pdf [↑](#footnote-ref-30)
31. Mobile Home Kit count and analysis excludes one duplicate record identified in the tracking data as a result of a data transfer issue. [↑](#footnote-ref-31)
32. This purchase rate is unweighted. We explored a variety of weighting approaches (e.g. weighting purchase rates by the number of survey respondents in our sample or the unique active shoppers observed per year), but the sensitivity of the analysis to these weighting approaches is very low (i.e. the resulting purchase rates do not vary significantly from a simple average), and so we selected the simple average to minimize complexity. [↑](#footnote-ref-32)
33. For example, the 2020 evaluation did not fully account for cross-participation effects, as most clearly exhibited in the significant difference in the advanced thermostat purchase rate between 2020 and later years. [↑](#footnote-ref-33)
34. Illinois Energy Efficiency Policy Manual. Section 7.7 accessed here:. <https://www.ilsag.info/wp-content/uploads/IL_EE_Policy_Manual_Version_3.0_Final_11-3-2023.pdf> [↑](#footnote-ref-34)
35. AIC is, however, required to account for *electric* heating penalties resulting from the installation of energy efficiency measures designed to save electricity, and those effects are accounted for throughout this report. [↑](#footnote-ref-35)
36. The summary Joint Utility channel participation does not include Nicor Gas-only measures. As such, this summary understates the comprehensiveness of Joint Utility channel measures and delivery. [↑](#footnote-ref-36)
37. <https://www.ilsag.info/wp-content/uploads/iq-mf-metrics-advocates-ameren-agreement-2-15-2024-for-review.xlsx> [↑](#footnote-ref-37)