

# 2023 Indiana Residential Portfolio EM&V Report Volume I of II

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Prepared for:

Indiana Michigan Power

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# 1. Introduction

Under contract with Indiana Michigan Power (I&M), ADM Associates, Inc., (ADM) performed evaluation, measurement and verification (EM&V) activities that confirmed the energy savings (kWh) and demand reduction (kW) realized through the energy efficiency programs that I&M implemented in Indiana from January 2023 through December 2023 (PY2023).

This chapter provides a summary of evaluation findings for the residential program portfolio and presents information regarding the organization of the report.

## 1.1. Summary of Data Collection

Table 1-1 summarizes data collection activities that supported the PY2023 evaluation of I&M's residential programs.

*Table 1-1 Summary of Data Collection*

| <i>Survey</i>   | <i>Mode</i>                            | <i>Time Frame</i>            | <i>Number of Contacts</i> | <i>Number of Completions</i> |
|---|--|------------------------------|---------------------------|------------------------------|
| Online Energy Checkup Participant Survey                                  | Email                                  | September 2023               | 2,400                     | 346                          |
| Income Qualified Weatherproofing Participant Survey - Virtual Kits        | Email                                  | October 2023                 | 296                       | 30                           |
| Income Qualified Weatherproofing Participant Survey - In Home Participant | Telephone                              | November 2023                | 53                        | 15                           |
| Home HVAC Midstream Customer Survey                                       | Mailed letter with telephone follow up | November 2023                | 102                       | 25                           |
| Home HVAC Midstream Distributor Interviews                                | Telephone                              | November 2023                | 6                         | 1                            |
| Home Energy Products Online Marketplace Participant Survey                | Email                                  | September 2023, January 2024 | 519                       | 62                           |

## 1.2. Impact Evaluation Findings

The savings variables presented in this evaluation report are defined in Table 1-2.

*Table 1-2 Savings-Related Terminology*

| <i>Variable</i>            | <i>Definition</i>   |
|----------------------------|---|
| kWh Savings Goal           | kWh Savings Goal is the energy savings goal cited in the applicable portfolio plan.   |
| Ex Ante Gross kWh Savings  | Ex Ante Gross kWh Savings are the annual energy savings reported by I&M and are typically obtained from I&M's DSM/EE Program Scorecard documents.   |
| Gross Audited kWh Savings  | Gross Audited kWh Savings are determined by reviewing tracking data and looking for any errors and adjusting Ex Ante Gross kWh Savings accordingly.   |
| Gross Verified kWh Savings | Gross Verified kWh Savings are determined by applying an installation rate to the Gross Audited kWh Savings. The installation rate is defined as the ratio of units that were installed (verified) to the number of units reported (claimed). |

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| <i>Variable</i>                             | <i>Definition</i>   |
|---|---|
| Ex Post Gross kWh Savings                   | Ex Post Gross kWh Savings are the realized annual gross kWh savings reflecting all adjustments made by ADM, without accounting for free ridership or spillover.   |
| Ex Post Net kWh Savings                     | Ex Post Net kWh Savings are equal to Ex Post Gross kWh Savings, adjusted to account for free ridership and spillover.   |
| Ex Post Net Lifetime kWh Savings            | Ex Post Net Lifetime kWh Savings is the Ex Post Net kWh Savings occurring over the course of the applicable measure effective useful life (EUL).  |
| Gross Realization Rate                      | Gross Realization Rate is equal to Ex Post Gross kWh Savings divided by Ex Ante Gross kWh Savings.  |
| Net-to-Gross Ratio                          | Net-to-Gross Ratio is equal to Ex Post Net kWh Savings divided by Ex Post Gross kWh Savings.  |
| Free Rider                                  | A free rider is a program participant who would have implemented the program measure or practice in the absence of the program. Free riders can be: 1) total, in which the participant's activity would have completely replicated the program measure; 2) partial, in which the participant's activity would have partially replicated the program measure; or 3) deferred, in which the participant's activity would have completely replicated the program measure, but at a future time than the program's timeframe. |
| Spillover (Participant and Non-Participant) | The free ridership estimate are the savings attributable to free riders.  |

Based on the definitions presented in Table 1-2, Table 1-3 presents a summary of the components of the impact evaluation that are accounted for in savings variables presented in this report.

*Table 1-3 Components of Impact Evaluation Accounted for in Savings Variables*

| <i>Category</i> | <i>Tracking Data Review</i> | <i>In-Service Rates</i> | <i>Ex Post Gross Analysis</i> | <i>Net-to-Gross Analysis</i> |
|-----------------|-----------------------------|-------------------------|-------------------------------|------------------------------|
| Gross Audited   | ✓                           |                         |                               |                              |
| Gross Verified  | ✓                           | ✓                       |                               |                              |
| Ex Post Gross   | ✓                           | ✓                       | ✓                             |                              |
| Ex Post Net     | ✓                           | ✓                       | ✓                             | ✓                            |

ADM performed EM&V activities for six residential programs offered by I&M during PY2023. Total residential portfolio ex post gross energy savings are 7,162,286 kWh, while ex post net energy savings are 5,289,257 kWh.



*Table 1-4 Summary of Energy Savings – PY2023*

| <i>Program Name</i>                           | <i>Ex Ante Annual kWh Savings</i> | <i>Gross Audited kWh Savings</i> | <i>Gross Verified kWh Savings</i> | <i>Ex Post Annual Gross kWh Savings</i> | <i>Gross Realization Rate</i> | <i>Ex Post Annual Net kWh Savings</i> | <i>Net-to-Gross Ratio</i> | <i>Lifetime Net Ex Post kWh Savings</i> |
|---|-----------------------------------|----------------------------------|-----------------------------------|---|-------------------------------|---------------------------------------|---------------------------|---|
| Residential Online Energy Check-up            | 1,686,678                         | 1,686,678                        | 1,254,737                         | 2,051,702                               | 122%                          | 1,996,271                             | 97%                       | 18,629,872                              |
| Residential AMI Data Portal                   | 4,124,631                         | 4,124,631                        | 4,124,631                         | 1,860,587                               | 45%                           | 1,860,587                             | 100%                      | 1,860,587                               |
| Residential Income Qualified Weatherproofing  | 811,018                           | 811,018                          | 611,671                           | 539,463                                 | 67%                           | 539,463                               | 100%                      | 4,706,241                               |
| Home Energy Products - ENERGY STAR Appliances | 2,053,849                         | 2,053,849                        | 2,053,849                         | 2,123,928                               | 103%                          | 494,604                               | 23%                       | 8,060,877                               |
| Home HVAC Midstream                           | 592,265                           | 592,265                          | 592,265                           | 432,546                                 | 73%                           | 290,703                               | 67%                       | 5,176,950                               |
| Home Energy Products - Online Marketplace     | 588,613                           | 588,613                          | 576,508                           | 154,060                                 | 26%                           | 107,630                               | 70%                       | 1,557,917                               |
| Residential Portfolio Totals                  | 9,857,053                         | 9,857,053                        | 9,213,661                         | 7,162,286                               | 73%                           | 5,289,257                             | 74%                       | 39,992,444                              |

Total residential portfolio ex post gross peak demand savings are 1,054.33 kW, while ex post net peak demand savings are 794.38 kW.

*Table 1-5 Summary of Peak Demand Impacts – PY2023*

| <i>Program Name</i>                           | <i>Ex Ante Gross kW Savings</i> | <i>Gross Audited kW Savings</i> | <i>Gross Verified kW Savings</i> | <i>Ex Post Gross kW Savings</i> | <i>Gross Realization Rate</i> | <i>Ex Post Net kW Savings</i> | <i>Net-to-Gross Ratio</i> |
|---|---------------------------------|---------------------------------|----------------------------------|---------------------------------|-------------------------------|-------------------------------|---------------------------|
| Residential Online Energy Check-up            | 105.54                          | 105.54                          | 77.89                            | 140.46                          | 133%                          | 142.56                        | 101%                      |
| Residential AMI Data Portal                   | -                               | -                               | -                                | 470.01                          | N/A                           | 470.01                        | 100%                      |
| Residential Income Qualified Weatherproofing  | 42.88                           | 42.88                           | 30.05                            | 60.01                           | 140%                          | 60.01                         | 100%                      |
| Home Energy Products - ENERGY STAR Appliances | 314.61                          | 314.61                          | 314.61                           | 267.46                          | 85%                           | 58.48                         | 22%                       |
| Home HVAC Midstream                           | 160.02                          | 160.02                          | 160.02                           | 90.70                           | 57%                           | 61.58                         | 68%                       |
| Home Energy Products - Online Marketplace     | 1.76                            | 1.76                            | 1.76                             | 2.33                            | 133%                          | 1.75                          | 75%                       |
| Residential Portfolio Totals                  | 624.80                          | 624.80                          | 584.32                           | 1,030.96                        | 165%                          | 794.38                        | 77%                       |

### 1.3. Cost Effectiveness Evaluation Findings

The following cost effectiveness tests were performed for the programs: Total Resource Cost (TRC) test, Utility Cost Test (UCT), Participant Cost Test (PCT), and Ratepayer Impact Measure (RIM) test. A test score above one signifies that, from the perspective of the test, the program benefits were greater than the program costs. The test results for each program are presented in Table 1-6.

*Table 1-6 Summary of PY2023 Benefit-Cost Ratios*

| <i>Program</i>                                 | <i>Program Administrator Cost Test</i> | <i>Total Resource Cost Test</i> | <i>Ratepayer Impact Measure</i> | <i>Participant Cost Test</i> |
|--|--|---------------------------------|---------------------------------|------------------------------|
| Residential Online Energy Check-up             | 1.51                                   | 1.51                            | 0.32                            | N/A                          |
| Residential AMI Data Portal                    | 3.25                                   | 3.25                            | 0.41                            | N/A                          |
| Residential Income Qualified Weatherproofing   | 0.23                                   | 0.23                            | 0.15                            | N/A                          |
| Home Energy Products - ENERGY STAR® Appliances | 0.68                                   | 0.55                            | 0.28                            | 1.89                         |
| Home HVAC Midstream                            | 0.65                                   | 0.69                            | 0.30                            | 2.59                         |
| Home Energy Products - Online Marketplace      | 0.24                                   | 0.19                            | 0.15                            | 1.24                         |

#### 1.4. Evaluation Findings and Recommendations

##### 1.4.1. Home Online Energy Checkup

**Gross realization rates for individual kit measures were generally high, except for night lights.** The ex post savings for night lights were lower than the ex ante estimates because approximately half of the night lights were additional rather than replacements for less efficient ones. In-service rates were generally satisfactory for a kit delivery program. The usage of low-flow devices ranged from 74% to 77%. This share was slightly lower for advanced power strips, as some were either not in use or used as general power strips. The LED night light in-service rate was lower because a significant number of them were plugged into empty outlets.

- **Recommendation 1.** Consider emphasizing the importance of night lights replacing existing night lights to save energy and offer a version of the kit that does not include them.

**Most survey respondents expressed satisfaction with the Online Energy Checkup program, praising its cost-saving aspects, the information provided, and the items in the kit.** While promoters highlighted its educational value and environmental benefits, detractors viewed the checkup as not useful or saw little benefit from participation. Passive respondents appreciated the program but noted limited opportunities to recommend it due to infrequent discussions about energy-saving topics. The program's Net Promoter Score was 31%, indicating a positive overall sentiment.

**Most participants learned about the Online Energy Checkup program through email communication from I&M, followed by 19% through their account portal, and via the I&M website.** The primary motivation for participation was to save money on energy bills, with environmental considerations and the appeal of receiving free items also cited as factors. Participants reported diverse reasons for engaging with the program, including addressing home maintenance issues and the desire to have their opinions heard.

**Most respondents found the online energy checkup survey easy to complete, with many rating it as very easy.** A small percentage had trouble, such as screen freezing or error messages.

Despite these issues, over half of the respondents found the checkup very or somewhat useful for understanding energy-saving techniques, although a minority did not find it helpful at all in this regard.

**Respondents generally expressed satisfaction with the Online Energy Checkup program, with a majority being very satisfied.** Although most were satisfied, some encountered challenges, such as the survey being complex for apartment living situations or the program being less useful for those already implementing energy-saving measures. Satisfaction with specific kit components varied, with nightlights receiving high approval. However, some respondents reported issues with ill-fitting or malfunctioning items, and a few mentioned not receiving a kit. Overall, a significant portion of participants were satisfied with I&M as their electricity service provider.

#### 1.4.2. AMI Data Portal

**ADM's evaluation of the AMI program's WAMI component resulted in energy savings, but the evaluation did not find evidence that the high bill alerts (HBA) or accessing the portal resulted in energy savings.** Utilizing various analytical models that included matched control groups, ADM assessed whether engagement with the portal and its features (such as "compare my bills" and "bill forecast") led to energy savings. These analyses did not affirm the portal's effectiveness in reducing energy consumption. The absence of observed savings might be attributed to the portal's ineffectiveness in changing customer behaviors or potentially to methodological challenges in creating a comparable control group.

The investigation into the energy impact of both the WAMI and HBA components employed randomly assigned control groups for impact estimation. Although the difference-in-difference model for WAMI did not reveal a statistically significant program impact, the post-period regression model did, leading ADM to conclude that the WAMI component decreased energy use. Conversely, for high bill alerts (HBA), neither the difference-in-difference nor the post-period regression models demonstrated a statistically significant impact on energy consumption.

#### 1.4.3. Residential Income Qualified Weatherproofing

**In PY2023, the in-service rates for advanced power strips improved but remained low for some virtual audit kit items.** This was primarily due to customers reporting that they had not installed the items and did not plan to do so.

- **Recommendation 1:** To build on the success with advanced power strips, focus on increasing the installation rates of all kit items. Strategies could include highlighting the benefits and importance of the kit items during virtual audits and encouraging participants to commit to installation verbally or in writing. Offering customized kit options or allowing participants to choose from different kit versions could also boost item utilization.

**PY2023 saw internal refinements aimed at enhancing program efficiency.** The program maintained consistent eligibility criteria and application processes, focusing on providing weatherization services to eligible households. Online accessibility improvements, such as an

online scheduling tool, were introduced to simplify the application process. The program's measures and services saw no significant changes in PY2023, with ongoing efforts to address barriers, reduce deferral rates, and expand the deferral list.

- **Recommendation 2:** Explore innovative outreach strategies to increase awareness and engagement. With the online enhancements, use digital channels, like social media, for outreach to educate eligible households on weatherization benefits. Targeted communication campaigns can help overcome specific barriers by providing clear information on the application process and eligibility criteria, promoting more inclusive and informed participation.

**PY2023 achievements featured a successful completion of a multifamily project in Indiana, alongside streamlined initiatives implemented for energy audits.** The multifamily project involved heat pumps which highlighted successful upgrades and utilized Indiana Community Action Association (INCAA) dollars for health and safety work. Simultaneously, the energy audit process is undergoing streamlining initiatives to enhance efficiency, encompassing improved report delivery and integration with customer tools. The IQW program has enhanced its impact through collaborations with Community Action Agencies (CAA). A partnership with Brightpoint has resulted in joint funding efforts for weatherization projects. The program administrator engages in utility assistance meetings with various CAAs, fostering collaboration and facilitating the identification of homes in need. This approach works to address complex cases, particularly those requiring extensive weatherization and health and safety improvements.

**Marketing efforts through emails, postal mailings, and the website were key in raising awareness of the In-Home portion of the program.** Customers were motivated to participate because of their desire to save energy and improve home comfort. While most discussed energy savings with experts during in-home checkups, variations existed in the delivery of reports or recommendations. Some participants received valuable tips on reducing energy use, including home improvements like ceiling work, insulation, appliance upgrades, and efficient lighting.

**Participants generally expressed satisfaction with the in-home energy checkup process, particularly appreciating the scheduling, duration, and the professionalism of the energy experts.** Feedback on the performance of installed items was positive, though some participants reported concerns such as delays, lack of follow-up, and issues during home visits.

**Participants in the virtual audit expressed lower satisfaction with the services.** About a third expressed dissatisfaction with the service overall. Notably, satisfaction levels were lower concerning the information provided. The dissatisfaction was often attributed to issues such as missed appointments, incomplete audits, unfulfilled promises of items like new appliances, and frustration with the perceived limited usefulness of the received materials.

- **Recommendation 3: Investigate issues with the virtual audit.** Although more respondents were satisfied with the virtual audits overall than were dissatisfied, a sizable share expressed dissatisfaction with it. The open-ended comments on reasons

for dissatisfaction suggest that the dissatisfaction stemmed from the delivery of the audits, including missed follow up and not receiving measures. Another issue cited were that the audit did not provide useful information. Some potential tactics to address this are:

- Create a feedback mechanism. For example a brief post visit survey asking people to rate their satisfaction with the program and providing additional opportunity for written comments on the reasons for their feedback.
- Improve training and quality assurance. Ensure that all personnel involved in the virtual audits are adequately trained and that their performance is regularly reviewed to maintain high service quality. This includes training on technical aspects, customer service, and managing participants' expectations.

#### 1.4.4. Home Energy Products ENERGY STAR Appliances

**The modeling results indicate low to moderate increases in sales attributable to the program, with a significant impact observed for basic tier refrigerators.** These findings align with those from other evaluations of the same program, except for the unusually high increase (91%) in basic tier refrigerator sales over baseline, which surpasses increases noted for other measures and programs. This rise in sales was consistent across different retailers and manufacturers, as reflected in national data from the ENERGY STAR® Retail Products Platform (ESRPP) portal.

Although this pattern may suggest the influence of the program intervention, the extent and timing of the change—specifically between March and April 2023—raise the possibility of other contributing factors. Analysis by ADM to pinpoint non-program related causes, such as updates in appliance standards, did not yield any findings. Thus, ADM applied the result from the baselining methodology recommended in the “ENERGY STAR® Retail Products Platform (RPP): Conditions and Considerations in Evaluating Market Transformation Programs” evaluation guidance document. It is important to acknowledge that despite the baselining approach being a pragmatic approach for assessing program impacts for this program model, it introduces uncertainties in establishing direct causality from the observed pre- and post-program data, due to the inability to completely rule out the potential influence of external factors. This caution also extends to conclusions about relatively small program impacts.

- **Recommendation 1: Program staff should consider that the results of the net program effect analysis could vary significantly from year to year.** While the net sales above the baseline sales were high this year for basic refrigerators, this may not be replicated in future years.

#### 1.4.5. Home HVAC Midstream

**Program sales of qualified equipment increased in PY2023 but fell short of the program goal.** Although the number of discounted units increased in the second year of the program, the sales continued to fall short of the savings targets for the program.

**Ex ante savings for air source heat pumps and central air conditioners were high.** The evaluation found that ex ante savings were high for central air conditioners and heat pumps.

- **Recommendation 1:** Review ex ante savings estimations and develop conservative estimates using normal replacement assumptions.

**Some units were identified incorrectly in the tracking data.** Based on review of AHRI information, the equipment type was sometimes misidentified in the program tracking data.

- **Recommendation 2:** Review invoice review procedures to ensure correct identification of equipment.

**Feedback from two of the distributors suggests that they are not engaged with the program, believe the administrative process to be burdensome, and think that additional support would improve their experience with the program.** Distributor responses suggest that there are some opportunities to help them better realize the value of the program. Some of the feedback included distributor interest in additional insight on how to drive sales when awareness is low, the perception that the participation process is an administrative burden, while at the same time not seeing any benefit to their business, and the observation that the low volume of sales makes the administrative process more challenging because they are not doing it routinely enough institutionalize the practice.

- **Recommendation 3:** Increase engagement with distributors and branch locations to talk about the program, ask about any issues they are facing, and collaboratively work together to identify ways that the program can help them increase their sales of efficient equipment.
- **Recommendation 4:** Provide sales training to distributor branch locations. For businesses that participate in a similarly implemented program in other regions that have been successful, identify a staff person who can share lessons learned for maximizing sales within the program.

**Distributors provided positive feedback on the training of administrative processes.**

Distributors found the training to be useful and effective.

**The program has begun allowing contractors to submit for incentives, suggesting potential problems with the distributor program model.** Program data indicates that a few contractor companies have received incentive payments through the program. This suggests that there is an issue with the midstream program that is not operating effectively and requiring contractors to bypass it. It also suggests that there may be a need to more clearly articulate the rules that allow for contractor participation, and to open this avenue to all contractors providing services in the area. Contractor participation may also further undermine distributor interest in engaging with the program.

- **Recommendation 5:** If contractor sales continue, clarify the process for onboarding contractors to the system and ensure that all contractors in the region have the opportunity to apply to participate.



- **Recommendation 6:** Consider restructuring the program into upstream and downstream components to better accommodate both distributor and contractor participation. The proposed midstream component should target equipment with the highest efficiency levels but lower market penetration, potentially benefiting from enhanced incentives to encourage increased stocking. Conversely, the downstream component would focus on equipment that offers marginal efficiency improvements over standard options. This separation aims to optimize incentive distribution and increase the availability of high-efficiency equipment.
- **Recommendation 7:** Meet with contractors to understand what challenges and issues they face using the distributor incentives. Leverage this information to provide additional training and guidance to distributors to improve the program's performance.

**Distributors suggested a greater collaboration and contractor awareness could improve the program.**

- **Recommendation 8:** Consider joint outreach with distributors and program staff to contractors, such as lunch and learn or one-on-one meetings.

#### 1.4.6. Home Energy Products Online Marketplace

**The program offered a limited range of products in PY2023.** During PY2023, customers purchased discounted smart thermostats, dehumidifiers, air purifiers, and water heaters.

**The program has controls in place for incentives, limiting the number of measures customers can purchase under one account number.** The program monitors incentive levels, but staff noted that changes in manufacturer pricing could cause the incentives to cover varying shares of the measure costs. The marketplace platform does not allow for setting a fixed dollar amount or a minimum share of the measure cost. Additionally, there are limits on the number of measures that can be purchased by an account.

**There is a risk of double counting air purifiers sold through the Online Marketplace and the ENERGY STAR® Appliances Program.** Orders through the marketplace are processed by Best Buy, which participates in the Home Energy Products ENERGY STAR® Appliances Program. Without procedures to prevent these measures from being counted in both programs, there is a risk of double counting the energy savings from air purifiers. ADM identified seven units that might have been double counted but chose not to revise the savings estimates due to uncertainties around whether the identified units were identical, only a subset of models overlapped between the two listings, and the minimal impact of the Home Energy Products ENERGY STAR® Appliances Program on overall sales for PY2023, despite a significant rate of free ridership.

- **Recommendation 1:** ADM recommends either discontinuing incentives for air purifiers through the ENERGY STAR® Appliances program or limiting Online Marketplace air purifier rebate submissions to purchases made through retailers that do not participate in that program.

**Enervue email campaigns I&M's cross promotion with other programs are the primary marketing approaches used.** The data indicates that email campaigns were the most effective

method for informing customers about the online marketplace, with 61% of product purchasers discovering it through this channel. Additionally, 18% of customers found the marketplace via the I&M website. In PY2023, I&M adopted a conservative approach to marketing the program. This strategy was influenced by the cost structure of the online marketplace service, which is tied to the total number of products sold. This includes both efficiently discounted products and other items sold through the Enervee marketplace without discounts.

- **Recommendation 2:** Monitor traffic and purchasing patterns in response to email campaigns to assess the impact on non-qualified products that would increase the cost of the service. By analyzing the data, there is an opportunity to refine marketing efforts for specific products in a way that promotes sales without significantly increasing the purchases of non-qualified products. This targeted strategy can optimize marketing by focusing on driving sales of products that contribute positively to the program's goals without disproportionately affecting service costs. It also enables identification of which product promotions are most effective, allowing for more efficient allocation of marketing resources towards those offering the best return on investment.

**The discounts and information provided by the website motivate customer purchases.** Besides the available discounts, the Online Marketplace provides information on product efficiency to encourage the selection of efficient equipment options. Survey responses suggest both factors motivated purchase decisions. The discount was more commonly cited as a motivating factor (84% cited it) than information about energy efficiency (15% cited this), but of the 49% who saw the Enervee Score summarizing product efficiency, 64% rated its importance in their decision as 8 or higher on a 10-point scale.

**Most participants found the Online Marketplace user-friendly, with 98% reporting ease in locating products.** Customers reported satisfaction with the service, and the new website platform was well received, maintaining consistent satisfaction levels with the previous website.

**Customers reported satisfaction with the service.** The new website platform has been well received and the level of satisfaction with it was consistent with the level of satisfaction with the previous website.

**More respondents were promoters in 2023, but the difference from 2022 was not statistically significant.** Sixty-four percent of respondents were promoters in 2023, compared to 51% in 2022.

### 1.5. Organization of Report

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This report is divided into two volumes that provide information on the impact, process, and cost effectiveness evaluation of the Indiana Michigan Power portfolio of residential programs implemented in Indiana during the 2023 program year. Volume I is organized as follows:

- Chapter 2: Home Online Energy Checkup
- Chapter 3: AMI Data Portal
- Chapter 4: Residential Income Qualified Weatherproofing



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- Chapter 5: Home Energy Products ENERGY STAR Appliances
- Chapter 6: Home HVAC Midstream
- Chapter 7: Home Energy Products Online Marketplace
- Chapter 8: Cost Effectiveness Evaluation

See report Volume II for chapters presenting survey instruments and tabulated survey response information.

## 2. Home Online Energy Checkup

This chapter presents the results of both the impact and process evaluations of the 2023 Home Online Energy Checkup Program that Indiana Michigan Power (I&M) offered to its residential customers during the period of January 2023 through December 2023.

The objectives of the evaluation were to:

- Assess gross and net energy (kWh) savings and peak demand (kW) reductions resulting from participation in the program during the program year;
- Complete a participant survey for the process evaluation; and
- Provide recommendations for program improvement.

### 2.1. Program Description

The Home Online Energy Check-Up (OEC) program identifies energy saving opportunities through a web-based self-service assessment tool where customers answer basic questions about their homes and how they use energy in it. Upon completion of the questions online, the program generates a printable report that includes:

- Useful details about customer home's energy consumption;
- Customized energy-saving recommendations;
- Potential savings from making the suggested improvement; and
- Environmental impact of implementing suggested improvements.

In addition, the customer is mailed a kit of low-cost energy efficiency measures dependent on their water heater type. Kits are limited to one per account every three years. The kit contents are displayed in Table 2-1.

*Table 2-1 Home Online Energy Checkup Kit Contents*

| <i>Kit</i>            | <i>Measure</i>                          | <i>Quantity</i> |
|-----------------------|---|-----------------|
| Electric Water Heater | 0.3 W LED night light                   | 1               |
|                       | 1.5 GPM kitchen faucet aerator          | 1               |
|                       | 1.0 GPM bathroom faucet aerator         | 2               |
|                       | 1.5 GPM showerhead                      | 1               |
| Gas Water Heater      | Tier 1 advanced power strip (7 outlets) | 1               |

## 2.2. Data Collection

### 2.2.1. Participant Survey

ADM completed three surveys of program participants to collect data to verify that the recorded measures were installed.

To determine the minimum sample size needed to meet this precision requirement, ADM assumed a CV of .5, as is typically used in residential program evaluations. The sample size requirement was estimated using the following formula:

$$n = \left( \frac{1.645 * CV}{TP} \right)^2$$

Where,

1.645 = Z Score for 90% confidence interval in a normal distribution

CV = Coefficient of Variation

TP = Targeted Precision, 10% in this evaluation

With 10% targeted precision (TP), this called for a minimum sample of 68 participants.

ADM administered the survey to a random sample of 2,400 participants in the Home Online Energy Checkup Program. Participants were contacted by email to complete the survey and received up to three emails invitations. Table 2-2 summarizes the results of the survey data collection effort. Of the 346 survey responses, 152 were from participants that received an electric water heating kit and 194 were from customers customer received a gas water heating kit.

*Table 2-2 Home Online Energy Checkup Survey*

| <i>Survey</i>                            | <i>Mode</i> | <i>Time Frame</i> | <i>Number of Contacts</i> | <i>Number of Completions</i> |
|--|-------------|-------------------|---------------------------|------------------------------|
| Online Energy Checkup Participant Survey | Email       | September 2023    | 2,400                     | 346                          |

## 2.3. Estimation of Ex Post Gross Savings

### 2.3.1. Methodology for Estimating Ex Post Gross Energy Savings

#### 2.3.1.1. Review of Documentation

I&M maintains program tracking information that includes a list of customers that received the efficiency kit and the kit type. The first aspect of conducting measurements of program activity was to verify that the tracking data report of participants and measures were accurate. To this end, ADM reviewed the program data to verify that the fields required for performing the evaluation

are tracked and populated (i.e., the data is not missing) and that the values are reasonable. ADM took several steps in verifying the number of kit measures installed, which consist of the following:

- Validating program tracking data by checking for duplicate or erroneous entries; and
- Conducting verification surveys with a sample of program participants to verify that customers listed in the program tracking database installed the measures listed.

ADM also reviewed the savings estimates used to calculate ex ante energy impacts for installed measures. This evaluation activity is intended to support development of any actionable recommendations for refinement of the ex ante savings calculation approach.

### 2.3.1.2. Procedures for Estimating Measure-Level Gross Energy Savings

Table 2-3 presents information on savings calculation formulas, savings calculation inputs, incremental cost, and effective useful life values and data sources applicable to the Home Online Energy Checkup Program.

*Table 2-3 Home Online Energy Checkup Program Calculation Input Information*

| <i>Variable Type</i>                      | <i>Variable Name</i> | <i>Variable Value</i> | <i>Variable Value Source</i>   |
|---|----------------------|-----------------------|--|
| <b>Measure Name: Advanced Power Strip</b> |                      |                       |  |
| Savings                                   | $\Delta kWh$         |                       | $kWh$  |
| Savings                                   | $\Delta kW$          |                       | $kWh / \text{Hours} * CF$  |
| Input                                     | $kWh$                | Varies                | Illinois TRM 11.0 Vol. 3, p. 80. Varies based on number of plugs.                                  |
| Input                                     | $\text{Hours}$       | 7129                  | Illinois TRM 11.0 Vol. 3, p. 80.   |
| Input                                     | $CF$                 | 0.8                   | Illinois TRM 11.0 Vol. 3, p. 80.   |
| EUL                                       |                      | 7                     | Illinois TRM 11.0 Vol. 3, p. 78.   |
| <b>Measure Name: Bathroom Aerator</b>     |                      |                       |  |
| Savings                                   | $\Delta kWh$         |                       | $((GPM_{base} - GPM_{low}) * MPD * (PH / FH) * DR * 8.3 * (T_{mix} - T_{in}) * 365) / (RE * 3412)$ |
| Savings                                   | $\Delta kW$          |                       | $((GPM_{base} - GPM_{low}) * 60 * DR * 8.3 * (T_{mix} - T_{in}) * CF) / (RE * 3412)$               |
| Input                                     | $GPM_{base}$         | Varies                | Indiana TRM V2.2, p. 69.   |
| Input                                     | $GPM_{low}$          | 1                     | Characteristics of applicable equipment.   |
| Input                                     | $MPD$                | Varies                | Indiana TRM V2.2, p. 69.   |
| Input                                     | $PH$                 | Varies                | Indiana TRM V2.2, p. 69. Varies based on housing type.   |
| Input                                     | $FH$                 | Varies                | Indiana TRM V2.2, p. 69. Varies based on installation location and housing type.                   |
| Input                                     | $DR$                 | Varies                | Indiana TRM V2.2, p. 70  |
| Input                                     | $T_{mix}$            | Varies                | Indiana TRM V2.2, p. 70  |
| Input                                     | $T_{in}$             | Varies                | Area-specific value, Indiana TRM V2.2  |
| Input                                     | $CF$                 | Varies                | Indiana TRM V2.2, p. 71.   |
| Input                                     | $RE$                 | 0.98                  | Indiana TRM V2.2, p. 71.   |
| EUL                                       |                      | 10                    | Illinois TRM 11.0 Vol. 3, p. 258.  |

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| Variable Type                        | Variable Name  | Variable Value | Variable Value Source  |
|--------------------------------------|----------------|----------------|--|
| <b>Measure Name: Kitchen Aerator</b> |                |                |  |
| Savings                              | $\Delta kWh$   |                | $((GPM_{base} - GPM_{low}) * MPD * (PH / FH) * DR * 8.3 * (T_{mix} - T_{in}) * 365) / (RE * 3412)$ |
| Savings                              | $\Delta kW$    |                | $((GPM_{base} - GPM_{low}) * 60 * DR * 8.3 * (T_{mix} - T_{in}) * CF) / (RE * 3412)$               |
| Input                                | $GPM_{base}$   | Varies         | Indiana TRM V2.2, p. 69.   |
| Input                                | $GPM_{low}$    | 1.5            | Characteristics of applicable equipment.   |
| Input                                | $MPD$          | Varies         | Indiana TRM V2.2, p. 69.   |
| Input                                | $PH$           | Varies         | Indiana TRM V2.2, p. 69. Varies based on housing type.   |
| Input                                | $FH$           | Varies         | Indiana TRM V2.2, p. 69. Varies based on installation location and housing type.                   |
| Input                                | $DR$           | Varies         | Indiana TRM V2.2, p. 70  |
| Input                                | $T_{mix}$      | Varies         | Indiana TRM V2.2, p. 70  |
| Input                                | $T_{in}$       | Varies         | Area-specific value, Indiana TRM V2.2  |
| Input                                | $CF$           | Varies         | Indiana TRM V2.2, p. 71.   |
| Input                                | $RE$           | 0.98           | Indiana TRM V2.2, p. 71.   |
| EUL                                  |                | 10             | Illinois TRM 11.0 Vol. 3, p. 258.  |
| <b>Measure Name: Showerhead</b>      |                |                |  |
| Savings                              | $\Delta kWh$   |                | $((GPM_{base} - GPM_{low}) * MS * SPD * (PH / SH) * 8.3 * (T_{mix} - T_{in}) * 365) / (RE * 3412)$ |
| Savings                              | $\Delta kW$    |                | $((GPM_{base} - GPM_{low}) * 60 * 8.3 * (T_{mix} - T_{in}) * CF) / (RE * 3412)$                    |
| Input                                | $GPM_{base}$   | 2.63           | Indiana TRM V2.2, p. 74.   |
| Input                                | $GPM_{low}$    | 1.5            | Characteristics of applicable equipment.   |
| Input                                | $MS$           | 7.8            | Indiana TRM V2.2, p. 74.   |
| Input                                | $SPD$          | 0.6            | Indiana TRM V2.2, p. 74.   |
| Input                                | $PH$           | Varies         | Indiana TRM V2.2, p. 74. Varies based on housing type.   |
| Input                                | $SH$           | Varies         | Indiana TRM V2.2, p. 74. Varies based on housing type.   |
| Input                                | $T_{mix}$      | 101            | Indiana TRM V2.2, p. 75.   |
| Input                                | $T_{in}$       | Varies         | Indiana TRM V2.2, p. 75. Varies based on climate zone.   |
| Input                                | $RE$           | 0.98           | Indiana TRM V2.2, p. 75.   |
| Input                                | $CF$           | 0.0023         | Indiana TRM V2.2, p. 75. Varies based on climate zone.   |
| EUL                                  |                | 10             | Illinois TRM 11.0 Vol. 3, p. 268.  |
| <b>Measure Name: LED Nightlight</b>  |                |                |  |
| Savings                              | $\Delta kWh$   |                | $(Watts_{Base} - Watts_{Eff}) * Hours / 1000$  |
| Savings                              | $\Delta kW$    |                | 0  |
| Input                                | $Watts_{Base}$ | 5              | Indiana TRM V2.2, p. 136.  |
| Input                                | $Watts_{Eff}$  | 0.33           | Indiana TRM V2.2, p. 136.  |
| Input                                | $Hours$        | 2920           | Indiana TRM V2.2, p. 136.  |
| EUL                                  |                | 8              | Illinois TRM 11.0 Vol. 3, p. 349.  |

### 2.3.1.3. In-Service Rates

Table 2-4 shows the in-service rates for program measures provided through the Home Online Energy Checkup Program. The in-service rate for LED nightlights is lower because most were used in an empty outlet rather than replacing an existing night light see (Table 2-5). The advanced power strip in-service rate was lower because some customers were not currently using it or were not using it as intended to control power used by media and office equipment (e.g., using it as a general power strip for lamps, clocks, and power tools) (see Table 2-6).

*Table 2-4 Summary of Measure In-Service Rates*

| <i>Measure</i>           | <i>Number of Responses</i> | <i>In-Service Rate</i> |
|--------------------------|----------------------------|------------------------|
| Advanced Power Strip     | 178                        | 69%                    |
| 1.5 GPM Kitchen aerator  | 117                        | 75%                    |
| 1.0 GPM Bathroom aerator | 102                        | 74%                    |
| 1.5 GPM Showerhead       | 119                        | 77%                    |
| 0.5w LED night light     | 125                        | 37%                    |

*Table 2-5 Night Light Installation*

| <i>Night Light Installation</i>            | <i>Percent of Units</i> |
|--|-------------------------|
| Not installed                              | 26%                     |
| Installed as new installation              | 37%                     |
| Installed and replaced existing nightlight | 37%                     |

*Table 2-6 Power Strip Installation*

| <i>Equipment Used with Power Strip</i> | <i>Percent of Respondents</i> |
|--|-------------------------------|
| Not installed                          | 14%                           |
| Audio/visual/entertainment equipment   | 39%                           |
| Computer/office equipment              | 30%                           |
| Other types of equipment               | 17%                           |

### 2.3.2. Results of Ex Post Gross Savings Estimation

Table 2-7 summarizes the ex post gross kWh savings of the Home Online Energy Checkup Program by measure. The ex post annual energy savings for the program were 2,051,702 kWh with a realization rate of 122%.

Table 2-7 Measure-Level Annual Gross kWh Savings

| <i>Measure Type</i>      | <i>Ex Ante<br/>Gross<br/>kWh<br/>Savings</i> | <i>Gross<br/>Audited<br/>kWh<br/>Savings</i> | <i>Gross<br/>Verified<br/>kWh<br/>Savings</i> | <i>Ex Post<br/>Gross<br/>kWh<br/>Savings</i> | <i>Gross<br/>Realization<br/>Rate</i> |
|--------------------------|--|--|---|--|---------------------------------------|
| Advanced Power Strip     | 254,731                                      | 254,731                                      | 174,591                                       | 441,081                                      | 173%                                  |
| 1.5 GPM Kitchen aerator  | 471,796                                      | 471,796                                      | 354,855                                       | 494,102                                      | 105%                                  |
| 1.0 GPM Bathroom aerator | 142,202                                      | 142,202                                      | 104,561                                       | 165,925                                      | 117%                                  |
| 1.5 GPM Showerhead       | 789,232                                      | 789,232                                      | 610,163                                       | 931,951                                      | 118%                                  |
| 0.5w LED night light     | 28,717                                       | 28,717                                       | 10,568  | 18,643                                       | 65%                                   |
| Total                    | 1,686,678                                    | 1,686,678                                    | 1,254,737                                     | 2,051,702                                    | 122%                                  |

The following discusses factors affecting realization rates that differed substantially from 100%.

- Advanced power strip (173%). The ex ante savings estimate assumed a conservative value of 40.77 kWh per unit. The ex post savings were 70.60 kWh.
- Bathroom aerator (117%). The ex ante savings estimated assumed a savings of 19.14 kWh per unit, whereas the ex post savings averaged 23.12 per unit.
- Showerhead (118%). The ex ante savings estimated assumed a savings of 212.44 kWh per unit, whereas the ex post savings averaged 256.46 per unit.
- LED night light (65%). LED night light savings were adversely affected by a lower in-service rate resulting from night lights installed as new units rather than as replacements of existing night lights.

Table 2-8 summarizes the per kit gross kWh savings.

Table 2-8 Kit-Level Annual Gross kWh Savings

| <i>Kit Type</i> | <i>Kit<br/>Quantity</i> | <i>Ex Ante<br/>Annual<br/>kWh<br/>Savings</i> | <i>Gross<br/>Audited<br/>kWh<br/>Savings</i> | <i>Gross<br/>Verified<br/>kWh<br/>Savings</i> | <i>Ex Post<br/>Annual<br/>Gross<br/>kWh<br/>Savings</i> | <i>Gross<br/>Realization<br/>Rate</i> |
|-----------------|-------------------------|---|--|---|---|---------------------------------------|
| Electric        | 3,715                   | 1,431,947                                     | 1,431,947                                    | 1,080,146                                     | 1,610,621   | 112%                                  |
| Gas             | 6,248                   | 254,731                                       | 254,731                                      | 174,591                                       | 441,081   | 173%                                  |
| Total           | 9,963                   | 1,686,678                                     | 1,686,678                                    | 1,254,737                                     | 2,051,702   | 122%                                  |

Table 2-9 summarizes the gross peak demand reduction of the Home Online Energy Checkup Program. The gross peak demand reduction for the program was 140.46 kW, with a realization rate of 133%.

*Table 2-9 Measure-Level Annual Gross kW Savings*

| <i>Measure Type</i>      | <i>Ex Ante<br/>Gross kW<br/>Savings</i> | <i>Gross<br/>Audited<br/>kW<br/>Savings</i> | <i>Gross<br/>Verified<br/>kW<br/>Savings</i> | <i>Ex Post<br/>Gross kW<br/>Savings</i> | <i>Gross<br/>Realization<br/>Rate</i> |
|--------------------------|---|---|--|---|---------------------------------------|
| Advanced Power Strip     | 31.24                                   | 31.24                                       | 21.41  | 49.50                                   | 158%                                  |
| 1.5 GPM Kitchen aerator  | 21.54                                   | 21.54                                       | 16.20  | 23.50                                   | 109%                                  |
| 1.0 GPM Bathroom aerator | 13.55                                   | 13.55                                       | 9.96   | 18.09                                   | 134%                                  |
| 1.5 GPM Showerhead       | 39.21                                   | 39.21                                       | 30.31  | 49.37                                   | 126%                                  |
| 0.5w LED night light     | -                                       | -   | -  | -                                       |                                       |
| Total                    | 105.54                                  | 105.54                                      | 77.89  | 140.46                                  | 133%                                  |

Table 2-10 summarizes the kit gross kW savings.

*Table 2-10 Kit-Level Annual Gross kW Savings*

| <i>Kit Type</i> | <i>Kit<br/>Quantity</i> | <i>Ex Ante<br/>Annual<br/>kW<br/>Savings</i> | <i>Gross<br/>Audited<br/>kW<br/>Savings</i> | <i>Gross<br/>Verified<br/>kW<br/>Savings</i> | <i>Ex Post<br/>Annual<br/>Gross kW<br/>Savings</i> | <i>Gross<br/>Realization<br/>Rate</i> |
|-----------------|-------------------------|--|---|--|--|---------------------------------------|
| Electric        | 3,715                   | 74.30  | 74.30                                       | 56.48  | 90.96  | 122%                                  |
| Gas             | 6,248                   | 31.24  | 31.24                                       | 21.41  | 49.50  | 158%                                  |
| Total           | 9,963                   | 105.54                                       | 105.54                                      | 77.89  | 140.46   | 133%                                  |

### 2.3.3. Estimation of Ex Post Net Savings

The net savings analysis is used to determine what part of the gross energy savings achieved by program participants can be attributed to the effects of the program. The net savings attributable to program participants are the gross savings less free ridership, plus spillover. ADM estimated free ridership and participant spillover through a survey of program participants.

#### 2.3.3.1. Estimation of Free Ridership

The calculation of a free ridership was based on the responses to questions on the following topics:

- Prior experience with similar energy saving equipment.
- Prior planning to purchase energy efficiency measures that were provided through the program.
- Likelihood of installing similar equipment without the program.

##### 2.3.3.1.1. Prior Experience

The program is designed to encourage customers to try efficiency measures that they previously did not have experience with by providing them at no cost to the customer. As such, a primary indicator of the likelihood that a participant is a free rider, is whether he or she has previously



purchased a similar measure. Previous experience was used as an indicator of whether the customer would have coincidentally purchased a similar measure on their own.

Prior experience is assessed through the following question:

- FR1: Thinking back to before you completed the online energy checkup, had you purchased and installed any of the following items in your home in the last three years?

Respondents who had not purchased a given measure in the past three years were considered to have minimal to no prior experience with that measure, meaning that the intervention of the program is likely significantly influential in the energy savings resulting from the measure. These respondents received an overall free ridership score of 0 for this measure. Otherwise, free ridership is assessed using the following three factors.

#### *2.3.3.1.2. Prior Plans and Intentions*

Participants were asked if they had plans to purchase any of the measures:

- FR2: Before you heard of the program, did you have specific plans to purchase any of these kit items that were sent to you? If so, which items did you plan to purchase?

For bathroom faucet aerators, participants that responded that they planned to install the measures are asked the following question:

- FR3: Of the two bathroom faucet aerators provided in the kit, how many did you plan to purchase on your own?

Respondents who indicate that they had plans to purchase the measure on FR2, were given a plans score of 1. The response to FR3 was used to adjust the plans score to reflect the number of items the respondent planned to purchase. For example, if the respondent planned to purchase one of the two items received, the plans score was adjusted to .5.

#### *2.3.3.1.3. Likelihood of Purchasing Measure*

Participants were also asked how likely they would have been to install the efficiency measures if they had not received them through the program.

- FR4: Using a scale where 0 means “not at all likely” and 10 means “very likely”, if you had not completed the online energy checkup or received the energy conservation kit, how likely would you have been to purchase any of the following items on your own within 12 months of when you received them?
- FR5: [IF FR4 > 0] Based on your response, there is some likelihood that you would have purchased some of the kit items in the next 12 months. Given that, we would like to know why you had not already purchased the items on your own. Had you not already bought the kit items because 1) you didn’t want to spend the money, 2) you had not gotten around to it, 3) you didn’t know where to buy the items, 4) you didn’t know enough about the items, or 6) another reason?

Respondents who indicated in FR4 that they had not already purchased a given measure because they did not want to spend the money, did not know where to purchase the measure, or did not know enough about the measure are considered to have had significant barriers to implementing these energy efficiency improvements and received a score of 0% free ridership for the measure under this component. Otherwise, the likelihood of purchasing was scored as:

$$\text{Likelihood of Purchasing} = \text{FR4}/10$$

#### 2.3.3.1.4. Free Ridership Scoring

For respondents who demonstrated prior experience with a measure, the scores for the prior plans and likelihood of purchasing the measures are averaged to assign a measure-level free ridership score to each respondent.

#### 2.3.3.2. Estimation of Participant Spillover

Program participants may implement additional energy saving measures without receiving a program incentive because of their participation in the program. The energy savings resulting from these additional measures constitute program participant spillover effects.

To assess participant spillover savings, survey respondents were asked whether they implemented any additional energy saving measures for which they did not receive a program incentive. Respondents are also asked to provide information on the attributes of the measures implemented for use in estimating the associated energy savings.

Participants who report implementing on one or more efficiency measures were then asked two questions for use in developing a spillover score:

- SO1: On a scale of 0 to 10, where 0 represents “not at all important” and 10 represents “extremely important”, how important was your experience with the online energy checkup in your decision to purchase the items you just mentioned?
- SO2: On a scale of 0 to 10, where 0 represents “not at all likely” and 10 represents “extremely likely” how likely would you have been to make the additional purchases you just mentioned even if you had not completed the online energy checkup?

The responses to these questions were used to develop a spillover score as follows:

$$\text{Spillover} = \text{Average}(\text{SO1}, 10 - \text{SO2})$$

All the associated measure savings were considered attributable to the program if the resulting score is greater than 7.

#### 2.3.3.3. Estimation of Non-Participant Spillover

ADM estimated non-participant spillover through a survey of non-participating customers in PY2021. No spillover was identified, and ADM did not apply non-participant savings to the PY2023 net savings estimate.

#### 2.3.4. Results of Ex Post Net Savings Estimation

Table 2-11 summarizes the free ridership results for the kit measures.

*Table 2-11 Program-Level Annual Net kWh and kW Savings*

| <i>Measure</i>       | <i>Number of Responses</i> | <i>Free Ridership</i> |
|----------------------|----------------------------|-----------------------|
| Advanced Power Strip | 157                        | 5%                    |
| Bathroom Aerator     | 132                        | 2%                    |
| Kitchen Aerator      | 132                        | 3%                    |
| Showerhead           | 132                        | 8%                    |
| LED Nightlight       | 132                        | 11%                   |

Table 2-12 summarizes the ex post annual net kWh and kW savings of the Home Online Energy Checkup Program. The annual net savings totaled 1,996,271 kWh and 142.56 kW.

*Table 2-12 Program-Level Annual Net kWh and kW Savings*

| <i>Category</i>                   | <i>kWh</i> | <i>kW</i> |
|-----------------------------------|------------|-----------|
| Ex Ante Gross Savings             | 1,686,678  | 105.54    |
| Gross Audited Savings             | 1,686,678  | 105.54    |
| Gross Verified Savings            | 1,254,737  | 77.89     |
| Ex Post Gross Savings             | 2,051,702  | 140.46    |
| Gross Realization Rate            | 122%       | 133%      |
| Ex Post Free Ridership            | 117,905    | 7.60      |
| Ex Post Non-Participant Spillover | 0          | 0.00      |
| Ex Post Participant Spillover     | 62,475     | 9.70      |
| Ex Post Net Savings               | 1,996,271  | 142.56    |
| Net-to-Gross Ratio                | 97%        | 101%      |
| Ex Post Net Lifetime Savings      | 18,629,872 | N/A       |

#### 2.3.5. Process Evaluation

ADM completed a process evaluation of the Online Energy Checkup Program. The process evaluation activities consisted of the collection and analysis of survey findings from participants.

The following sections summarize findings on program design and operations based on interviews and discussions with the I&M and implementation contractor program managers, a review of program documents, and a review of the program tracking data.

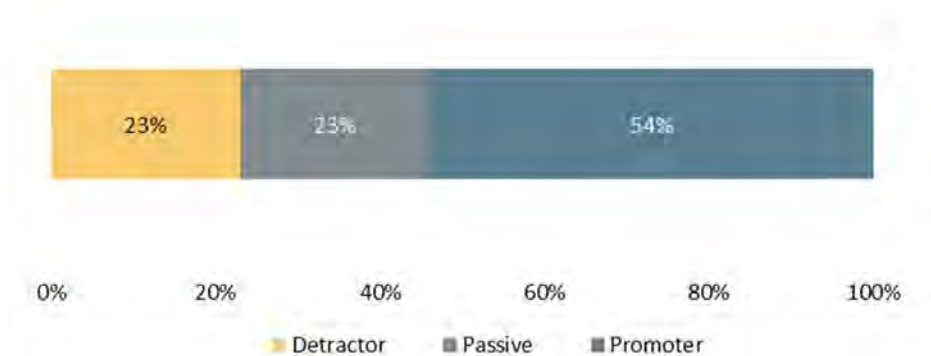
### 2.3.5.1. Participant Survey Findings

ADM surveyed customers whose households participated in the Online Energy Checkup program. Customers completed an online survey that asked questions about their experience with the program, satisfaction with the kit items, ease of completing the survey, and their home characteristics. Analysis of the survey data was limited to the 289 respondents who answered all survey questions. Partial responses were not used because the responses discussed in this section were from survey questions that occurred towards the end of the survey.

### 2.3.5.2. Net Promoter Score

**More than half of the respondents were net promoters, and they were generally satisfied with the cost savings, provided information, and kit items.** Based on the survey findings, 23% of respondents were classified as Detractors, 23% as Passive, and 54% as Promoters in terms of their likelihood to recommend the program to others (see Figure 2-1). The Net Promoter Score (NPS) for the Online Energy Checkup program in Indiana was 31%.

Figure 2-1 Net Promoter Score (n = 289)



Promoters of the program were likely to recommend the program to others, believing it to be an educational and practical tool for energy conservation. The promotion of eco-friendly practices and community awareness also played a role in their positive feedback. Passive respondents generally viewed the program positively, considering it informative and beneficial for energy conservation. However, they acknowledged that discussions about energy-saving topics are infrequent in their conversations, which may affect their likelihood of recommending the program to others. The perception of the program's items varied among respondents. Detractors' feedback suggests that factors such as preexisting knowledge, perceived benefit, kit delivery issues, and relevance in conversations play a role in shaping their opinions about the program. Additionally, concerns about costs, product quality, and communication emerged as recurring themes in their comments. See Table 2-13 for a breakdown of the categories of comments by group.

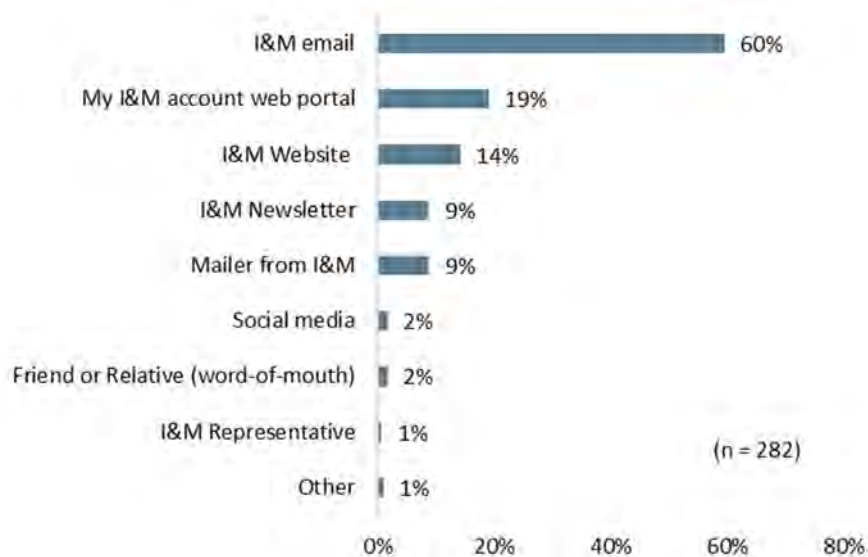
Table 2-13 Reason for NPS Rating

| <i>Promoters (n = 67)</i>  | <i>Number of Comments (n = 50)</i>  |
|--|-------------------------------------|
| Positive impact on energy and cost savings                               | 84                                  |
| Likely to recommend to friends and family                                | 31                                  |
| Informative and educational  | 13                                  |
| Environmental considerations/ General support for energy conservation    | 13                                  |
| Positive perception of items received                                    | 9                                   |
| Ease of use  | 7                                   |
| Beneficial for lower-income households                                   | 2                                   |
| Community awareness/Sense of responsibility to promote energy efficiency | 7                                   |
| Mixed satisfaction   | 2                                   |
| Free items and incentives  | 6                                   |
| Importance of informed consumers   | 2                                   |
| <i>Detractors (n = 66)</i>   | <i>Number of Comments (n = 42)</i>  |
| Pre-existing knowledge   | 12                                  |
| Lack of perceived benefit  | 11                                  |
| Kit delivery issues  | 2                                   |
| Limited relevance in conversations/ Not suitable for specific situations | 9                                   |
| Program costs and fees   | 5                                   |
| Ineffective or low-quality products                                      | 5                                   |
| Excessive emails from I&M  | 2                                   |
| Personal dissatisfaction impacting opinion                               | 2                                   |
| Other reasons  | 5                                   |
| <i>Passive (n = 156)</i>   | <i>Number of Comments (n = 101)</i> |
| Positive perception of program   | 17                                  |
| Ease and convenience   | 5                                   |
| Environmental concerns/interest in conserving energy                     | 6                                   |
| Limited conversations or would inform others if the topic came up        | 18                                  |
| Variability in item usefulness   | 5                                   |
| Common sense and prior knowledge   | 7                                   |
| Support for informed consumers   | 2                                   |
| Limited time and benefit   | 5                                   |
| Generational differences   | 2                                   |

### 2.3.5.3. Awareness and Engagement

**Most survey respondents learned of the Online Energy Checkup program through an I&M email.** Participants provided feedback on how they initially became aware of the program, with 60% learning about it through email communication from I&M, followed by 19% who learned about it from their account portal, and 14% who learned about it from the I&M website (see Figure 2-2).

*Figure 2-2 Sources of Awareness*



**Customers were motivated to participate by learning how to save money on their energy bills.** Survey participants completed the online energy checkup survey and received the energy efficiency kit for various reasons, with the primary motivation being to learn about ways to save money on energy bills (74%). Some participants also cited environmental reasons (25%) and the fact that the items were provided free of charge (59%) as factors that influenced their decision to participate. Additionally, a few respondents mentioned other reasons, such as wanting their voice to be heard and addressing home maintenance issues. See Table 2-14 for more information.

*Table 2-14 Motivation to Participate in the Online Energy Checkup Program*

| <i>Responses</i>                                    | <i>Percentage of Responses<br/>(n = 288)</i> |
|---|--|
| To learn about ways to save money on energy bill(s) | 74%  |
| The items were provided free of charge              | 59%  |
| Environmental reasons                               | 25%  |
| Other reasons                                       | 3%   |

#### 2.3.5.4. Completing the Online Energy Checkup Survey

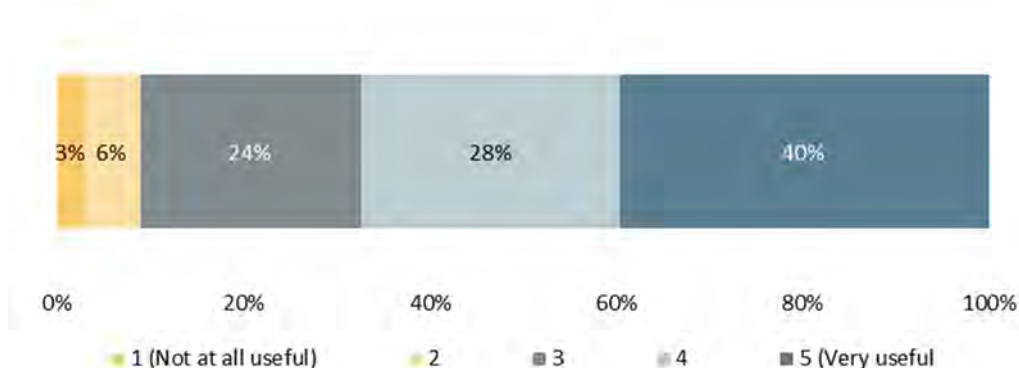
**Few respondents had difficulty completing the energy checkup.** Most respondents (73%) found the online energy checkup survey to be very easy to complete, while 16% rated it as somewhat easy, with an average score of 4.6. A small percentage of respondents (2%) found it to be either very or somewhat difficult, giving it a rating of 1 or 2. See Table 2-15 for additional details. Respondents reported various difficulties when completing the online energy checkup survey, such as the screen freezing up or receiving error messages that prevented survey completion. Additionally, two respondents specified other challenges they faced, including instances where they had to complete the survey several times, but it would not confirm, causing a call for assistance.

*Table 2-15 Ease of Completing Online Energy Checkup Survey*

| <i>Responses</i>   | <i>Percentage of Responses<br/>(n = 287)</i> |
|--------------------|--|
| 1 (Very difficult) | 1%   |
| 2                  | 1%   |
| 3                  | 9%   |
| 4                  | 16%  |
| 5 (Very easy)      | 73%  |

Respondents provided feedback on the usefulness of the Online Energy Checkup in helping them understand how to save energy. More than half of the survey respondents (68%) found it to be very or somewhat useful, rating it as a 4 or 5 on a 5-point scale. However, 3% found the online checkup not at all useful in aiding their comprehension of energy-saving techniques (see Figure 2-3).

*Figure 2-3 Usefulness of the Online Checkup (n = 289)*



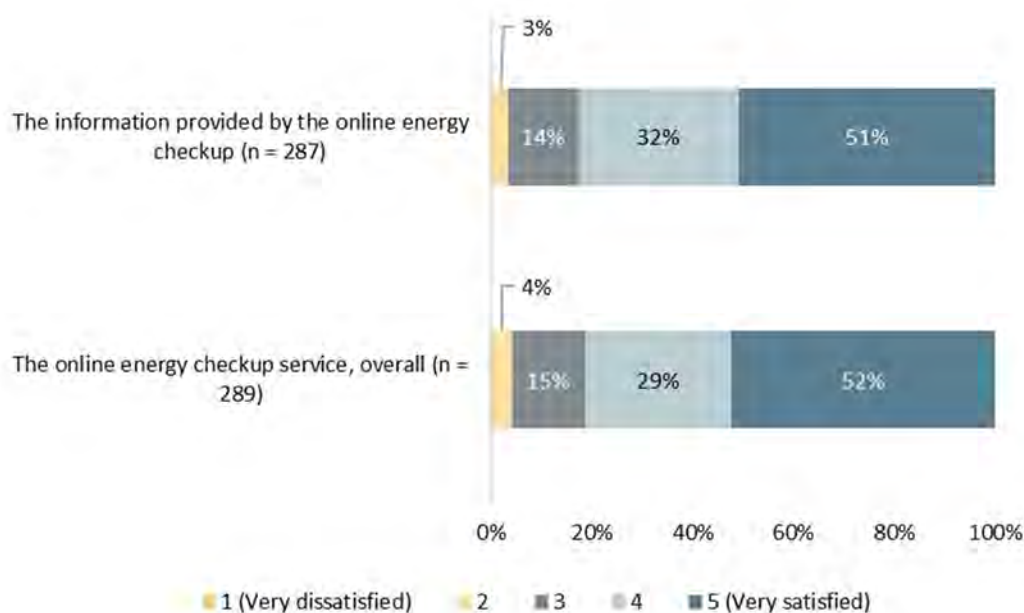
#### 2.3.5.5. Satisfaction Online Energy Checkup Survey and Kit Items

**Respondents were generally satisfied with the Online Energy Checkup program and the information provided.** Most survey respondents (52%) said that they were very satisfied. As



shown in Figure 2-4, 29% believed the service satisfactory, while 15% had a neutral opinion. A smaller percentage, 4%, reported being somewhat dissatisfied. Most participants (51%) felt very satisfied with the information provided in the Online Energy Checkup and an additional 32% were somewhat satisfied. Three percent reported being somewhat dissatisfied. Respondents who expressed dissatisfaction with aspects of the program provided various reasons. Some found the online survey complex, particularly in the context of apartment living, and suggested more detailed questions or guidance on finding answers. Some participants felt that the program did not offer useful information, while others had already implemented energy-saving measures, making the kit redundant. Issues related to product quality, poor water pressure, and incongruity with existing fixtures were also noted as sources of dissatisfaction.

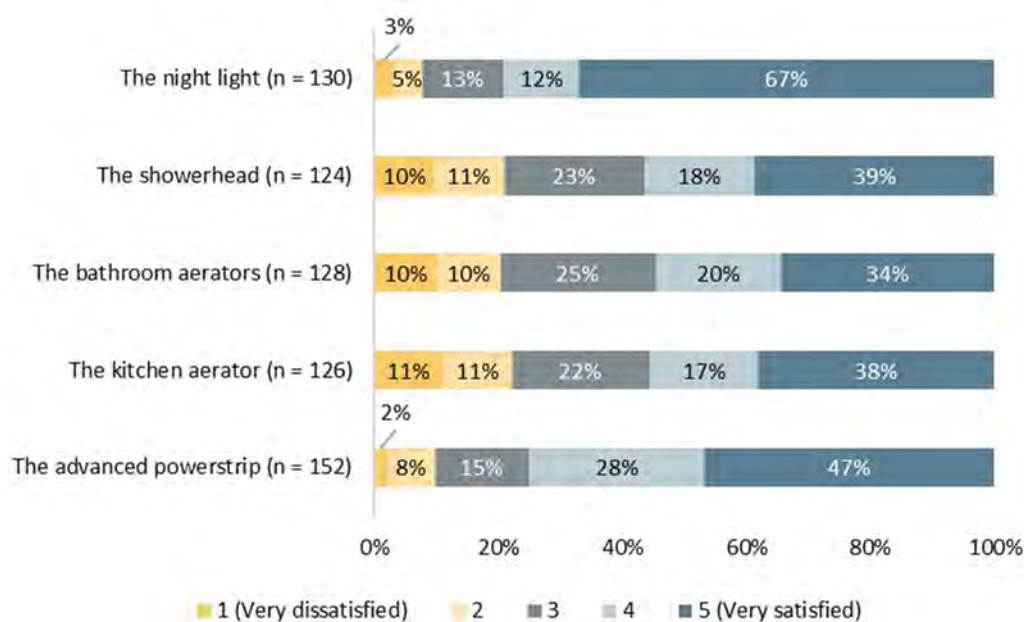
*Figure 2-4 Satisfaction with the Online Energy Checkup Program*



Participants' satisfaction ratings for various components of the program's energy efficiency kit varied (see Figure 2-5). For the advanced power strip, 75% were satisfied, while 11% expressed dissatisfaction. The kitchen aerator received slightly less favorable ratings, with 56% being satisfied and 22% being dissatisfied. The bathroom aerators had 55% of participants saying they were satisfied and 20% indicating they were dissatisfied. The showerhead had 56% of participants being satisfied and 21% being dissatisfied. The nightlights were highly regarded, as 79% stated they were satisfied, while 8% expressed some level of dissatisfaction. Some respondents mentioned not receiving the energy efficiency kit after completing the online survey, making it challenging to assess the kit items. Others cited items that were not needed, ill-fitting, or malfunctioning, such as power strips, showerheads, or faucet aerators.



Figure 2-5 Satisfaction of Kit Items



Many respondents (49%) expressed high satisfaction with I&M as their electricity service provider, while 28% indicated they were somewhat satisfied. A small percentage (7%) reported being dissatisfied with I&M. See Table 2-16 for additional details.

Table 2-16 Satisfaction with I&amp;M

| Responses             | Percentage of Responses<br>(n = 289) |
|-----------------------|--------------------------------------|
| 1 (Very dissatisfied) | 2%                                   |
| 2                     | 5%                                   |
| 3                     | 17%                                  |
| 4                     | 28%                                  |
| 5 (Very easy)         | 49%                                  |

#### 2.3.5.6. Demographic Findings

The survey responses regarding the home's ownership and type indicate that 76% of participants own their home and 22% rent it. In terms of home type, the majority (76%) are single-family houses detached from any other house, 6% are manufactured or mobile homes, 3% are single-family houses attached to one or more other houses (e.g., duplex, row house, or townhome), and 14% live in apartments within buildings. Sixty-five percent of survey respondents live in a home that was built before 1989, while 37% live in a home built in 1990 or later. The average number of people currently living in participants' homes year-round is approximately two. Participants reported a range of annual household incomes, with 31% indicating their income was \$50,000 or more and 44% of respondents indicated their income was less than \$50,000.

## 2.4. Findings and Recommendations

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**Gross realization rates for individual kit measures were generally high, except for night lights.** The ex post savings for night lights were lower than the ex ante estimates because approximately half of the night lights were additional rather than replacements for less efficient ones. In-service rates were generally satisfactory for a kit delivery program. The usage of low-flow devices ranged from 74% to 77%. This share was slightly lower for advanced power strips, as some were either not in use or used as general power strips. The LED night light in-service rate was lower because a significant number of them were plugged into empty outlets.

- **Recommendation 1.** Consider emphasizing the importance of night lights replacing existing night lights to save energy and offer a version of the kit that does not include them.

**Most survey respondents expressed satisfaction with the Online Energy Checkup program, praising its cost-saving aspects, the information provided, and the items in the kit.** While promoters highlighted its educational value and environmental benefits, detractors viewed the checkup as not useful or saw little benefit from participation. Passive respondents appreciated the program but noted limited opportunities to recommend it due to infrequent discussions about energy-saving topics. The program's Net Promoter Score was 31%, indicating a positive overall sentiment.

**Many participants learned about the Online Energy Checkup program through email communication from I&M, followed by 19% through their account portal, and via the I&M website.** The primary motivation for participation was to save money on energy bills, with environmental considerations and the appeal of receiving free items also cited as factors. Participants reported diverse reasons for engaging with the program, including addressing home maintenance issues and the desire to have their opinions heard.

**Most respondents found the online energy checkup survey easy to complete, with many rating it as very easy.** A small percentage had trouble, such as screen freezing or error messages. Despite these issues, over half of the respondents found the checkup very or somewhat useful for understanding energy-saving techniques, although a minority did not find it helpful at all in this regard.

**Respondents generally expressed satisfaction with the Online Energy Checkup program, with a majority being very satisfied.** Although most were satisfied, some encountered challenges, such as the survey being complex for apartment living situations or the program being less useful for those already implementing energy-saving measures. Satisfaction with specific kit components varied, with nightlights receiving high approval. However, some respondents reported issues with ill-fitting or malfunctioning items, and a few mentioned not receiving a kit. Overall, a significant portion of participants were satisfied with I&M as their electricity service provider.

### 3. AMI Portal

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This chapter presents the results of both the impact and process evaluations of the Residential AMI Portal service I&M provided to customers during the period of January 2023 through December 2023.

The objectives of the evaluation were to:

- Assess net energy (kWh) savings and peak demand (kW) reductions resulting from participation in the program during the program year.
- Provide recommendations for program improvement as appropriate.

#### 3.1. Program Description

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The Residential AMI Portal service provides residential customers with AMI meters, detailed information on their energy usage. Customers may log on to their account to view and explore their energy use over time alongside relevant comparisons based on weather, neighbors, and prior usage. The portal also provides a bill forecast tool that shows customers their current usage or cost to date in the billing period, their projected usage or cost for the billing period, and their typical usage or cost for the period, based on their past usage. The portal provides customers with historical data on their energy usage and costs, information on energy usage and weather trends. In addition to the portal, a segment of customers with an email address and who are randomly assigned to receive it, receive a weekly email report on their energy usage. Customers may also receive high bill alerts when their bill is 30% higher compared to the same month during the previous year.

#### 3.2. Estimation of Ex Post Net Savings

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##### 3.2.1. Methodology for Estimating Ex Post Net Energy Savings

###### 3.2.1.1. *Data Used in Estimation of Ex Post Net Energy Savings*

The analysis of the Residential AMI Portal used the following data:

- Billing data with customer account energy use;
- Records of customer engagement with the AMI services. These data include engagement with the portal, receipt of the Weekly AMI (WAMI) report, and receipt of high bill alerts.
- Oracle control and treatment group assignments for the WAMI and high bill alerts (HBA) services.

###### 3.2.1.2. *Modeling Approaches*

ADM estimated the impact of the AMI portal using different definitions of the treatment group and different types of regression models to estimate the impacts of the treatment. To account for

the effect of weather on energy use, all models included heating degree days and cooling degree days.

Table 3-1 summarizes the definitions of the treatment groups and the comparison groups used in the analyses.

ADM applied two different types of regression models to estimate the effect of the treatment for each of the definitions of the treatment group listed below. The models incorporated a comparison group. Using a comparison group allows for the assessment of the treatment effect on energy use while accounting for other factors that may affect energy use in general (for example, economic environment-related factors may affect energy use and are unrelated to the treatment).

- Difference-in-difference model. The difference-in-difference model is designed to control changes in energy use over time that affect both the treatment and comparison group. This is done by comparing energy use in the pre and post treatment periods for the treatment group to the pre and post period energy use in the comparison group.
- Post-treatment comparisons only model, with pre-treatment controls. This model compares energy use for the treatment and comparison group only during the post period.

For the cohorts that did not include a randomized control group, ADM used propensity score matching to identify a group of similar non-participating customers. ADM developed the propensity scores using pre-period energy usage and zip code. Because a limited number of untreated customers were available for use in developing a matched control group, ADM selected a random sample of treatment group customers to balance the number of customers in the treatment and comparison group.

For the High Bill Alert Treatment RCT and WAMI Treatment RCT, ADM used Oracle's random assignment of customers to the treatment and control groups. The treatment and control group design did not account for cross participation in the services, for example, HBA treatment group customers were allowed to act as controls for the WAMI service. Because of that, we ran the regression models using the treatment and control group assignments as assigned by Oracle, as well as with a subset of the assigned customers that did not receive or engage with the other services.

*Table 3-1 Summary of Treatment Groups Used to Estimate Annual AMI Impacts*

| <i>Cohort Name</i>               | <i>Treatment Group Description</i>  | <i>Count of Customers in the Treatment Group (Sampled Cases)</i> | <i>Count of Customers in the Control Group</i> |
|----------------------------------|---|--|--|
| All Customers with Portal Access | All participants who had access to the portal, high bill alerts (HBA), and weekly AMI emails regardless of AMI meter status (i.e., including non-AMI portal customers). | 31,372   | 31,371   |

| <i>Cohort Name</i>                        | <i>Treatment Group Description</i>  | <i>Count of Customers in the Treatment Group (Sampled Cases)</i> | <i>Count of Customers in the Control Group</i> |
|---|---|--|--|
| Accessed Bill Forecast - Compare My Bills | Participants who accessed the Bill Forecast and Compare My Bills parts of the portal.                             | 4,903  | 4,902  |
| Accessed Compare My Bills                 | Participants who accessed the Compare My Bills part of the portal.  | 8,792  | 8,792  |
| All AMI Customers with Portal Access      | Only AMI participants who had access to the portal, HBA, and weekly AMI emails.                                   | 11,371   | 11,371   |
| Customers who Accessed Portal             | All participants that logged onto the portal.   | 17,893   | 17,886   |
| High Bill Alert Treatment RCT - All       | Participants randomly assigned to receive high bill alerts.   | 76,533   | 19,043   |
| High Bill Alert Treatment RCT - Subset    | Participants randomly assigned to receive high bill alerts who did not receive/engage with other portal services. | 40,656   | 10,336   |
| WAMI Treatment RCT - All                  | Participants randomly assigned to receive the WAMI  | 56,011   | 16,492   |
| WAMI Treatment RCT - Subset               | Participants randomly assigned to receive the WAMI who did not receive/engage with other portal services.         | 12,321   | 3,777  |

### 3.2.1.3. Regression Modeling

#### 3.2.1.3.1. Weather Optimization Model

The regression models used in the analysis are described below. Both models included terms for cooling degree days (CDD) and heating degree days (HDD) to account for weather-related changes in energy use. CDD and HDD were developed using local temperature data retrieved from the National Oceanic and Atmospheric Administration (NOAA). The CDD and HDD were optimized for each participant, rather than using a fixed value across all participants. To optimized the CDD and HDD, combinations of CDD base values (CDD65, CDD70, CDD75, CDD80) and HDD base values (HDD50, HDD55, HDD60, HDD65) were iteratively run using Equation 3-1. The CDD/HDD base value combination that produced the highest adjusted R-square value was the CDD/HDD value used for that participant.

*Equation 3-1 Cooling and Heating Degree Optimization Regression Model*

$$\text{kWh}_{imy} = \beta_0 + \beta_{hdd,it} * HDD_{it} + \beta_{cdd,it} * CDD_{it} + \varepsilon_{it}$$

*Table 3-2 Cooling and Heating Degree Day Model Terms*

| <i>Variable</i>    | <i>Definition</i>   |
|--------------------|---|
| $\text{kWh}_{imy}$ | Customer i's average daily electric usage in month m of year y. |
| $\beta_0$          | The intercept term.   |
| $\beta_{hdd,it}$   | The coefficient for the main effect of HDD.                     |
| $\beta_{cdd,it}$   | The coefficient for the main effect of CDD.                     |
| $HDD_{it}$         | The HDD variable calculated for iteration t for customer i.     |
| $CDD_{it}$         | The CDD variable calculated for iteration t for customer i.     |
| $\varepsilon_{it}$ | The error term for the iteration.                               |

*3.2.1.3.2. Difference-in-Difference (DiD) Model*

The difference-in-difference (DiD) regression model is a statistical technique used to estimate the effect of a treatment by comparing the change in outcomes over time between a group of participants and a comparison group. This model allows for the analysis of data across pre- and post-treatment periods, providing insights into the treatment's impact. Although it's possible to specify the model with a fixed effects term, this approach often leads to a loss of degrees of freedom for the main effect of "treatment" due to perfect collinearity with the intercept term. As a result, the random effects model is typically preferred for its enhanced interpretability, maintaining the ability to assess the treatment effect while avoiding the limitations associated with fixed effects specification. Equation 3-2 specifies the regression model.

*Equation 3-2 Difference-in-Difference (DiD) Model*

$$\begin{aligned} \text{kWh}_{imy} = & \beta_0 + \beta_1 * post_{imy} + \beta_2 * treatment_i + \sum_{m=1}^{12} \beta_m * month + \beta_{hdd} * HDD_{imy} \\ & + \beta_{cdd} * CDD_{imy} + \beta_t * post_{imy} * treatment_i + \beta_{t,hdd} * post_{imy} \\ & * treatment_i * HDD_{imy} + \beta_{t,cdd} * post_{imy} * treatment_i * CDD_{imy} + \varepsilon \end{aligned}$$

Table 3-3 Difference-in-Difference (DiD) Model Terms

| Variable        | Definition   |
|-----------------|--|
| $kWh_{imy}$     | Customer i's average daily electric usage in month m of year y.  |
| $\beta_0$       | The intercept term.  |
| $\beta_1$       | The coefficient for the main effect of post.   |
| $\beta_2$       | The coefficient for the main effect of treatment.  |
| $\beta_m$       | A matrix of coefficients for the main effect of month.   |
| $\beta_{hdd}$   | The coefficient for the main effect of HDD.  |
| $\beta_{cdd}$   | The coefficient for the main effect of CDD.  |
| $\beta_t$       | The coefficient for the post-treatment interaction.  |
| $\beta_{t,hdd}$ | The coefficient for the post-treatment-HDD interaction.  |
| $\beta_{t,cdd}$ | The coefficient for the post-treatment-CDD interaction.  |
| $post_{i,my}$   | An indicator variable which indicates whether a given month falls into a customer's post-treatment period. |
| $treatment_i$   | An indicator variable which indicates whether a customer falls into the treatment group or not.            |
| $HDD_{i,my}$    | The HDD calculated for a given customer for a given month.   |
| $CDD_{i,my}$    | The CDD calculated for a given customer for a given month.   |
| $\varepsilon$   | The error term.  |

### 3.2.1.3.3. Post Period Regression (PPR) Model

The post-period regression (PPR) model is designed to assess the impact of interventions by comparing observations from participants after the treatment with those from a comparison group. Unlike models that assess changes over time, the PPR model focuses specifically on the period following the intervention. It incorporates pre-treatment consumption data, segmented across four distinct seasons, as variables. This approach allows for the control of individual differences that could influence consumption patterns. By using these seasonal consumption figures as control variables, the model aims to provide a more accurate estimate of the treatment effect by accounting for variations in consumption that are not related to the treatment. This method is particularly useful in studies where external factors, such as seasonal changes, could significantly affect the outcome variable. Equation 3-3 specifies the PPR regression model.

Equation 3-3 Post Period Regression (PPR) Model

$$\begin{aligned}
 kWh_{imy} = & \beta_0 + \sum_{m=1}^{12} \beta_m * month + \sum_{s=spring}^{winter} \beta_s * pre_{s,i} + \sum_{m=1}^{12} \sum_{s=spring}^{winter} \beta_{m,s} * month * pre_{s,i} \\
 & + \beta_{hdd} * HDD_{imy} + \beta_{cdd} * CDD_{imy} + \beta_t * treatment_i + \beta_{t,hdd} * treatment_i \\
 & * HDD_{imy} + \beta_{t,cdd} * treatment_i * CDD_{imy} + \varepsilon
 \end{aligned}$$



Table 3-4 Post Period Regression Model Terms

| <i>Variable</i> | <i>Definition</i>  |
|-----------------|--|
| $kWh_{imy}$     | Customer $i$ 's average daily electric usage in month $m$ of year $y$ .  |
| $\beta_0$       | The intercept term.  |
| $\beta_m$       | A matrix of coefficients for the main effect of month.   |
| $\beta_s$       | A matrix of coefficients for the main effect of pre-usage in each of the four seasons (spring, summer, fall, winter) for customer $i$ .  |
| $\beta_{m,s}$   | A matrix of coefficients for the interaction between month and season.   |
| $\beta_{hdd}$   | The coefficient for the main effect of HDD.  |
| $\beta_{cdd}$   | The coefficient for the main effect of CDD.  |
| $\beta_t$       | The coefficient for the main effect of treatment.  |
| $\beta_{t,hdd}$ | The coefficient for the treatment-HDD interaction.   |
| $\beta_{t,cdd}$ | The coefficient for the treatment-CDD interaction.   |
| $treatment_i$   | An indicator variable which indicates whether a customer falls into the treatment group or not.  |
| $pre_{s,i}$     | The average daily consumption during spring, summer, fall, and winter for customer $i$ . Spring was defined as March through May. Summer was defined as June through September. Fall was defined as October/November. Winter was defined as December, January, and February. |
| $HDD_{i,my}$    | The HDD calculated for a given customer for a given month.   |
| $CDD_{i,my}$    | The CDD calculated for a given customer for a given month.   |
| $\varepsilon$   | The error term.  |

#### 3.2.1.4. Regression Model Findings

Table 3-5 presents the findings from the regression analyses involving matched control groups. The analyses reveal varied effects of portal treatments on energy consumption, with some showing no significant change and others indicating an increase in energy use. Notably, among the four Randomized Control Trial (RCT) models evaluated for the Web and Mobile Interface (WAMI) treatment, one model demonstrated a decrease in energy consumption. This particular finding led ADM to conclude that the WAMI PPR model provided evidence supporting the hypothesis that WAMI contributes to reduced energy use among its users and the results of the model were used to calculate the program-level savings impact.

Table 3-5 Summary of Regression Results

| <i>Cohort</i>                    | <i>Model</i> | <i>Annual Savings</i> | <i>90% Confidence Interval</i> | <i>Statistically Significant</i> | <i>Estimate of Effect on Energy Use</i> |
|----------------------------------|--------------|-----------------------|--------------------------------|----------------------------------|---|
| All Customers with Portal Access | DiD          | -31                   | -94.01 / 32.36                 | No                               |   |
|                                  | PPR          | -43                   | -85.57 / -1.02                 | Yes                              | Associated with Higher Energy Use       |



| <i>Cohort</i>                             | <i>Model</i> | <i>Annual Savings</i> | <i>90% Confidence Interval</i> | <i>Statistically Significant</i> | <i>Estimate of Effect on Energy Use</i> |
|---|--------------|-----------------------|--------------------------------|----------------------------------|---|
| Accessed Bill Forecast - Compare My Bills | DiD          | -238                  | -419.02 / -56.5                | Yes                              | Associated with Higher Energy Use       |
|   | PPR          | -24                   | -136.43 / 89.15                | No                               |   |
| Accessed Compare My Bills                 | DiD          | -101                  | -236.35 / 34.39                | No                               |   |
|   | PPR          | -37                   | -119.12 / 44.69                | No                               |   |
| All AMI Customers with Portal Access      | DiD          | -42                   | -148.08 / 63.12                | No                               |   |
|   | PPR          | -23                   | -92.53 / 46.85                 | No                               |   |
| Customers who Accessed Portal             | DiD          | 22                    | -60.97 / 104.89                | No                               |   |
|   | PPR          | -49                   | -105.44 / 8.35                 | No                               |   |
| High Bill Alert Treatment RCT - All       | DiD          | 28                    | -21.22 / 77.59                 | No                               |   |
|   | PPR          | 28                    | -14.31 / 70.88                 | No                               |   |
| High Bill Alert Treatment RCT - Subset    | DiD          | 18                    | -50.21 / 85.89                 | No                               |   |
|   | PPR          | 47                    | -7.86 / 102.68                 | No                               |   |
| WAMI Treatment RCT - All                  | DiD          | 20                    | -23.68 / 63.46                 | No                               |   |
|   | PPR          | 37                    | 1.55 / 72.01                   | Yes                              | Decreased Energy Use                    |
| WAMI Treatment RCT - Subset               | DiD          | -7                    | -96.28 / 82.38                 | No                               |   |
|   | PPR          | 58                    | -13.97 / 130.92                | No                               |   |

### 3.2.1.5. Accounting for Uplift

Because the WAMI treatment could generate savings by increasing participation in the I&M incentive programs (i.e., program uplift), ADM completed an analysis to adjust the savings accordingly.

The following equation was used to adjust savings for uplift for the sample of treatment and control group accounts.

#### Equation 3-4 Uplift Savings Adjustment

$$\text{Uplift kWh} = \left( \frac{\text{OP kWh}}{\text{Household}_{\text{Treatment}}} - \frac{\text{OP kWh}}{\text{Household}_{\text{Control}}} \right) \times \text{\#Accounts}_{\text{Treatment}}$$

Where,

$$\frac{\text{OP kWh}}{\text{Household}_{\text{Treatment}}} = \text{Other program kWh per household in the treatment group}$$

$$\frac{OP\ kWh}{Househol\ Control} = \text{Other program kWh per household in the control group}$$

$$\#Accounts_{Treatment} = \text{Total accounts in the treatment group.}$$

Based on the analysis, a total of 9,647 kWh of savings from other programs was induced by the WAMI treatment for the 56,011 accounts in the treatment group sample.

### 3.2.1.6. Extrapolation of Savings to the Population

The savings analysis was completed for a sample of the total group of treatment group customers. ADM took the following steps to extrapolate the savings from the sample to the population:

- 1) Calculate the average daily savings amount for the sample of treatment group customers, adjusted for uplift.
- 2) Multiply the average daily savings value by the total number of treatment days in the population of treatment group accounts.

### 3.2.1.7. Calculation of kW Savings

Peak demand reduction was estimated by assuming that the percentage reduction in energy usage attributable is constant across each hour of the year. Calendar year 2023 AMI interval energy usage data was obtained to develop a load shape for residential customers. The interval energy usage data was summed for each hour and the average hourly energy usage during PJM five coincidental peaks (kW\_5cp) was determined as was the average hourly energy usage across all hours (kW\_all). Peak demand reduction was then calculated as:

$$kW\ Savings = kWh\ Savings * (kW\_5cp / kW\_all) / 8,760$$

## 3.2.2. Results of Ex Post Net Energy Savings Estimation

Table 3-6 summarizes the ex post annual net kWh and kW savings of the AMI Program. The annual net savings totaled 1,860,587 kWh and 470.01 kW.

*Table 3-6 Program-Level Annual Net kWh and kW Savings*

| Category                          | kWh       | kW     |
|-----------------------------------|-----------|--------|
| Ex Ante Gross Savings             | 4,124,631 | 0.00   |
| Gross Audited Savings             | 4,124,631 | 0.00   |
| Gross Verified Savings            | 4,124,631 | 0.00   |
| Ex Post Gross Savings             | 1,860,587 | 470.01 |
| Gross Realization Rate            | 45%       | N/A    |
| Ex Post Free Ridership            | 0         | 0.00   |
| Ex Post Non-Participant Spillover | 0         | 0      |
| Ex Post Participant Spillover     | 0         | 0      |
| Ex Post Net Savings               | 1,860,587 | 470.01 |

| <i>Category</i>              | <i>kWh</i> | <i>kW</i> |
|------------------------------|------------|-----------|
| Net-to-Gross Ratio           | 100%       | 100%      |
| Ex Post Net Lifetime Savings | 1,860,587  | N/A       |

### 3.3. Findings and Recommendations

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**ADM's evaluation of the AMI program's WAMI component resulted in energy savings, but the evaluation did not find evidence that the high bill alerts (HBA) or accessing the portal resulted in energy savings.** Utilizing various analytical models that included matched control groups, ADM assessed whether engagement with the portal and its features (such as "compare my bills" and "bill forecast") led to energy savings. These analyses did not affirm the portal's effectiveness in reducing energy consumption. The absence of observed savings might be attributed to the portal's ineffectiveness in changing customer behaviors or potentially to methodological challenges in creating a comparable control group.

The investigation into the energy impact of both the WAMI and HBA components employed randomly assigned control groups for impact estimation. Although the difference-in-difference model for WAMI did not reveal a statistically significant program impact, the post-period regression model did, leading ADM to conclude that the WAMI component decreased energy use. Conversely, for high bill alerts (HBA), neither the difference-in-difference nor the post-period regression models demonstrated a statistically significant impact on energy consumption.

## 4. Residential Income Qualified Weatherproofing

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This chapter presents the results of both the impact and process evaluations of the 2023 Income Qualified Weatherproofing Program that Indiana Michigan Power (I&M) offered to its residential customers during the period of January 2023 through December 2023.

The objectives of the evaluation were to:

- Assess gross and net energy (kWh) savings and peak demand (kW) reductions resulting from participation in the program during the program year;
- Review and assess the quality of program documentation and quality control procedures; and
- Provide recommendations for program improvement.

### 4.1. Program Description

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The Income Qualified Weatherproofing Program is offered to residential customers who would not otherwise be able to make energy efficiency improvements. The program provides energy audits, direct install measures, and weatherization services to qualifying customers at no additional cost.

Eligible customers must reside in a single-family home or duplex with electric heating and have a household income below 200% of the Federal Poverty Level. Incentives are also available for non-tenant owned multi-family properties.

I&M works with a third party, Solutions for Energy Efficient Logistics (SEEL), to conduct in-home and virtual audits.

### 4.2. Data Collection

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#### 4.2.1. Participant Survey

ADM completed three surveys of program participants to collect data to verify that the recorded measures were installed.

To determine the minimum sample size needed to meet this precision requirement, ADM assumed a CV of .5, as is typically used in residential program evaluations. The sample size requirement was estimated using the following formula:

$$n = \left( \frac{1.645 * CV}{TP} \right)^2$$

Where,

1.645 = Z Score for 90% confidence interval in a normal distribution

CV = Coefficient of Variation

TP = Targeted Precision, 10% in this evaluation

With 10% targeted precision (TP), this called for a minimum sample of 60 participants for a population of 376 kit recipients and 33 for a population of 62 in-home participants.<sup>1</sup> As shown in Table 4-1, ADM did not achieve those response counts.

ADM administered the survey to a census of unique contacts with contact information available at the time the two surveys were fielded. Participants that received a virtual audit kit were contacted up to three times, by email, to complete the survey. In home participants were contacted by telephone and up to three calls were placed for each contact.

*Table 4-1 Income Qualified Weatherproofing Survey Data Collection*

| <i>Survey</i>   | <i>Mode</i> | <i>Time Frame</i> | <i>Number of Contacts</i> | <i>Number of Completions</i> |
|---|-------------|-------------------|---------------------------|------------------------------|
| Income Qualified Weatherproofing Participant Survey - Virtual Kits        | Email       | October 2023      | 296                       | 30                           |
| Income Qualified Weatherproofing Participant Survey - In Home Participant | Telephone   | November 2023     | 53                        | 15                           |

### 4.3. Estimation of Ex Post Gross Savings

#### 4.3.1. Methodology for Estimating Ex Post Gross Energy Savings

##### 4.3.1.1. Review of Documentation

I&M maintains program tracking information that includes a list of all participants, the measures that were installed in their homes, and the kWh and kW savings associated with each measure. The first aspect of conducting measurements of program activity was to verify that the tracking data report of participants and measures was accurate. To this end, ADM reviewed the program data to verify that the fields required for performing the evaluation are tracked and populated (i.e., the data is not missing) and that the values are reasonable. ADM took several steps in verifying the number of weatherproofing measures installed, which consist of the following:

- Validating program tracking data by checking for duplicate or erroneous entries; and
- Conducting verification surveys with a sample of program participants to verify that customers listed in the program tracking database did indeed participate and that the number of measures were installed.

ADM also reviewed the savings estimates used to calculate ex ante energy impacts for installed measures. This evaluation activity is intended to support development of any actionable recommendations for refinement of the ex ante savings calculation approach.

<sup>1</sup> This count excludes the installations of PTACs in multifamily projects.

## 4.3.1.2. Procedures for Estimating Measure-Level Gross Energy Savings

Table 4-2 presents information on savings calculation formulas, savings calculation inputs, incremental cost, and effective useful life values and data sources applicable to the Income Qualified Weatherproofing Program.

Table 4-2 Income Qualified Weatherization Calculation Input Information

| Variable Type                             | Variable Name | Variable Value | Variable Value Source  |
|---|---------------|----------------|--|
| <b>Measure Name: 9W LED - Kit</b>         |               |                |  |
| Savings                                   | $\Delta kWh$  |                | $(WattsBase - WattsEE) * Hours * (1 + WHFe) / 1000$                                    |
| Savings                                   | $\Delta kW$   |                | $(WattsBase - WattsEE) * CF * (1 + WHFd) / 1000$                                       |
| Input                                     | WattsBase     | Varies         | Illinois TRM V11.0 Vol. 3, p. 329.   |
| Input                                     | WattsEE       | Varies         | Program tracking data.   |
| Input                                     | Hours         | 902.00         | Indiana TRM V2.2, p. 133.  |
| Input                                     | WHFe          | Varies         | Indiana TRM V2.2, p. 133.  |
| Input                                     | WHFd          | Varies         | Indiana TRM V2.2, p. 133.  |
| Input                                     | CF            | 0.11           | Indiana TRM V2.2, p. 134.  |
| EUL                                       |               | 8              | Illinois TRM V11.0 Vol. 3, p. 328.   |
| Inc Cost                                  |               | \$ -           | Cost of measure accounted for by program costs.  |
| <b>Measure Name: LED Nightlight - Kit</b> |               |                |  |
| Savings                                   | $\Delta kWh$  |                | $(WattsBase - WattsEff) * Hours / 1000$  |
| Savings                                   | $\Delta kW$   |                | 0  |
| Input                                     | WattsBase     | 5.00           | Indiana TRM V2.2, p. 136.  |
| Input                                     | WattsEff      | 0.33           | Indiana TRM V2.2, p. 136.  |
| Input                                     | Hours         | 2,920.00       | Indiana TRM V2.2, p. 136.  |
| EUL                                       |               | 8              | Illinois TRM 11.0 Vol. 3, p. 349.  |
| Inc Cost                                  |               | \$ -           | Cost of measure accounted for by program costs.  |
| <b>Measure Name: Showerhead - Kit</b>     |               |                |  |
| Savings                                   | $\Delta kWh$  |                | $((GPMbase - GPMlow) * MS * SPD * (PH / SH) * 8.3 * (Tmix - Tin) * 365) / (RE * 3412)$ |
| Savings                                   | $\Delta kW$   |                | $((GPMbase - GPMlow) * 60 * 8.3 * (Tmix - Tin) * CF) / (RE * 3412)$                    |
| Input                                     | GPMbase       | 2.63           | Indiana TRM V2.2, p. 74.   |
| Input                                     | GPMlow        | 1.50           | Characteristics of applicable equipment.   |
| Input                                     | MS            | 7.80           | Indiana TRM V2.2, p. 74.   |
| Input                                     | SPD           | 0.60           | Indiana TRM V2.2, p. 74.   |
| Input                                     | PH            | Varies         | Indiana TRM V2.2, p. 74. Varies based on housing type.                                 |
| Input                                     | SH            | Varies         | Indiana TRM V2.2, p. 74. Varies based on housing type.                                 |
| Input                                     | Tmix          | 101.00         | Indiana TRM V2.2, p. 75.   |

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| Variable Type                                      | Variable Name             | Variable Value | Variable Value Source  |
|--|---------------------------|----------------|--|
| Input  | <i>Tin</i>                | Varies         | Indiana TRM V2.2, p. 75. Varies based on climate zone.   |
| Input  | <i>RE</i>                 | 0.98           | Indiana TRM V2.2, p. 75.   |
| Input  | <i>CF</i>                 | 0.00           | Indiana TRM V2.2, p. 75. Varies based on climate zone.   |
| EUL  |                           | 10             | Illinois TRM 11.0 Vol. 3, p. 268.  |
| Inc Cost   |                           | \$ -           | Cost of measure accounted for by program costs.  |
| <b>Measure Name: Advanced Power Strip - Kit</b>    |                           |                |  |
| Savings  | $\Delta kWh$              |                | <i>kWh</i>   |
| Savings  | $\Delta kW$               |                | <i>kWh / Hours * CF</i>  |
| Input  | <i>kWh</i>                | Varies         | Illinois TRM 11.0 Vol. 3, p. 80. Varies based on number of plugs.                                  |
| Input  | <i>Hours</i>              | 7,129.00       | Illinois TRM 11.0 Vol. 3, p. 80.   |
| Input  | <i>CF</i>                 | 0.80           | Illinois TRM 11.0 Vol. 3, p. 80.   |
| EUL  |                           | 7              | Illinois TRM 11.0 Vol. 3, p. 78.   |
| Inc Cost   |                           | \$ -           | Cost of measure accounted for by program costs.  |
| <b>Measure Name: Kitchen Faucet Aerator - Kit</b>  |                           |                |  |
| Savings  | $\Delta kWh$              |                | $((GPM_{base} - GPM_{low}) * MPD * (PH / FH) * DR * 8.3 * (T_{mix} - T_{in}) * 365) / (RE * 3412)$ |
| Savings  | $\Delta kW$               |                | $((GPM_{base} - GPM_{low}) * 60 * DR * 8.3 * (T_{mix} - T_{in}) * CF) / (RE * 3412)$               |
| Input  | <i>GPM<sub>base</sub></i> | Varies         | Indiana TRM V2.2, p. 69.   |
| Input  | <i>GPM<sub>low</sub></i>  | 1.50           | Characteristics of applicable equipment.   |
| Input  | <i>MPD</i>                | Varies         | Indiana TRM V2.2, p. 69.   |
| Input  | <i>PH</i>                 | Varies         | Indiana TRM V2.2, p. 69. Varies based on housing type.   |
| Input  | <i>FH</i>                 | Varies         | Indiana TRM V2.2, p. 69. Varies based on installation location and housing type.                   |
| Input  | <i>DR</i>                 | Varies         | Indiana TRM V2.2, p. 70  |
| Input  | <i>T<sub>mix</sub></i>    | Varies         | Indiana TRM V2.2, p. 70  |
| Input  | <i>T<sub>in</sub></i>     | Varies         | Area-specific value, Indiana TRM V2.2  |
| Input  | <i>CF</i>                 | Varies         | Indiana TRM V2.2, p. 71.   |
| Input  | <i>RE</i>                 | 0.98           | Indiana TRM V2.2, p. 71.   |
| EUL  |                           | 10             | Illinois TRM 11.0 Vol. 3, p. 258.  |
| Inc Cost   |                           | \$ -           | Cost of measure accounted for by program costs.  |
| <b>Measure Name: Bathroom Faucet Aerator - Kit</b> |                           |                |  |
| Savings  | $\Delta kWh$              |                | $((GPM_{base} - GPM_{low}) * MPD * (PH / FH) * DR * 8.3 * (T_{mix} - T_{in}) * 365) / (RE * 3412)$ |
| Savings  | $\Delta kW$               |                | $((GPM_{base} - GPM_{low}) * 60 * DR * 8.3 * (T_{mix} - T_{in}) * CF) / (RE * 3412)$               |
| Input  | <i>GPM<sub>base</sub></i> | Varies         | Indiana TRM V2.2, p. 69.   |
| Input  | <i>GPM<sub>low</sub></i>  | 1.00           | Characteristics of applicable equipment.   |
| Input  | <i>MPD</i>                | Varies         | Indiana TRM V2.2, p. 69.   |

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| <i>Variable Type</i>                        | <i>Variable Name</i> | <i>Variable Value</i> | <i>Variable Value Source</i>   |
|---|----------------------|-----------------------|--|
| Input                                       | <i>PH</i>            | Varies                | Indiana TRM V2.2, p. 69. Varies based on housing type.                                 |
| Input                                       | <i>Tin</i>           | Varies                | Area-specific value, Indiana TRM V2.2  |
| Input                                       | <i>CF</i>            | Varies                | Indiana TRM V2.2, p. 71.   |
| Input                                       | <i>RE</i>            | 0.98                  | Indiana TRM V2.2, p. 71.   |
| Input                                       | <i>Area</i>          | Varies                | Based on program tracking data zip code  |
| EUL   |                      | 10                    | Illinois TRM 11.0 Vol. 3, p. 258.  |
| Inc Cost                                    |                      | \$ -                  | Cost of measure accounted for by program costs.  |
| <b>Measure Name: Advanced Power Strip</b>   |                      |                       |  |
| Savings                                     | $\Delta kWh$         |                       | <i>kWh</i>   |
| Savings                                     | $\Delta kW$          |                       | <i>kWh / Hours * CF</i>  |
| Input                                       | <i>kWh</i>           | Varies                | Illinois TRM 11.0 Vol. 3, p. 80. Varies based on number of plugs.                      |
| Input                                       | <i>Hours</i>         | 7,129.00              | Illinois TRM 11.0 Vol. 3, p. 80.   |
| Input                                       | <i>CF</i>            | 0.80                  | Illinois TRM 11.0 Vol. 3, p. 80.   |
| EUL   |                      | 7                     | Illinois TRM 11.0 Vol. 3, p. 78.   |
| Inc Cost                                    |                      | \$ -                  | Cost of measure accounted for by program costs.  |
| <b>Measure Name: LED Night Light</b>        |                      |                       |  |
| Savings                                     | $\Delta kWh$         |                       | $(WattsBase - WattsEff) * Hours / 1000$  |
| Savings                                     | $\Delta kW$          |                       | 0  |
| Input                                       | <i>WattsBase</i>     | 5.00                  | Indiana TRM V2.2, p. 136.  |
| Input                                       | <i>WattsEff</i>      | 0.33                  | Indiana TRM V2.2, p. 136.  |
| Input                                       | <i>Hours</i>         | 2,920.00              | Indiana TRM V2.2, p. 136.  |
| EUL   |                      | 8                     | Illinois TRM 11.0 Vol. 3, p. 349.  |
| Inc Cost                                    |                      | \$ -                  | Cost of measure accounted for by program costs.  |
| <b>Measure Name: Direct Install LED</b>     |                      |                       |  |
| Savings                                     | $\Delta kWh$         |                       | $(WattsBase - WattsEE) * Hours * (1 + WHFe) / 1000$                                    |
| Savings                                     | $\Delta kW$          |                       | $(WattsBase - WattsEE) * CF * (1 + WHFd) / 1000$                                       |
| Input                                       | <i>WattsBase</i>     | Varies                | Illinois TRM V11.0 Vol. 3, p. 273, 329.  |
| Input                                       | <i>WattsEE</i>       | Varies                | Program tracking data.   |
| Input                                       | <i>Hours</i>         | Varies                | Indiana TRM V2.2, p. 133 and Illinois TRM V11.0 Vol. 3, p. 318.                        |
| Input                                       | <i>WHFe</i>          | Varies                | Indiana TRM V2.2, p. 133.  |
| Input                                       | <i>WHFd</i>          | Varies                | Indiana TRM V2.2, p. 133.  |
| Input                                       | <i>CF</i>            | 0.11                  | Indiana TRM V2.2, p. 134.  |
| EUL   |                      | 8                     | Illinois TRM V11.0 Vol. 3, p. 312, 328.  |
| Inc Cost                                    |                      | \$ -                  | Cost of measure accounted for by program costs.  |
| <b>Measure Name: Kitchen Faucet Aerator</b> |                      |                       |  |
| Savings                                     | $\Delta kWh$         |                       | $((GPMbase - GPMlow) * MPD * (PH / FH) * DR * 8.3 * (Tmix - Tin) * 365) / (RE * 3412)$ |



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| Variable Type                                | Variable Name | Variable Value | Variable Value Source  |
|--|---------------|----------------|--|
| Savings                                      | $\Delta kW$   |                | $((GPM_{base} - GPM_{low}) * 60 * DR * 8.3 * (T_{mix} - T_{in}) * CF) / (RE * 3412)$               |
| Input  | $GPM_{base}$  | Varies         | Indiana TRM V2.2, p. 69.   |
| Input  | $GPM_{low}$   | 1.50           | Characteristics of applicable equipment.   |
| Input  | $MPD$         | Varies         | Indiana TRM V2.2, p. 69.   |
| Input  | $PH$          | Varies         | Indiana TRM V2.2, p. 69. Varies based on housing type.   |
| Input  | $FH$          | Varies         | Indiana TRM V2.2, p. 69. Varies based on installation location and housing type.                   |
| Input  | $DR$          | Varies         | Indiana TRM V2.2, p. 70  |
| Input  | $T_{mix}$     | Varies         | Indiana TRM V2.2, p. 70  |
| Input  | $T_{in}$      | Varies         | Area-specific value, Indiana TRM V2.2  |
| Input  | $CF$          | Varies         | Indiana TRM V2.2, p. 71.   |
| Input  | $RE$          | 0.98           | Indiana TRM V2.2, p. 71.   |
| EUL  |               | 10             | Illinois TRM 11.0 Vol. 3, p. 258.  |
| Inc Cost                                     |               | \$ -           | Cost of measure accounted for by program costs.  |
| <b>Measure Name: Bathroom Faucet Aerator</b> |               |                |  |
| Savings                                      | $\Delta kWh$  |                | $((GPM_{base} - GPM_{low}) * MPD * (PH / FH) * DR * 8.3 * (T_{mix} - T_{in}) * 365) / (RE * 3412)$ |
| Savings                                      | $\Delta kW$   |                | $((GPM_{base} - GPM_{low}) * 60 * DR * 8.3 * (T_{mix} - T_{in}) * CF) / (RE * 3412)$               |
| Input  | $GPM_{base}$  | Varies         | Indiana TRM V2.2, p. 69.   |
| Input  | $GPM_{low}$   | 1.00           | Characteristics of applicable equipment.   |
| Input  | $MPD$         | Varies         | Indiana TRM V2.2, p. 69.   |
| Input  | $PH$          | Varies         | Indiana TRM V2.2, p. 69. Varies based on housing type.   |
| Input  | $FH$          | Varies         | Indiana TRM V2.2, p. 69. Varies based on installation location and housing type.                   |
| Input  | $DR$          | Varies         | Indiana TRM V2.2, p. 70  |
| Input  | $T_{mix}$     | Varies         | Indiana TRM V2.2, p. 70  |
| Input  | $T_{in}$      | Varies         | Area-specific value, Indiana TRM V2.2  |
| Input  | $CF$          | Varies         | Indiana TRM V2.2, p. 71.   |
| Input  | $RE$          | 0.98           | Indiana TRM V2.2, p. 71.   |
| EUL  |               | 10             | Illinois TRM 11.0 Vol. 3, p. 258.  |
| Inc Cost                                     |               | \$ -           | Cost of measure accounted for by program costs.  |
| <b>Measure Name: Showerhead</b>              |               |                |  |
| Savings                                      | $\Delta kWh$  |                | $((GPM_{base} - GPM_{low}) * MS * SPD * (PH / SH) * 8.3 * (T_{mix} - T_{in}) * 365) / (RE * 3412)$ |
| Savings                                      | $\Delta kW$   |                | $((GPM_{base} - GPM_{low}) * 60 * 8.3 * (T_{mix} - T_{in}) * CF) / (RE * 3412)$                    |
| Input  | $GPM_{base}$  | 2.63           | Indiana TRM V2.2, p. 74.   |
| Input  | $GPM_{low}$   | 1.50           | Characteristics of applicable equipment.   |
| Input  | $MS$          | 7.80           | Indiana TRM V2.2, p. 74.   |

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| Variable Type                               | Variable Name             | Variable Value | Variable Value Source   |
|---|---------------------------|----------------|---|
| Input                                       | SPD                       | 0.60           | Indiana TRM V2.2, p. 74.  |
| Input                                       | PH                        | Varies         | Indiana TRM V2.2, p. 74. Varies based on housing type.  |
| Input                                       | SH                        | Varies         | Indiana TRM V2.2, p. 74. Varies based on housing type.  |
| Input                                       | Tmix                      | 101.00         | Indiana TRM V2.2, p. 75.  |
| Input                                       | Tin                       | Varies         | Indiana TRM V2.2, p. 75. Varies based on climate zone.  |
| Input                                       | RE                        | 0.98           | Indiana TRM V2.2, p. 75.  |
| Input                                       | CF                        | 0.00           | Indiana TRM V2.2, p. 75. Varies based on climate zone.  |
| EUL   |                           | 10             | Illinois TRM 11.0 Vol. 3, p. 268.   |
| Inc Cost                                    |                           | \$ -           | Cost of measure accounted for by program costs.   |
| <b>Measure Name: Refrigerator</b>           |                           |                |   |
| Savings - 1                                 | $\Delta kWh$ Baseline 1   |                | $(kWh_{exist} - kWh_{ee}) * 365.25$   |
| Savings - 2                                 | $\Delta kW$ Baseline 1    |                | $((kWh_{exist} - kWh_{ee}) * 365.25) / \text{Hours} * CF$   |
| Savings - 2                                 | $\Delta kWh$ (Baseline 2) |                | $(kWh_{base} - kWh_{ee}) * 365.25$  |
| Savings - 2                                 | $\Delta kW$ (Baseline 2)  |                | $((kWh_{base} - kWh_{ee}) * 365.25) / \text{Hours} * CF$  |
| Input                                       | $kWh_{base}$              | Varies         | Illinois TRM V11.0 Vol. 3, p. 34  |
| Input                                       | $kWh_{ee}$                | Varies         | Illinois TRM V11.0 Vol. 3, p. 34  |
| Input                                       | Hours                     | 8,766.00       | Illinois TRM V11.0 Vol. 3, p. 35  |
| Input                                       | CF                        | 1.00           | Illinois TRM V11.0 Vol. 3, p. 35  |
| Input                                       | $kWh_{exist}$             | Varies         | PY2021 ADM review of pre-existing units.  |
| EUL - 1                                     |                           | 8              | Indiana TRM V2.2, p. 13-14.   |
| EUL - 2                                     |                           | 9              | Indiana TRM V2.2, p. 13-14.   |
| Inc Cost                                    |                           | \$ -           | Cost of measure accounted for by program costs.   |
| <b>Measure Name: Heat Pump Water Heater</b> |                           |                |   |
| Savings                                     | $\Delta kWh$              |                | $(1 / UEF_{base} - 1 / UEF_{new}) * GPD * \text{Household} * 365.25 * \gamma_{Water} * ((Temp_{out} - Temp_{in}) / 3412) + kWh_{cooling} - kWh_{heating}$                                   |
| Savings                                     | $\Delta kW$               |                | $IFERROR(((1 / UEF_{base} - 1 / UEF_{new}) * GPD * \text{Household} * 365.25 * \gamma_{Water} * ((Temp_{out} - Temp_{in}) / 3412) + kWh_{cooling} - kWh_{heating}) / \text{Hours} * CF, 0)$ |
| Input                                       | $UEF_{base}$              | Varies         | Federal appliance standard.   |
| Input                                       | $UEF_{new}$               | Varies         | Tracking data. Characteristics of applicable equipment.   |
| Input                                       | GPD                       | 17.60          | Illinois TRM 11.0 Vol. 3, p. 252.   |
| Input                                       | $\gamma_{Water}$          | 8.33           | Illinois TRM 11.0 Vol. 3, p. 252.   |
| Input                                       | $kWh_{cooling}$           | Varies         | Indiana TRM V2.2, p. 65.  |
| Input                                       | $kWh_{heating}$           | Varies         | Indiana TRM V2.2, p. 65. Based on heating type.   |
| Input                                       | Hours                     | Varies         | Indiana TRM V2.2, p. 66.  |

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| Variable Type                                   | Variable Name                   | Variable Value | Variable Value Source   |
|---|---------------------------------|----------------|---|
| Input   | CF                              | Varies         | Indiana TRM V2.2, p. 66.  |
| Input   | Household                       | Varies         | Illinois TRM 11.0 Vol. 3, p. 252. Varies based on household type.   |
| Input   | Temp_in                         | Varies         | Indiana TRM V2.2, p. 71. Varies by location.  |
| Input   | Temp_out                        | 125.00         | Illinois TRM 11.0 Vol. 3, p. 252.   |
| EUL   |                                 | 10             | Indiana TRM V2.2, p. 64.  |
| Inc Cost  |                                 | \$ -           | Cost of measure accounted for by program costs.   |
| <b>Measure Name: Package Terminal Heat Pump</b> |                                 |                |   |
| Savings - 1                                     | $\Delta kWh$ Baseline 1         |                | $\begin{aligned} &(((k\text{Btu\_heat} / (\text{COP\_base} * 3.412)) - (k\text{Btu\_heat} / (\text{COP\_ee} * 3.412))) * \\ &EFLH\_heat) + (((k\text{Btu\_cool} / \text{EER\_base}) - (k\text{Btu\_cool} / \text{EER\_ee})) * EFLH\_cool) + \\ &((\text{Heating\_kwh\_exist} - ((k\text{Btu\_heat} / (\text{COP\_base} * 3.412)) * EFLH\_heat)) * \\ &ER\_factor) + (((k\text{Btu\_cool} / \text{EER\_exist}) - (k\text{Btu\_cool} / \text{EER\_base})) * ER\_factor * \\ &EFLH\_cool) \end{aligned}$ |
| Savings - 2                                     | $\Delta kW$ Baseline 1          |                | $(k\text{Btu\_cool} * CF * (1 / \text{EER\_base} - 1 / \text{EER\_ee})) + (k\text{Btu\_cool} * CF * \text{Electric\_resistance\_heating\_kWh} * (1 / \text{EER\_exist} - 1 / \text{EER\_base}))$  |
| Savings - 2                                     | $\Delta kWh$ (Baseline 2)       |                | $\begin{aligned} &(((k\text{Btu\_heat} / (\text{COP\_base} * 3.412)) - (k\text{Btu\_heat} / (\text{COP\_ee} * 3.412))) * \\ &EFLH\_heat) + (((k\text{Btu\_cool} / \text{EER\_base}) - (k\text{Btu\_cool} / \text{EER\_ee})) * EFLH\_cool) \end{aligned}$  |
| Savings - 2                                     | $\Delta kW$ (Baseline 2)        |                | $(k\text{Btu\_cool} * ((1 / \text{EER\_base}) - (1 / \text{EER\_ee}))) / 1000 * CF$   |
| Input   | kBtu_cool                       | Varies         | Tracking data.  |
| Input   | EFLH_cool                       | Varies         | Indiana TRM V2.2, p. 104.   |
| Input   | EER_exist                       | Varies         | Early replacement cooling savings not estimated.  |
| Input   | EER_base                        | Varies         | Illinois TRM 11.0 Vol. 2, p. 308.   |
| Input   | EER_ee                          | Varies         | AHRI. Characteristics of applicable equipment.  |
| Input   | kBtu_heat                       | Varies         | Tracking data.  |
| Input   | EFLH_heat                       | Varies         | Indiana TRM V2.2, p. 104.   |
| Input   | COP_exist                       | 1.00           | Electric resistance baseline.   |
| Input   | COP_ee                          | Varies         | AHRI. Characteristics of applicable equipment.  |
| Input   | CF                              | 0.88           | Indiana TRM V2.2, p. 105.   |
| Input   | Area                            | Varies         | Based on zip code.  |
| Input   | Electric_resistance_heating_kWh | Varies         | Estimate based on capacity of new unit.   |
| Input   | Standard_unit_heating_kWh       | Varies         | Estimate based on capacity of new unit.   |
| Input   | New_unit_kWh                    | Varies         | Based on unit characteristics and associated assumptions.   |
| EUL - 1   |                                 | 8              | Illinois TRM 11.0 Vol. 2, p. 305.   |
| EUL - 2   |                                 | 8              | Illinois TRM 11.0 Vol. 2, p. 305.   |
| Inc Cost  |                                 | \$ -           | Cost of measure accounted for by program costs.   |

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| Variable Type  | Variable Name           | Variable Value                  | Variable Value Source   |
|--|-------------------------|---------------------------------|---|
| <b>Measure Name: Advanced Power Strip - Donation</b> |                         |                                 |   |
| Savings  | $\Delta kWh$            |                                 | $kWh$   |
| Savings  | $\Delta kW$             |                                 | $kWh / \text{Hours} * CF$   |
| Input  | $kWh$                   | Varies                          | Illinois TRM 11.0 Vol. 3, p. 80. Varies based on number of plugs.   |
| Input  | <i>Number_of_Plugs</i>  | 7.00                            | Tracking data.  |
| Input  | <i>Hours</i>            | 7,129.00                        | Illinois TRM 11.0 Vol. 3, p. 80.  |
| Input  | <i>CF</i>               | 0.80                            | Illinois TRM 11.0 Vol. 3, p. 80.  |
| Input  | <i>Product_Type</i>     | Advanced Power Strip (7 Outlet) | Tracking data.  |
| Input  | <i>Housing_Type</i>     | Varies                          | Tracking data.  |
| Input  | <i>Kit Type</i>         | Varies                          | Tracking data.  |
| EUL  |                         | 7                               | Illinois TRM 11.0 Vol. 3, p. 78.  |
| Inc Cost   |                         | \$ -                            | Cost of measure accounted for by program costs.   |
| <b>Measure Name: Air Sealing</b>                     |                         |                                 |   |
| Savings  | $\Delta kWh$            |                                 | $(CFM50\_before - CFM50\_after) / Nfactor * kWh\_CFM$   |
| Savings  | $\Delta kW$             |                                 | $(CFM50\_before - CFM50\_after) / Nfactor * kW\_CFM * CF$   |
| Input  | <i>CFM50_after</i>      | Varies                          | Tracking data.  |
| Input  | <i>CFM50_before</i>     | Varies                          | Tracking data.  |
| Input  | <i>Nfactor</i>          | Varies                          | Indiana TRM V2.2, p. 51.  |
| Input  | $kWh\_CFM$              | Varies                          | Indiana TRM V2.2, p. 53.  |
| Input  | $kW\_CFM$               | Varies                          | Indiana TRM V2.2, p. 53.  |
| Input  | <i>CF</i>               | 0.88                            | Indiana TRM V2.2, p. 52.  |
| Input  | <i>Exposure Level</i>   | Varies                          | Tracking data.  |
| Input  | <i>Heat Type</i>        | Varies                          | Tracking data.  |
| Input  | <i>Area</i>             | Varies                          | Based on zip code.  |
| EUL  |                         | 15                              | Indiana TRM V2.2, p. 51.  |
| Inc Cost   |                         | \$ -                            | Cost of measure accounted for by program costs.   |
| <b>Measure Name: Ductless Heat Pump</b>              |                         |                                 |   |
| Savings - 1  | $\Delta kWh$ Baseline 1 |                                 | $(((Capacity\_heat / HSPF\_base) - (Capacity\_heat / HSPF\_ee)) / 1000 * EFLH\_heat * HLAF) + (((Capacity\_cool / SEER\_base) - (Capacity\_cool / SEER\_ee)) / 1000 * EFLH\_cool * CLAF) +$ $(((Capacity\_heat / HSPF\_exist) - (Capacity\_heat / HSPF\_base)) / 1000 * ER\_factor * EFLH\_heat * HLAF) +$ $(((Capacity\_cool / SEER\_exist) - (Capacity\_cool / SEER\_base)) / 1000 * ER\_factor * EFLH\_cool * CLAF)$ |

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| Variable Type | Variable Name                             | Variable Value | Variable Value Source  |
|---------------|---|----------------|--|
| Savings - 2   | $\Delta kW$ Baseline 1                    |                | $(Capacity\_cool * ((1 / EER\_base) - (1 / EER\_ee))) / 1000 * CF + (ER\_factor * Early Replacement Incremental kW Savings)$   |
| Savings - 2   | $\Delta kWh$ (Baseline 2)                 |                | $((CLAF * Capacity\_heat * EFLH\_heat * ((1 / HSPF\_base) - (1 / HSPF\_ee)) / 1000) + ((Capacity\_cool * EFLH\_cool * ((1 / SEER\_base) - (1 / SEER\_ee)) / 1000)))$ |
| Savings - 2   | $\Delta kW$ (Baseline 2)                  |                | $(Capacity\_cool * ((1 / EER\_base) - (1 / EER\_ee))) / 1000 * CF$   |
| Input         | Capacity_cool                             | Varies         | Tracking data.   |
| Input         | EFLH_cool                                 | Varies         | Indiana TRM V2.2, p. 104.  |
| Input         | SEER_exist                                | 11.15          | Indiana TRM V2.2, p. 104.  |
| Input         | SEER_base                                 | 13.28          | Illinois TRM 11.0 Vol. 3, p. 177.  |
| Input         | SEER_ee                                   | Varies         | AHRI. Characteristics of applicable equipment.   |
| Input         | EER_exist                                 | Varies         | Indiana TRM V2.2, p. 105.  |
| Input         | EER_base                                  | 11.35          | Illinois TRM 11.0 Vol. 3, p. 177.  |
| Input         | EER_ee                                    | Varies         | AHRI. Characteristics of applicable equipment.   |
| Input         | EFLH_heat                                 | Varies         | Indiana TRM V2.2, p. 104.  |
| Input         | HSPF_exist                                | 3.41           | Electric resistance baseline.  |
| Input         | HSPF_base                                 | 5.53           | Illinois TRM 11.0 Vol. 3, p. 177.  |
| Input         | CLAF                                      | 1.00           | Cooling load adjustment factor, based on analysis of baseline energy usage data. Value is less than or equal to 1.   |
| Input         | HLAF                                      | 1.00           | Heating load adjustment factor, based on analysis of baseline energy usage data. Value is less than or equal to 1.   |
| Input         | ER_factor                                 | Varies         | Based on analysis of survey responses.   |
| Input         | Area                                      | Varies         | Based on zip code.   |
| Input         | Early Replacement Incremental kWh Savings | Varies         | Calculated value   |
| Input         | Early Replacement Incremental kW Savings  | Varies         | Calculated value   |
| Input         | CLAF_Uncapped                             | Varies         | Do not cap adjustment factor at 1.   |
| Input         | HLAF_Uncapped                             | Varies         | Do not cap adjustment factor at 1.   |
| Input         | Share_of_Full_ER_Savings                  | Varies         | Calculated value   |
| Input         | Share_of_Site_HVAC_Ex_Ante_kWh_Savings    | Varies         | Tracking Data  |
| Input         | Counterfactual_Cooling_Load               | -              | 0  |
| Input         | Counterfactual_Heating_Load               | -              | 0  |
| Input         | Enrollment Number                         | Varies         | Tracking Data  |
| Input         | Address                                   | Varies         | Tracking Data  |
| EUL - 1       |   | 5              | Indiana TRM V2.2, p. 102-103.  |

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| Variable Type   | Variable Name             | Variable Value | Variable Value Source  |
|---|---------------------------|----------------|--|
| EUL - 2   |                           | 13             | Indiana TRM V2.2, p. 102-103.  |
| Inc Cost  |                           | \$ -           | Cost of measure accounted for by program costs.  |
| <b>Measure Name: Pipe Insulation</b>                        |                           |                |  |
| Savings   | $\Delta kWh$              |                | $((1 / R_{Exist}) - (1 / R_{New})) * ((L * C * \Delta T * 8760) / (n_{DHW} * 3412))$                           |
| Savings   | $\Delta kW$               |                | $((1 / R_{Exist}) - (1 / R_{New})) * ((L * C * \Delta T * 8760) / (n_{DHW} * 3412)) / 8760$                    |
| Input   | $R_{Exist}$               | 1.00           | Indiana TRM V2.2, p. 78.   |
| Input   | $R_{New}$                 | 4.00           | Tracking data.   |
| Input   | $\Delta T$                | 65.00          | Indiana TRM V2.2, p. 78.   |
| Input   | $n_{DHW}$                 | Varies         | Indiana TRM V2.2, p. 78.   |
| Input   | $L$                       | 3.00           | Average installation.  |
| Input   | $C$                       | 0.75           | Average installation.  |
| EUL   |                           | 15             | Indiana TRM V2.2, p. 77.   |
| Inc Cost  |                           | \$ -           | Cost of measure accounted for by program costs.  |
| <b>Measure Name: Package Terminal Heat Pump (River Run)</b> |                           |                |  |
| Savings - 1   | $\Delta kWh$ Baseline 1   |                | $kwh\_first\_baseline$   |
| Savings - 2   | $\Delta kW$ Baseline 1    |                | $kw\_first\_baseline$  |
| Savings - 2   | $\Delta kWh$ (Baseline 2) |                | $kwh\_second\_baseline$  |
| Savings - 2   | $\Delta kW$ (Baseline 2)  |                | $kw\_second\_baseline$   |
| Input   | $kwh\_first\_baseline$    | 1,248.00       | Derived from weather-normalized econometric analysis of pre- and post-installation energy usage interval data. |
| Input   | $kwh\_second\_baseline$   | 189.23         | ADM analysis.  |
| Input   | $kw\_first\_baseline$     | 0.18           | ADM analysis.  |
| Input   | $kw\_second\_baseline$    | 0.17           | ADM analysis.  |
| Input   | Kit Type                  | Varies         | Tracking data.   |
| EUL - 1   |                           | 8              | Illinois TRM 11.0 Vol. 2, p. 305.  |
| EUL - 2   |                           | 8              | Illinois TRM 11.0 Vol. 3, p. 90.   |
| Inc Cost  |                           | \$ -           | Cost of measure accounted for by program costs.  |

## 4.3.1.3. Verification and In-Service Rates

Table 4-3 shows the verification rates for program measures installed through the income-qualified program for in-home participants.

The in-service rate for night lights was low because some of the night lights were installed in an empty outlet, rather than replacing an existing night light.

For the kit items, some respondents reported that they had not installed, and were not planning to install the items in the next six months. These in-service rates were generally lower than what was found for the PY2022 evaluation, and lower than what was found for the Online Energy Checkup kits.

*Table 4-3 Summary of Measure In-Service Rates*

| <i>Measure</i>                  | <i>Number of Responses</i> | <i>In-Service Rate</i> | <i>Source</i>                     |
|---------------------------------|----------------------------|------------------------|-----------------------------------|
| 9W LED - Kit                    | 21                         | 72%                    | Measure specific survey responses |
| LED Nightlight - Kit            | 26                         | 31%                    | Measure specific survey responses |
| Showerhead - Kit                | 11                         | 32%                    | Measure specific survey responses |
| Advanced Power Strip - Kit      | 26                         | 81%                    | Measure specific survey responses |
| Kitchen Faucet Aerator - Kit    | 10                         | 70%                    | Measure specific survey responses |
| Bathroom Faucet Aerator - Kit   | 11                         | 41%                    | Measure specific survey responses |
| Advanced Power Strip            | 11                         | 85%                    | Measure specific survey responses |
| LED Night Light                 | 9                          | 62%                    | Measure specific survey responses |
| Direct Install LED              | 6                          | 83%                    | Measure specific survey responses |
| Kitchen Faucet Aerator          | 4                          | 75%                    | Measure specific survey responses |
| Bathroom Faucet Aerator         | 5                          | 77%                    | Measure specific survey responses |
| Showerhead                      | 6                          | 75%                    | Measure specific survey responses |
| Refrigerator                    | 2                          | 100%                   | Measure specific survey responses |
| Heat Pump Water Heater          | 0                          | 100%                   | Average major measure             |
| Package Terminal Heat Pump      | 0                          | 100%                   | Average major measure             |
| Advanced Power Strip - Donation | 0                          | 81%                    | Advanced Power Strip – Kit ISR    |
| Air Sealing                     | 0                          | 100%                   | Average major measure             |
| Ductless Heat Pump              | 0                          | 100%                   | Average major measure             |
| Pipe Insulation                 | 0                          | 100%                   | Assumed value                     |

#### 4.3.2. Results of Ex Post Gross Savings Estimation

Table 4-4 summarizes the gross kWh savings of the Income Qualified Weatherproofing Program by measure. The ex post annual energy savings for the program were 539,463 kWh with a realization rate of 67%.

Table 4-4 Measure-Level Annual Gross kWh Savings

| <i>Measure</i>                         | <i>Quantity of Measures Incited</i> | <i>Ex Ante Gross kWh Savings</i> | <i>Gross Audited kWh Savings</i> | <i>Gross Verified kWh Savings</i> | <i>Ex Post Gross kWh Savings</i> | <i>Gross Realization Rate</i> |
|--|-------------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|-------------------------------|
| LED Night Light                        | 137                                 | 747                              | 747                              | 459                               | 1,150                            | 154%                          |
| Direct Install LED                     | 375                                 | 23,250                           | 23,250                           | 19,264                            | 8,748                            | 38%                           |
| Kitchen Faucet Aerator                 | 33                                  | 4,799                            | 4,799                            | 3,599                             | 4,459                            | 93%                           |
| Bathroom Faucet Aerator                | 48                                  | 1,400                            | 1,400                            | 1,080                             | 1,136                            | 81%                           |
| Pipe Insulation                        | 1                                   | 404                              | 404                              | 404                               | 287                              | 71%                           |
| Showerhead                             | 38                                  | 13,373                           | 13,373                           | 10,029                            | 9,321                            | 70%                           |
| Refrigerator                           | 7                                   | 1,554                            | 1,554                            | 1,554                             | 357                              | 23%                           |
| Heat Pump Water Heater                 | 2                                   | 4,152                            | 4,152                            | 4,152                             | 3,080                            | 74%                           |
| Advanced Power Strip                   | 167                                 | 10,750                           | 10,750                           | 9,096                             | 14,555                           | 135%                          |
| Package Terminal Heat Pump             | 1                                   | 2,741                            | 2,741                            | 2,741                             | 863                              | 31%                           |
| Package Terminal Heat Pump (River Run) | 112                                 | 306,992                          | 306,992                          | 306,992                           | 139,776                          | 46%                           |
| Air Sealing                            | 1                                   | 791                              | 791                              | 791                               | 570                              | 72%                           |
| Ductless Heat Pump                     | 1                                   | 5,120                            | 5,120                            | 5,120                             | 5,295                            | 103%                          |
| 9W LED - Kit                           | 7,080                               | 170,155                          | 170,155                          | 122,552                           | 145,064                          | 85%                           |
| LED Nightlight - Kit                   | 1,770                               | 13,139                           | 13,139                           | 4,043                             | 7,427                            | 57%                           |
| Showerhead - Kit                       | 746                                 | 149,565                          | 149,565                          | 47,589                            | 76,216                           | 51%                           |
| Advanced Power Strip - Kit             | 885                                 | 43,682                           | 43,682                           | 35,281                            | 73,625                           | 169%                          |
| Kitchen Faucet Aerator - Kit           | 373                                 | 44,704                           | 44,704                           | 31,293                            | 38,381                           | 86%                           |
| Bathroom Faucet Aerator - Kit          | 746                                 | 13,637                           | 13,637                           | 5,579                             | 9,072                            | 67%                           |
| Advanced Power Strip - Donation        | 1                                   | 64                               | 64                               | 52                                | 83                               | 129%                          |
| Total                                  |                                     | 811,018                          | 811,018                          | 611,671                           | 539,463                          | 67%                           |

Energy savings associated with virtual assessment efficiency kits are presented by kit type in Table 4-5.

Table 4-5 Kit-Level Annual Gross kWh Savings

| <i>Kit Type</i>           | <i>Number of Kits</i> | <i>Ex Ante Gross kWh Savings</i> | <i>Gross Audited kWh Savings</i> | <i>Gross Verified kWh Savings</i> | <i>Ex Post Gross kWh Savings</i> | <i>Gross Realization Rate</i> |
|---------------------------|-----------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|-------------------------------|
| Electric Water Heater Kit | 373                   | 301,869                          | 301,869                          | 151,473                           | 219,002                          | 73%                           |
| Gas Water Heater Kit      | 522                   | 440,069                          | 440,069                          | 401,907                           | 270,641                          | 61%                           |
| Total                     | 895                   | 741,938                          | 741,938                          | 553,381                           | 489,644                          | 66%                           |

The following discusses factors affecting realization rates that differed substantially from 100%.



- Direct install LED (38%). The ex ante savings calculation assumed 62 kWh per lamp installed. The ex post per unit savings was 23.3 kWh per lamp.
- Pipe insulation (71%). The ex ante savings assumed 404.42 kWh per installation. The ex post savings used a per foot calculation to estimate savings.
- Showerhead (70%). The realization rate was due to the in-service rate.
- Refrigerator (23%). The ex post analysis referenced data from the PY2021 evaluation to estimate the energy use of the existing units.
- Heat pump water heater (74%). The ex ante savings estimate used a value of 2,076 kWh saved per unit. The ex post analysis based on the efficiency of the installed units found a savings of 1,540 kWh for each of the two units installed.
- Advanced power strip (135%). Ex ante savings used an estimate of 64.37 kWh saved per unit. The ex post analysis, which is based on a higher in-service rate than was found in the PY2022 evaluation, resulted in an average savings of 87.15 kWh per unit.
- LED Night Lights (154%). The ex ante savings assumed a conservative savings of 5.45 kWh per unit vs. 8.39 kWh for the evaluated savings.
- Package terminal heat pump (31%). The ex ante analysis estimated savings of 2,741 kWh for the installed unit. The ex post savings based on the measure specific information found savings of 862.86 kWh.
- Package terminal heat pump (River Run) (46%). ADM performed a custom analysis of energy consumption data for the River Run heat pump project. The analysis used analysis of weather-normalized pre- and post-installation energy use data to estimate the savings resulting from the new unit. The ex ante savings were estimated to be 2,741 kWh.
- Air sealing (72%). Both ex ante and ex post analyses used the same savings calculation method. The difference in savings may be due to the ex ante analysis using a kWh\_CFM value of 49.94 whereas the ex post analysis used a value of 36 kWh\_CFM sourced from the Indiana TRM. Alternatively, the ex ante analysis may have used a different value for the Nfactor than the value of 18.5 used in the ex post analysis.
- LED nightlight – kit (57%). The in-service rate based on the survey of participants affected the realization rate.
- Showerhead – kit (51%). The in-service rate based on the survey of participants affected the realization rate.
- Advanced power strip – kit (169%). The ex ante savings used a smaller deemed savings value of 48.5 kWh per unit vs. the value of 83.2 kWh per unit found in the ex post analysis.
- Bathroom faucet aerator – kit. (67%). The in-service rate based on the survey of participants affected the realization rate.

Table 4-6 summarizes the gross peak demand reduction of the Income Qualified Weatherproofing Program. The gross peak demand reduction for the program was 60.01 kW, with a realization rate of 140%.

*Table 4-6 Measure-Level Annual Gross kW Savings*

| <i>Measure</i>                         | <i>Quantity of Measures Incited</i> | <i>Ex Ante Gross kW Savings</i> | <i>Gross Audited kW Savings</i> | <i>Gross Verified kW Savings</i> | <i>Ex Post Gross kW Savings</i> | <i>Gross Realization Rate</i> |
|--|-------------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|-------------------------------|
| LED Night Light                        | 137                                 | -                               | -                               | -                                | -                               |                               |
| Direct Install LED                     | 375                                 | 0.38                            | 0.38                            | 0.31                             | 1.21                            | 322%                          |
| Kitchen Faucet Aerator                 | 33                                  | 1.06                            | 1.06                            | 0.79                             | 0.21                            | 20%                           |
| Bathroom Faucet Aerator                | 48                                  | 0.38                            | 0.38                            | 0.30                             | 0.12                            | 32%                           |
| Pipe Insulation                        | 1                                   | 0.00                            | 0.00                            | 0.00                             | 0.03                            | 1093%                         |
| Showerhead                             | 38                                  | 1.03                            | 1.03                            | 0.77                             | 0.49                            | 48%                           |
| Refrigerator                           | 7                                   | 0.07                            | 0.07                            | 0.07                             | 0.04                            | 58%                           |
| Heat Pump Water Heater                 | 2                                   | 0.33                            | 0.33                            | 0.33                             | 0.42                            | 127%                          |
| Advanced Power Strip                   | 167                                 | 0.84                            | 0.84                            | 0.71                             | 1.63                            | 196%                          |
| Package Terminal Heat Pump             | 1                                   | -                               | -                               | -                                | 0.04                            |                               |
| Package Terminal Heat Pump (River Run) | 112                                 | -                               | -                               | -                                | 20.16                           |                               |
| Air Sealing                            | 1                                   | 0.05                            | 0.05                            | 0.05                             | 0.03                            | 59%                           |
| Ductless Heat Pump                     | 1                                   | 0.62                            | 0.62                            | 0.62                             | 0.34                            | 54%                           |
| 9W LED - Kit                           | 7,080                               | 13.33                           | 13.33                           | 9.60                             | 19.82                           | 149%                          |
| LED Nightlight - Kit                   | 1,770                               | -                               | -                               | -                                | -                               |                               |
| Showerhead - Kit                       | 746                                 | 6.00                            | 6.00                            | 1.91                             | 4.04                            | 67%                           |
| Advanced Power Strip - Kit             | 885                                 | 16.07                           | 16.07                           | 12.98                            | 8.26                            | 51%                           |
| Kitchen Faucet Aerator - Kit           | 373                                 | 1.67                            | 1.67                            | 1.17                             | 2.17                            | 129%                          |
| Bathroom Faucet Aerator - Kit          | 746                                 | 1.04                            | 1.04                            | 0.43                             | 0.99                            | 96%                           |
| Advanced Power Strip - Donation        | 1                                   | 0.01                            | 0.01                            | 0.01                             | 0.01                            | 100%                          |
| Total                                  |                                     | 42.88                           | 42.88                           | 30.05                            | 60.01                           | 140%                          |

Table 4-7 summarizes the kW savings for the kits provided to virtual audit participants.

*Table 4-7 Kit-Level Annual Gross kW Savings*

| <i>Kit Type</i>           | <i>Number of Kits</i> | <i>Ex Ante Gross kW Savings</i> | <i>Gross Audited kW Savings</i> | <i>Gross Verified kW Savings</i> | <i>Ex Post Gross kW Savings</i> | <i>Gross Realization Rate</i> |
|---------------------------|-----------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|-------------------------------|
| Electric Water Heater Kit | 373                   | 26.04                           | 26.04                           | 16.81                            | 19.04                           | 73%                           |
| Gas Water Heater Kit      | 522                   | 12.09                           | 12.09                           | 9.29                             | 36.41                           | 301%                          |
| Total                     | 895                   | 38.13                           | 38.13                           | 26.10                            | 55.45                           | 145%                          |

### 4.3.3. Estimation of Ex Post Net Savings

#### 4.3.3.1. Methodology for Estimating Ex Post Net Energy Savings

ADM applied an NTG ratio of 1.0 for the Income Qualified Weatherproofing Program in line with common practice for the estimation of low-income program net savings.<sup>2</sup> An NTG ratio of 1.0 was also applied to the efficiency kits and distributed measures.

#### 4.3.3.2. Results of Ex Post Net Savings Estimation

Table 4-8 summarizes the ex post annual net kWh and kW savings of the Residential Income Qualified Weatherproofing Program. The annual net savings totaled 539,463 kWh and 60.01 kW.

*Table 4-8 Program-Level Annual Net kWh and kW Savings*

| <i>Category</i>                   | <i>kWh</i> | <i>kW</i> |
|-----------------------------------|------------|-----------|
| Ex Ante Gross Savings             | 811,018    | 42.88     |
| Gross Audited Savings             | 811,018    | 42.88     |
| Gross Verified Savings            | 611,671    | 30.05     |
| Ex Post Gross Savings             | 539,463    | 60.01     |
| Gross Realization Rate            | 67%        | 140%      |
| Ex Post Free Ridership            | 0          | 0         |
| Ex Post Non-Participant Spillover | 0          | 0         |
| Ex Post Participant Spillover     | 0          | 0         |
| Ex Post Net Savings               | 539,463    | 60.01     |
| Net-to-Gross Ratio                | 100%       | 100%      |
| Ex Post Net Lifetime Savings      | 4,706,241  | NA        |

<sup>2</sup> The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures, Chapter 21, p.45 <https://www.nrel.gov/docs/fy17osti/68578.pdf>

#### 4.4. Process Evaluation

ADM completed a process evaluation of the Income Qualified Weatherization Program. The process evaluation activities consisted of a review of program documentation, interviews and discussions with program staff, and surveys of program participants.

##### 4.4.1. Process Evaluation Findings

The following sections summarize findings on program design and operations based on interviews and discussions with the I&M and implementation contractor program managers, a review of program documents, and a review of the program tracking data.

##### 4.4.1.1. Summary of Program Participation

Table 4-9 and Table 4-10 summarize participation in the virtual assessment and in-home assessment components of the program.

*Table 4-9 Summary of Virtual Assessment Participation*

| <i>Kit</i> | <i>Percent of Virtual Audit Participants</i> |
|------------|--|
| Electric   | 37%  |
| Gas        | 63%  |

*Table 4-10 Summary of In-Home Assessment Ex Ante Savings*

| <i>Housing Type</i> | <i>Major Measure</i> | <i>Direct Install Measure</i> | <i>Number of Customers</i> | <i>Average Ex Post kWh Savings</i> |
|---------------------|----------------------|-------------------------------|----------------------------|------------------------------------|
| Multi-Family        | No                   | Yes                           | 4                          | 671                                |
| Multi-Family        | Yes                  | No                            | 110                        | 1,259                              |
| Single Family       | No                   | Yes                           | 44                         | 799                                |
| Single Family       | Yes                  | No                            | 10                         | 896                                |
| Single Family       | Yes                  | Yes                           | 3                          | 1,430                              |

##### 4.4.1.2. Program Design and Operations

##### 4.4.1.2.1. Program Design

The Income Qualified Weatherization program provides services to qualified low-income homes to improve their energy efficiency. The program offers virtual audits, in-home audits, and major measures such as air sealing and insulation. To qualify for the program, the customer's household income must be equal to or less than 200% of the Federal Poverty Guideline.

The program is open to customers with electric or non-electric heating. Customers with non-electric heating may receive a virtual audit and kit of energy-saving measures, but do not qualify

for in-home audits or major measures. Major measure projects must be cost effective to receive the improvements.

The program is open to single and multifamily customers. Customers can participate if they rent their homes, but permission from the property owner is necessary. For multifamily properties, the program can provide services to tenants if the tenant meets the income qualification requirements for the program. Additionally, the building is eligible for weatherization measures if the tenants on the upper floor meet the program income requirements.

I&M works with a third-party contractor, Solutions for Energy Efficient Logistics (SEEL), to deliver the program. I&M supports SEEL in its implementation and markets the program to its customers. I&M will provide referrals of interested customers to SEEL and can also qualify customers that contact them if they have received assistance through the Low-income Energy Assistance Program (LEAP) in the past 12 months.

SEEL handles program functions that include customer recruitment, customer intake and qualification, delivery of program audits and direct installation of measures, development of scopes of work for major measure projects, and contractor management. SEEL works with a network of contractors to complete the major measure installation work and performs quality control verification activities of the installing contractors' work.

I&M also supports work done by community action agencies on behalf of I&M customers.

#### *4.4.1.2.2. Roles and Responsibilities*

ADM interviewed the Income-Qualified Weatherproofing (IQW) program coordinator, whose role primarily involves managing the vendor SEEL and approving agency requests for income-qualified weatherization services, collaborating with organizations such as Job Source and Brightpoint when clients require weatherization assistance. Additionally, the program coordinator is responsible for the oversight of SEEL's activities, ensuring they align with the program's objectives and standards.

In the past year, SEEL primarily focused on conducting audits. The I&M program coordinator aims to see SEEL concentrate more on weatherization efforts and the implementation of major measures. While SEEL had made some progress in this regard, the program coordinator highlighted the ongoing efforts to encourage increased involvement in weatherization tasks.

#### *4.4.1.2.3. Marketing and Outreach*

The IQW program's marketing strategy includes leveraging current lists of income-eligible customers, such as those enrolled in a billing assistance program, to engage potential participants in the IQW program. The program scaled down its marketing effort once the savings objectives were achieved during the program year.

The IQW program targets households with electric heating by flagging heating source information in their system, but marketing initially extends to all low-income individuals, and audits are

conducted to determine the heating source. In other words, electrically heated properties become potential candidates for major measures and retrofits, but marketing efforts extend to all income-qualified customers.

#### *4.4.1.2.4. Participation Process*

The IQW program primarily aims to assist eligible households with weatherization services. There haven't been significant changes in eligibility criteria or the application process. Eligibility in Indiana is also contingent on applicants having an income at or below 200% of the federal poverty guidelines. Online accessibility enhancements, such as the introduction of an online scheduling tool, have been implemented, with initial issues being resolved.

Regarding the measures and services offered to eligible households, there have been no substantial changes over the past year. The program's focus remains on weatherization efforts, with flexible project prioritization. Home repairs may need addressing before weatherization can proceed.

There is a deferral list in place, but its comprehensiveness is currently under improvement, as the program administrator works to enhance the details associated with deferrals. Efforts to address barriers and reduce deferral rates are part of the program's agenda as well. INCAA dollars are available for health and safety work, although their utilization has been limited historically. Plans are in place to increase their utilization in Indiana.

A multifamily project in Indiana involving heat pumps was completed in 2023. SEEL conducted initial audits in a multifamily unit in Elkhart, IN, and identified the need for heat system upgrades. While some units did not qualify due to income criteria, the rest received heat pump replacements. The specific follow-up process for non-qualified units was not detailed during the interview.

The energy audit process has not seen major updates or changes. There is an initiative to streamline the delivery of audit reports. A new SEEL project manager is setting up a system where audit reports will be dispatched from a generic inbox, facilitating the tracking of customer receipt. Plans also include improved integration of audit reports with the customer tool at I&M to enhance delivery efficiency upon customer request.

The IQW program is working to ensure that customers are well-informed about the correct usage of power strips to mitigate previous challenges where customers were not utilizing them effectively. Survey results indicate that this effort has been successful because the in-service rates for this measure were higher in PY2023 than in PY2022.

Customer feedback collection and tracking are collected by SEEL. While SEEL primarily manages this aspect, specific information related to customer satisfaction with virtual audits would need to be obtained from SEEL, as the program administrator's focus is primarily on cases related to report delivery and customer complaints when reports are not received or other issues arise.

A strategy used to promote energy efficiency awareness and education has been implemented through the bill assistance program in Indiana. To qualify for certain bill assistance programs, participants are required to watch a series of educational videos focused on energy-saving tips and

practices. Specifically, participants must watch three videos and then attest to having done so. This educational requirement serves as a prerequisite for program approval, helping to raise awareness about energy efficiency and providing participants with information on reducing energy costs. SEEL contractors in Indiana also play a role in educating participants during the audit process on energy-saving measures that can be implemented in their homes.

#### *4.4.1.2.5. Contractors*

While there have been no reports of contractor shortages at present, the challenge of contractor availability remains a consideration for the program. SEEL has undergone a reorganization to meet the program's needs, which has involved replacing previous contractors and training new ones. The availability of contractors is vital to achieving program completion goals. Efforts to increase contractor capacity and training can contribute to more effective targeting and completion of program projects, ensuring that low-income households receive the necessary weatherization services.

#### *4.4.1.2.6. Success Stories and Partnerships*

The IQW program has collaborated with community action agencies (CAAs) to enhance the impact of weatherization efforts and health and safety improvements. Collaboration with Brightpoint, one of the program's largest agencies, has resulted in joint efforts to fund weatherization projects. Additionally, the program administrator participates in utility assistance meetings with various CAAs in the region, fostering collaboration and facilitating the identification of homes in need of weatherization support. These collaborations have led to a multi-agency approach to addressing complex cases, such as homes requiring extensive weatherization and health and safety improvements.

#### *4.4.1.2.7. Data Management and Savings Calculations*

Program tracking of applications, projects, and rebates has largely adhered to standard reporting procedures, with no substantial changes noted for the past year. The program coordinator personally maintains and updates custom dashboards to monitor metrics such as savings, kilowatt savings, expenditures, completed measures, and audit progress. However, the primary challenge has been achieving a higher level of customer participation in major measures. In terms of assessing the program's impact on improved living conditions and cost savings for low-income households, the focus has primarily been on conducting blower door tests, which provides a measure how drafty the home feels to the resident.

#### *4.4.1.3. In-Home Participant Survey Results*

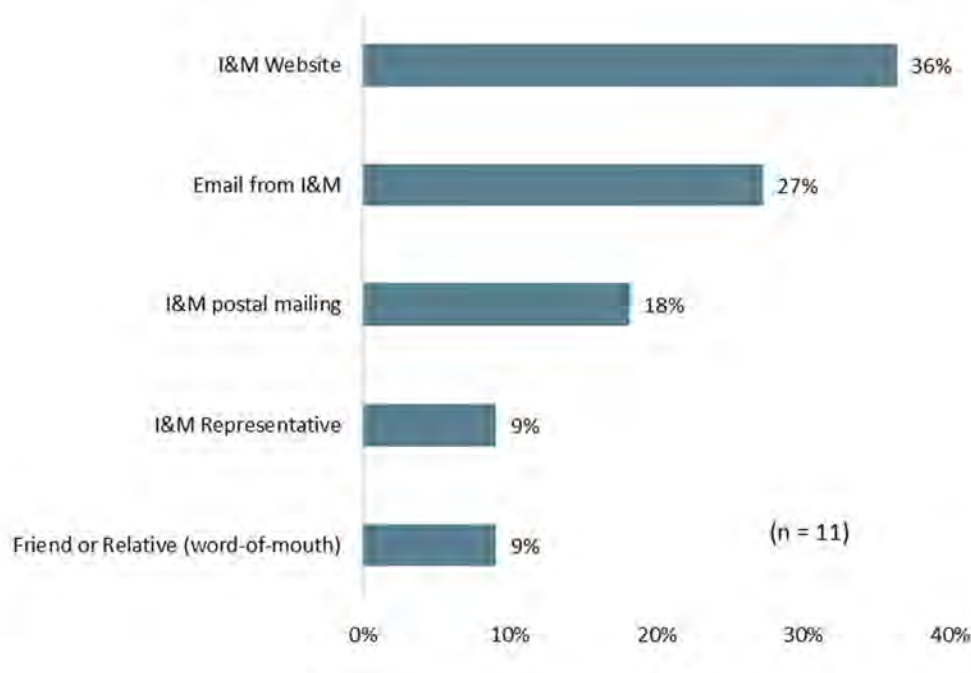
**I&M marketing efforts drove participation in the IQW Program.** I&M primarily marketed the program through emails, postal mailings, and providing information on its website. Collectively, 82% of respondents first learned of the program through one of these means (see Figure 4-1). Emails and the website were more frequently reported to be the initial source of awareness than



## Indiana Residential Portfolio

the postal mailings. An I&M representative or through word-of-mouth were other ways participants learned of the program.

*Figure 4-1 Initial Source of Awareness*



Saving energy, a requirement for receiving home improvements, and wanting to make the home more comfortable were the most common motivations for participating in the home energy checkup (see Table 4-11).

*Table 4-11 Motivations for Getting the Energy Checkup*

| <i>Reason for Having Checkup Done</i>                | <i>Percent of Respondents (n = 9)</i> |
|--|---------------------------------------|
| Save energy to save money                            | 78%                                   |
| Required to receive the home improvements            | 67%                                   |
| Wanted to make my home more comfortable              | 67%                                   |
| Wanted to better understand the condition of my home | 44%                                   |
| Save energy to protect the environment               | 44%                                   |
| Recommended by contractor                            | 33%                                   |
| Recommended by friend or family                      | 33%                                   |

Approximately 78% of respondents mentioned that the energy expert conducting the home checkup asked them about concerns regarding their home, while 22% reported that no such discussion took place. Regarding receiving a report or list of recommendations for improving

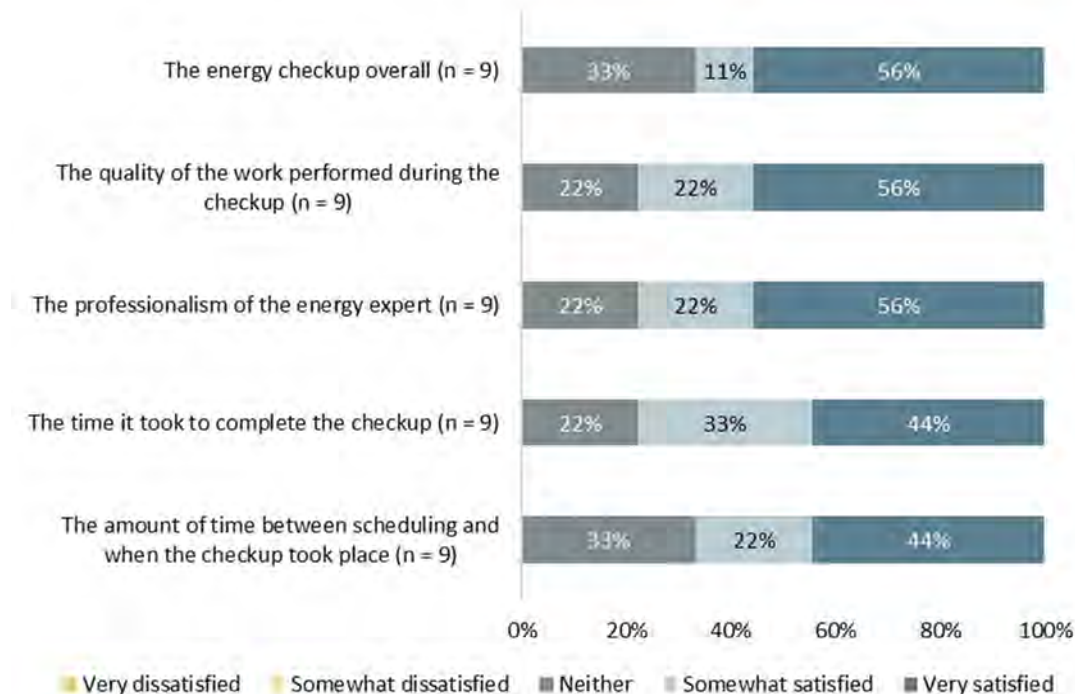


home energy efficiency at the end of the checkup, 44% answered affirmatively, while 56% stated that they did not receive a report or recommendations. Approximately 56% of respondents indicated that, aside from the energy efficiency improvements made to their homes, they learned tips for reducing energy use during the checkup. The tips for reducing energy use learned from the home energy checkup included the need for ceiling work, insulation, a new refrigerator, the replacement of more bulbs, and consideration of additional upgrades. Table 4-12 below summarizes the home energy checkup experience.

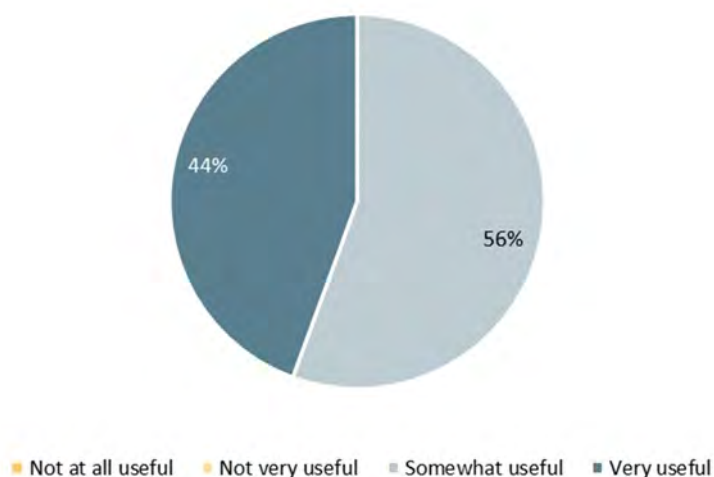
*Table 4-12 Home Checkup Experience*

| <i>Home Checkup Experience</i>                                      | <i>Percent of Respondents<br/>(n = 9)</i> |
|---|---|
| The energy expert asked about concerns                              | 78%                                       |
| Received a report or recommendations for making home more efficient | 44%                                       |
| Learned any tips for reducing energy use in your home               | 56%                                       |

**Respondents were generally satisfied with the home energy checkup process, and none reported dissatisfaction (see Figure 4-2).** Notably, 44% expressed being very satisfied with the amount of time between scheduling and the checkup, and another 22% were somewhat satisfied. Concerning the time taken to complete the checkup, 44% reported being very satisfied, with an added 22% expressing satisfaction. Regarding the professionalism of the energy expert, 56% were very satisfied, and 22% were somewhat satisfied. In terms of the quality of work performed during the checkup, 56% were very satisfied, and 22% were somewhat satisfied. Overall, for the energy checkup experience, 56% were very satisfied, and an added 11% were somewhat satisfied.

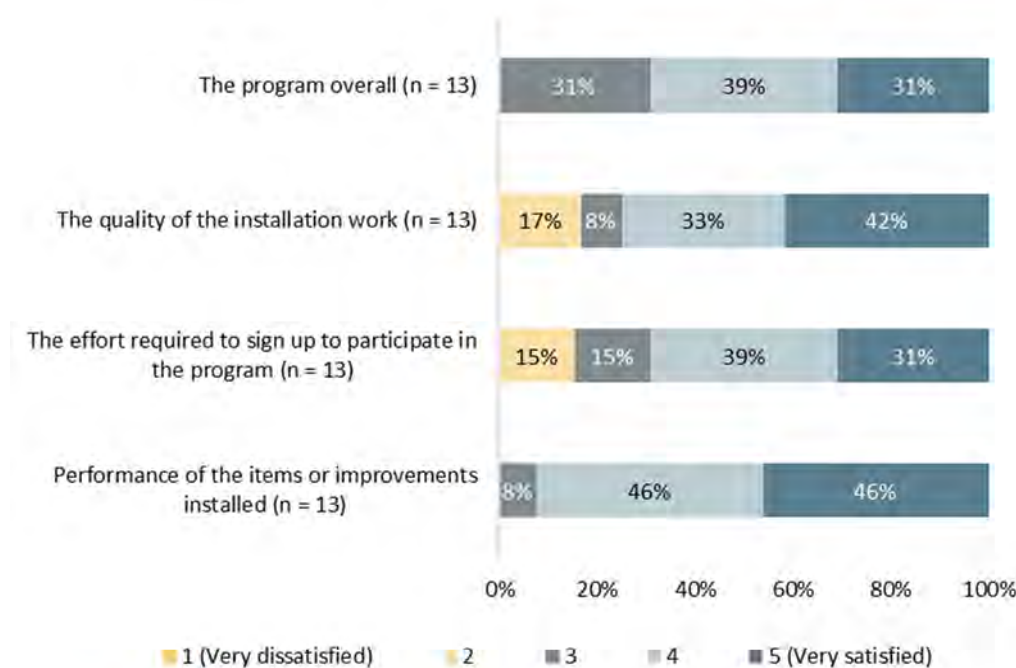
*Figure 4-2 Satisfaction with the Energy Checkup*

Forty percent of survey respondents indicated they have implemented the energy saving tips they learned about from their home energy checkup. These included switching out lightbulbs and unplugging appliances or other devices. Respondents found the information provided in the home energy checkup to be useful (44% indicating it to be very useful and 56% indicating it to be somewhat useful), with no respondents indicating that it was not useful (see Figure 4-3).

*Figure 4-3 Usefulness of the Information Provided in the Home Energy Checkup*

**Most respondents were satisfied with the overall program, the installation work, the effort to sign up, and the performance of the efficiency measures.** Notably, 92% were satisfied with the performance of installed items or improvements. Regarding the effort required to sign up, 69% were satisfied, while 15% expressed some dissatisfaction. In terms of the quality of installation work, 75% were satisfied. For the program overall, 69% were satisfied. See Figure 4-4 for additional details. Respondents who expressed dissatisfaction with various aspects of the program had concerns which included delays in response and home visits after initiating contact in November 2022, with no follow-up until May 2023, and home visits occurring in June or July 2023. Additionally, dissatisfaction was voiced by participants who had called multiple times to schedule a visit without any subsequent attendance, receiving only a power strip during the visit, or with the energy expert claiming a lack of availability for other items.

*Figure 4-4 Satisfaction with Aspects of the Home Energy Checkup*

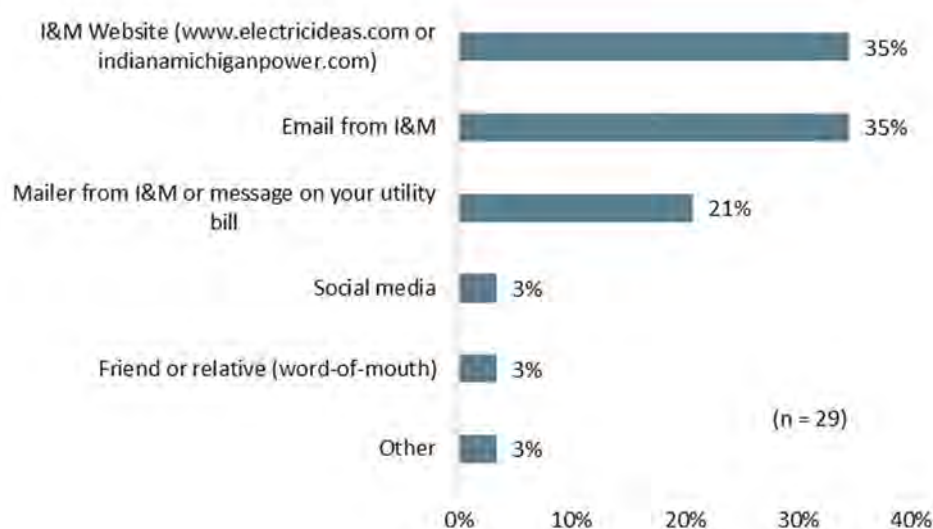


**Most respondents (62%) identified as promoters of the Home Energy Checkup Program, while 23% were considered passive and 15% were detractors.** This positive sentiment results in a Net Promoter Score of 46%. Promoters cited various positive reasons for their favorable rating of the Home Energy Checkup Program, including the program being free, considering it a good and great initiative, appreciating the opportunity to receive free items, finding the expert's information during the visit informative and valuable, and having recommended the program multiple times. Some promoters expressed the desire for further follow-up or information about specific aspects, indicating a positive overall experience with the program. Detractors expressed dissatisfaction with the Home Energy Checkup Program, citing concerns with communication, scheduling, and the perceived effectiveness of the program.

#### 4.4.1.4. Virtual Audit Participant Survey Results

**The program website and email communications from I&M drove initial program awareness.** Seventy percent of respondents reported that they learned of the program through these two sources. Another 21% reported that they learned of the program from an I&M mailer.

*Figure 4-5 Initial Source of Program Awareness*



**Nearly all participants thought that it was easy to sign up for the virtual audit.** The majority (76%) of respondents signed up for the program using the online form on the I&M website, while 21% chose to sign up by telephone. Ninety-three percent of respondents reported that it was very or somewhat easy to sign up.

*Table 4-13 Ease of Signing up for Virtual Audit*

| <i>How easy or difficult was it to sign up for the program?</i> | <i>Number of Respondents (n = 28)</i> |
|---|---------------------------------------|
| Very easy   | 61%                                   |
| Somewhat easy   | 32%                                   |
| Somewhat difficult  | 0%                                    |
| Very difficult  | 7%                                    |

Approximately 87% of respondents reported that the virtual audit took 30 minutes or less to complete, while a smaller percentage reported longer durations (see Table 4-14). Seventy-one percent of survey respondents said the person who conducted the virtual audit provided energy-saving tips. Respondents recalled various energy-saving tips from the virtual audit, including practices like sealing doors and windows, turning off lights, and unplugging appliances. Cleaning furnace filters, setting thermostat routines, and implementing weather stripping were also

mentioned. The importance of caulking around windows and strategic management of unused rooms, such as adjusting blinds for sunlight, were highlighted.

*Table 4-14 Length of Virtual Audit*

| <i>How long did the virtual audit take?</i> | <i>Number of Respondents<br/>(n = 23)</i> |
|---|---|
| 15 minutes or less                          | 48%                                       |
| 15 to 30 minutes                            | 39%                                       |
| 30 to 45 minutes                            | 9%  |
| 45 to 60 minutes                            | 4%  |

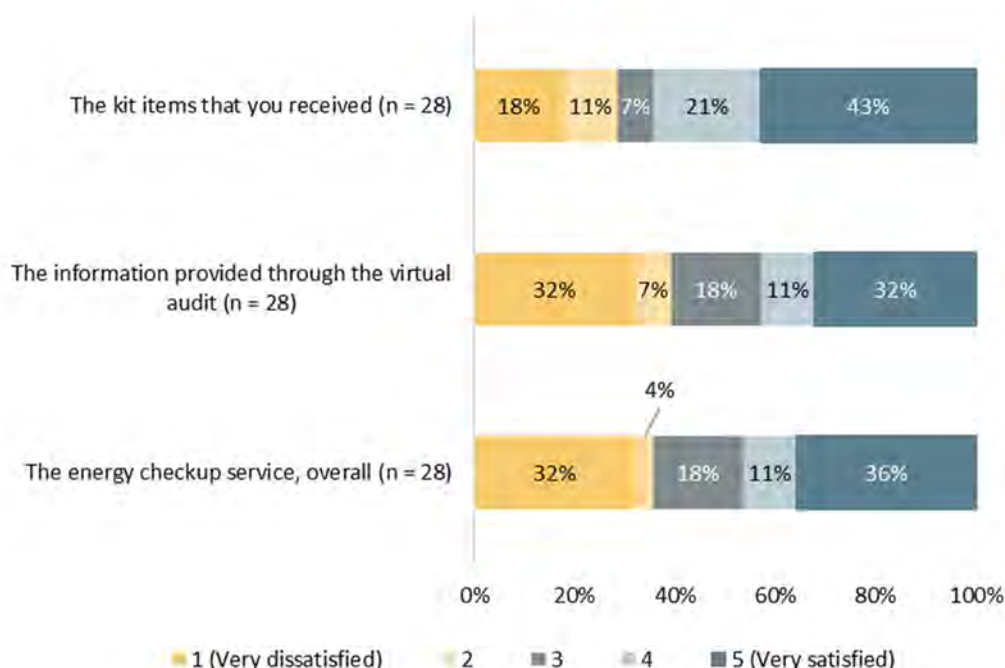
Survey respondents provided varied opinions on the usefulness of the virtual audit. While 46% rated it as useful (4 or 5), 33% found it less beneficial (2 or 3), and 25% believed it not at all useful (see Table 4-15). Reasons for perceiving the audit as not at all useful included confusion about available benefits, minimal assistance received, and issues with follow-up communication. Some participants highlighted challenges in understanding the support available for gas-heated homes, while others mentioned the lack of tips or suggestions during the audit.

*Table 4-15 Usefulness of Virtual Audit to help Understand Ways to Save Energy*

| <i>How long did the virtual audit take?</i> | <i>Number of Respondents<br/>(n = 24)</i> |
|---|---|
| 1 (Not at all useful)                       | 25%                                       |
| 2   | 8%  |
| 3   | 21%                                       |
| 4   | 25%                                       |
| 5 (Very useful)                             | 21%                                       |

**Several participants were dissatisfied with the service.** Thirty-two percent were dissatisfied with the service overall and 46% were somewhat or very satisfied with the service. Satisfaction was lower with the information provided (39% dissatisfied, 43% satisfied). See Figure 4-6 for more details. Ten respondents voiced dissatisfaction due to issues like missed appointments, incomplete audits, and unfulfilled promises of items like new appliances. Some expressed frustration with the limited usefulness of the information provided, with one respondent elaborating that the person doing the audit did not seem knowledgeable.

Figure 4-6 Satisfaction with Virtual Audit



Less than half of respondents (43%) identified as promoters of the virtual audit component, while 14% were considered passive and 43% were detractors. This resulted in a Net Promoter Score of 0%.

#### 4.5. Findings and Recommendations

**In PY2023, the in-service rates for advanced power strips improved but remained low for some virtual audit kit items.** This was primarily due to customers reporting that they had not installed the items and did not plan to do so.

- **Recommendation 1:** To build on the success with advanced power strips, focus on increasing the installation rates of all kit items. Strategies could include highlighting the benefits and importance of the kit items during virtual audits and encouraging participants to commit to installation verbally or in writing. Offering customized kit options or allowing participants to choose from different kit versions could also boost item utilization.

**PY2023 saw internal refinements aimed at enhancing program efficiency.** The program maintained consistent eligibility criteria and application processes, focusing on providing weatherization services to eligible households. Online accessibility improvements, such as an online scheduling tool, were introduced to simplify the application process. The program's measures and services saw no significant changes in PY2023, with ongoing efforts to address barriers, reduce deferral rates, and expand the deferral list.



- **Recommendation 2:** Explore innovative outreach strategies to increase awareness and engagement. With the online enhancements, use digital channels, like social media, for outreach to educate eligible households on weatherization benefits. Targeted communication campaigns can help overcome specific barriers by providing clear information on the application process and eligibility criteria, promoting more inclusive and informed participation.

**PY2023 achievements featured a successful completion of a multifamily project in Indiana, alongside streamlined initiatives implemented for energy audits.** The multifamily project involved heat pumps which highlighted successful upgrades and utilized Indiana Community Action Association (INCAA) dollars for health and safety work. Simultaneously, the energy audit process is undergoing streamlining initiatives to enhance efficiency, encompassing improved report delivery and integration with customer tools. The IQW program has enhanced its impact through collaborations with Community Action Agencies (CAA). A partnership with Brightpoint has resulted in joint funding efforts for weatherization projects. The program administrator engages in utility assistance meetings with various CAAs, fostering collaboration and facilitating the identification of homes in need. This approach works to address complex cases, particularly those requiring extensive weatherization and health and safety improvements.

**Marketing efforts through emails, postal mailings, and the website were key in raising awareness of the In-Home portion of the program.** Participants were motivated by the desire to save energy and improve home comfort. While most discussed energy savings with experts during in-home checkups, variations existed in the delivery of reports or recommendations. Some participants received valuable tips on reducing energy use, including home improvements like ceiling work, insulation, appliance upgrades, and efficient lighting.

**Participants generally expressed satisfaction with the in-home energy checkup process, particularly appreciating the scheduling, duration, and the professionalism of the energy experts.** Feedback on the performance of installed items was positive, though some participants reported concerns such as delays, lack of follow-up, and issues during home visits.

**Participants in the virtual audit expressed lower satisfaction with the services.** About a third expressed dissatisfaction with the service overall. Notably, satisfaction levels were lower concerning the information provided. The dissatisfaction was often attributed to issues such as missed appointments, incomplete audits, unfulfilled promises of items like new appliances, and frustration with the perceived limited usefulness of the received materials.

- **Recommendation 3: Investigate issues with the virtual audit.** Although more respondents were satisfied with the virtual audits overall than were dissatisfied, a sizable share expressed dissatisfaction with it. The open-ended comments on reasons for dissatisfaction suggest that the dissatisfaction stemmed from the delivery of the audits, including missed follow up and not receiving measures. Another issue cited were that the audit did not provide useful information. Some potential tactics to address this are:

- Create a feedback mechanism. For example, a brief post visit survey asking people to rate their satisfaction with the program and providing additional opportunity for written comments on the reasons for their feedback.
- Improve training and quality assurance. Ensure that all personnel involved in the virtual audits are adequately trained and that their performance is regularly reviewed to maintain high service quality. This includes training on technical aspects, customer service, and managing participants' expectations.



## 5. Home Energy Products ENERGY STAR Appliances

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This chapter presents the results of both the impact and process evaluations of the 2023 Home Energy Products ENERGY STAR® Appliances Program that Indiana Michigan Power (I&M) offered to its residential customers during the period of January 2023 through December 2023.

The objectives of the evaluation were to:

- Assess gross and net energy (kWh) savings and peak demand (kW) reductions resulting from participation in the program during the program year.
- Provide recommendations for program improvement as appropriate.

### 5.1. Program Description

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The ENERGY STAR® Appliances Program provides midstream incentives through the ENERGY STAR® Retail Products Platform. The ENERGY STAR® Retail Products Platform is a midstream initiative that partners with several utilities and other organizations to provide incentives for efficient products with major nationwide retailers. The goal of the initiative is to increase the market penetration of ENERGY STAR® certified appliances. I&M provides incentives for air purifiers, clothes washers dryers, freezers, refrigerators, and clothes washers.

### 5.2. Data Collection

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Data used to support the impact evaluation of the program will include:

- Program tracking data from the primary tracking database (the retail product platform historical and program sales data); and
- Program summary data from the I&M DSM EE Program Scorecard.

Analysis was performed on a census of program records.

### 5.3. Estimation of Ex Post Gross Savings

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#### 5.3.1. Methodology for Estimating Ex Post Gross Energy Savings

##### 5.3.1.1. Review of Documentation

ADM reviewed the program tracking data and sales data from the ENERGY STAR® Retail Products Platform to ensure that the data provides sufficient information to calculate energy and demand impacts. The data from the system was reviewed for duplicate entries.

##### 5.3.1.2. Procedures for Estimating Measure-Level Gross Energy Savings

Table 5-1 presents information on savings calculation formulas, savings calculation inputs, incremental cost, and effective useful life values and data sources applicable to the ENERGY STAR Retail Products Platform measures.

Table 5-1 ENERGY STAR Retail Products Platform Program Calculation Input Information

| Variable Type                       | Variable Name | Variable Value | Variable Value Source  |
|-------------------------------------|---------------|----------------|--|
| <b>Measure Name: Electric Dryer</b> |               |                |  |
| Savings                             | $\Delta kWh$  |                | $(Load / CEF_{base} - Load / CEF_{eff}) * Ncycles * \%Electric$  |
| Savings                             | $\Delta kW$   |                | $((Load / CEF_{base} - Load / CEF_{eff}) * Ncycles * \%Electric) / Hours * CF$   |
| Input                               | Load          | Varies         | ENERGY STAR database for applicable product ID.  |
| Input                               | CEFBASE       | Varies         | Illinois TRM V11.0 Vol. 3, p. 52.  |
| Input                               | CEFEff        | Varies         | ENERGY STAR database for applicable product ID.  |
| Input                               | Ncycles       | 283            | Illinois TRM V11.0 Vol. 3, p. 52.  |
| Input                               | %Electric     | 1              | Illinois TRM V11.0 Vol. 3, p. 52.  |
| Input                               | Hours         | 283            | Illinois TRM V11.0 Vol. 3, p. 54.  |
| Input                               | CF            | 0.038          | Illinois TRM V11.0 Vol. 3, p. 54.  |
| EUL                                 |               | 16             | Illinois TRM V11.0 Vol. 3, p. 50.  |
| Inc Cost                            |               | Varies         | Illinois TRM V11.0 Vol. 3, p. 50.  |
| <b>Measure Name: Freezer</b>        |               |                |  |
| Savings                             | $\Delta kWh$  |                | $kWh_{base} - kW_{hee}$  |
| Savings                             | $\Delta kW$   |                | $(kWh_{base} - kW_{hee}) / Hours * CF$   |
| Input                               | kWhbase       | Varies         | Illinois TRM V11.0 Vol. 3, p. 29-30.   |
| Input                               | kWhee         | Varies         | Illinois TRM V11.0 Vol. 3, p. 29-30.   |
| Input                               | Hours         | 8766           | Illinois TRM V11.0 Vol. 3, p. 30.  |
| Input                               | CF            | 0.95           | Illinois TRM V11.0 Vol. 3, p. 30.  |
| EUL                                 |               | Varies         | Illinois TRM V11.0 Vol. 3, p. 29.  |
| Inc Cost                            |               | 5              | Illinois TRM V11.0 Vol. 3, p. 29.  |
| <b>Measure Name: Refrigerator</b>   |               |                |  |
| Savings                             | $\Delta kWh$  |                | $(kWh_{base} - kW_{hee}) * 365.25$   |
| Savings                             | $\Delta kW$   |                | $((kWh_{base} - kW_{hee}) * 365.25) / Hours * CF$  |
| Input                               | kWhbase       | Varies         | Illinois TRM V11.0 Vol. 3, p. 34.  |
| Input                               | kWhee         | Varies         | Illinois TRM V11.0 Vol. 3, p. 34.  |
| Input                               | Hours         | 8766           | Illinois TRM V11.0 Vol. 3, p. 35.  |
| Input                               | CF            | 1              | Illinois TRM V11.0 Vol. 3, p. 35.  |
| EUL                                 |               | 17             | Indiana TRM V2.2, p. 13-14.  |
| Inc Cost                            |               | Varies         | Illinois TRM V11.0 Vol. 3, p. 33.  |
| <b>Measure Name: Clothes Washer</b> |               |                |  |
| Savings                             | $\Delta kWh$  |                | $(Capacity * 1 / IMEF_{base} * Ncycles * (\%Cw_{base} + (\%DHW_{base} * \%Electric\_DHW) + (\%Dryer_{base} * \%Electric\_Dryer))) - (Capacity * 1 / IMEF_{eff} * Ncycles * (\%Cw_{eff} + (\%DHW_{eff} * \%Electric\_DHW) + (\%Dryer_{eff} * \%Electric\_Dryer)))$                |
| Savings                             | $\Delta kW$   |                | $((Capacity * 1 / IMEF_{base} * Ncycles * (\%Cw_{base} + (\%DHW_{base} * \%Electric\_DHW) + (\%Dryer_{base} * \%Electric\_Dryer))) - (Capacity * 1 / IMEF_{eff} * Ncycles * (\%Cw_{eff} + (\%DHW_{eff} * \%Electric\_DHW) + (\%Dryer_{eff} * \%Electric\_Dryer)))) / Hours * CF$ |
| Input                               | Capacity      | Varies         | ENERGY STAR database for applicable product ID.  |

| <i>Variable Type</i>                     | <i>Variable Name</i>   | <i>Variable Value</i> | <i>Variable Value Source</i>                    |
|--|------------------------|-----------------------|---|
| Input                                    | <i>IMEFbase</i>        | 1.71                  | Illinois TRM V11.0 Vol. 3, p. 11.               |
| Input                                    | <i>IMEFeff</i>         | Varies                | ENERGY STAR database for applicable product ID. |
| Input                                    | <i>Ncycles</i>         | 295                   | Illinois TRM V11.0 Vol. 3, p. 11.               |
| Input                                    | <i>%Cwbase</i>         | Varies                | Illinois TRM V11.0 Vol. 3, p. 12.               |
| Input                                    | <i>%Cweff</i>          | Varies                | Illinois TRM V11.0 Vol. 3, p. 12.               |
| Input                                    | <i>%DHWbase</i>        | Varies                | Illinois TRM V11.0 Vol. 3, p. 12.               |
| Input                                    | <i>%DHWeff</i>         | Varies                | Illinois TRM V11.0 Vol. 3, p. 12.               |
| Input                                    | <i>%Dryerbase</i>      | Varies                | Illinois TRM V11.0 Vol. 3, p. 12.               |
| Input                                    | <i>%Dryereff</i>       | Varies                | Illinois TRM V11.0 Vol. 3, p. 12.               |
| Input                                    | <i>%Electric_DHW</i>   | 0.28                  | Illinois TRM V11.0 Vol. 3, p. 13.               |
| Input                                    | <i>%Electric_Dryer</i> | 0.69                  | Illinois TRM V11.0 Vol. 3, p. 13.               |
| Input                                    | <i>Hours</i>           | 295                   | Illinois TRM V11.0 Vol. 3, p. 14.               |
| Input                                    | <i>CF</i>              | 0.038                 | Illinois TRM V11.0 Vol. 3, p. 14.               |
| EUL                                      |                        | 14                    | Illinois TRM V11.0 Vol. 3, p. 10.               |
| Inc Cost                                 |                        | Varies                | Illinois TRM V11.0 Vol. 3, p. 10.               |
| <b><i>Measure Name: Air Purifier</i></b> |                        |                       |   |
| Savings                                  | $\Delta kWh$           |                       | $\Delta kWh$                                    |
| Savings                                  | $\Delta kW$            |                       | $\Delta kWh / Hours * CF$                       |
| Input                                    | $\Delta kWh$           | Varies                | Illinois TRM V11.0 Vol. 3, p. 8.                |
| Input                                    | <i>Hours</i>           | 5840                  | Illinois TRM V11.0 Vol. 3, p. 8.                |
| Input                                    | <i>CF</i>              | 0.667                 | Illinois TRM V11.0 Vol. 3, p. 8.                |
| EUL                                      |                        | 9                     | Illinois TRM V11.0 Vol. 3, p. 6.                |
| Inc Cost                                 |                        | Varies                | Illinois TRM V11.0 Vol. 3, p. 6.                |

### 5.3.2. Results of Ex Post Gross Savings Estimation

Table 5-2 summarizes the gross kWh savings of the Home Energy Products ENERGY STAR® Appliances Program by measure. The ex post annual energy savings for the program were 2,123,928 kWh with a realization rate of 103%.

Table 5-2 Measure-Level Annual Gross kWh Savings

| <i>Measure</i> | <i>Quantity of Measures Incited</i> | <i>Ex Ante Gross kWh Savings</i> | <i>Gross Audited kWh Savings</i> | <i>Gross Verified kWh Savings</i> | <i>Ex Post Gross kWh Savings</i> | <i>Gross Realization Rate</i> |
|----------------|-------------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|-------------------------------|
| Electric Dryer | 4,038                               | 590,574                          | 590,574                          | 590,574                           | 576,790                          | 98%                           |
| Freezer        | 774                                 | 30,960                           | 30,960                           | 30,960                            | 36,594                           | 118%                          |
| Refrigerator   | 9,358                               | 503,452                          | 503,452                          | 503,452                           | 489,258                          | 97%                           |
| Clothes Washer | 6,111                               | 788,319                          | 788,319                          | 788,319                           | 930,418                          | 118%                          |
| Air Purifier   | 288                                 | 140,544                          | 140,544                          | 140,544                           | 90,868                           | 65%                           |
| Total          | 20,569                              | 2,053,849                        | 2,053,849                        | 2,053,849                         | 2,123,928                        | 103%                          |

The following discusses factors affecting realization rates that differed substantially from 100%.

- Freezer (118%). The ex ante analysis assumed a savings of 40 kWh for each unit, whereas the ex post per unit savings varied by unit size and configuration.
- Refrigerator (97%). The ex ante analysis assumed a savings of 66 kWh or 50 kWh for each unit, whereas the ex post per unit savings varied by unit size and configuration.
- Air purifier (65%). The ex ante savings estimate assumed a saving of 488 kWh for each air purifier, whereas the ex post savings varied by the clean air delivery rate and ranged from 133 kWh per unit to 570 kWh per unit.

Table 5-3 summarizes the gross peak demand reduction of the ENERGY STAR® Appliances Program. The gross peak demand reduction for the program was 267.46 kW, with a realization rate of 85%.

Table 5-3 Measure-Level Annual Gross kW Savings

| <i>Measure</i> | <i>Quantity of Measures Incited</i> | <i>Ex Ante Gross kW Savings</i> | <i>Gross Audited kW Savings</i> | <i>Gross Verified kW Savings</i> | <i>Ex Post Gross kW Savings</i> | <i>Gross Realization Rate</i> |
|----------------|-------------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|-------------------------------|
| Electric Dryer | 4,038                               | 149.04                          | 149.04                          | 149.04                           | 77.45                           | 52%                           |
| Freezer        | 774                                 | 2.84                            | 2.84                            | 2.84                             | 3.97                            | 140%                          |
| Refrigerator   | 9,358                               | 39.25                           | 39.25                           | 39.25                            | 55.81                           | 142%                          |
| Clothes Washer | 6,111                               | 108.66                          | 108.66                          | 108.66                           | 119.85                          | 110%                          |
| Air Purifier   | 288                                 | 14.82                           | 14.82                           | 14.82                            | 10.38                           | 70%                           |
| Total          | 20,569                              | 314.61                          | 314.61                          | 314.61                           | 267.46                          | 85%                           |

#### 5.4. Estimation of Ex Post Net Savings

ADM performed a series of regression analyses on the historical pre-program sales data to forecast qualified product sales had the program not been available. The forecasted sales were then compared to actual sales to estimate the sales resulting from the program.

The approach is consistent with the baselining approach outlined in the ENERGY STAR® Retail Products Platform (RPP): Conditions and Considerations in Evaluating Market Transformation Programs and Evaluation Guidance for RPP guidance document.

We describe the three different models used to analyze the data below.

- **Model 1:** A linear regression model with qualified product sales regressed on a time variable equal to the number of months since the beginning of the historical period and non-qualified product sales for the month. Non-qualified product sales were included in the model to capture sales activity overall. That is, non-qualified sales were included to account for exogenous factors that affect sales of the product category (e.g., supply constraints or economic conditions), and in doing so, we assume that exogenous factors would affect both qualified and non-qualified product sales.
- **Model 2:** A Poisson regression in the same form as regression model 1. A Poisson link was used because count data were regressed on the set of predictors.
- **Model 3:** A probit regression that models market penetration of qualified products. In this model, the ratio of qualified product sales to non-qualified product sales is regressed on the sales quarter.

ADM applied these models to the sales data for each product category. For two products, refrigerators and washers, sales data were run separately for advanced and basic tier units. Advanced and basic tier units were also sold for freezers, but few advanced tier freezers were sold and for that reason, the advanced and basic tiers were combined in the analysis. For all other products, only basic tier units were sold.

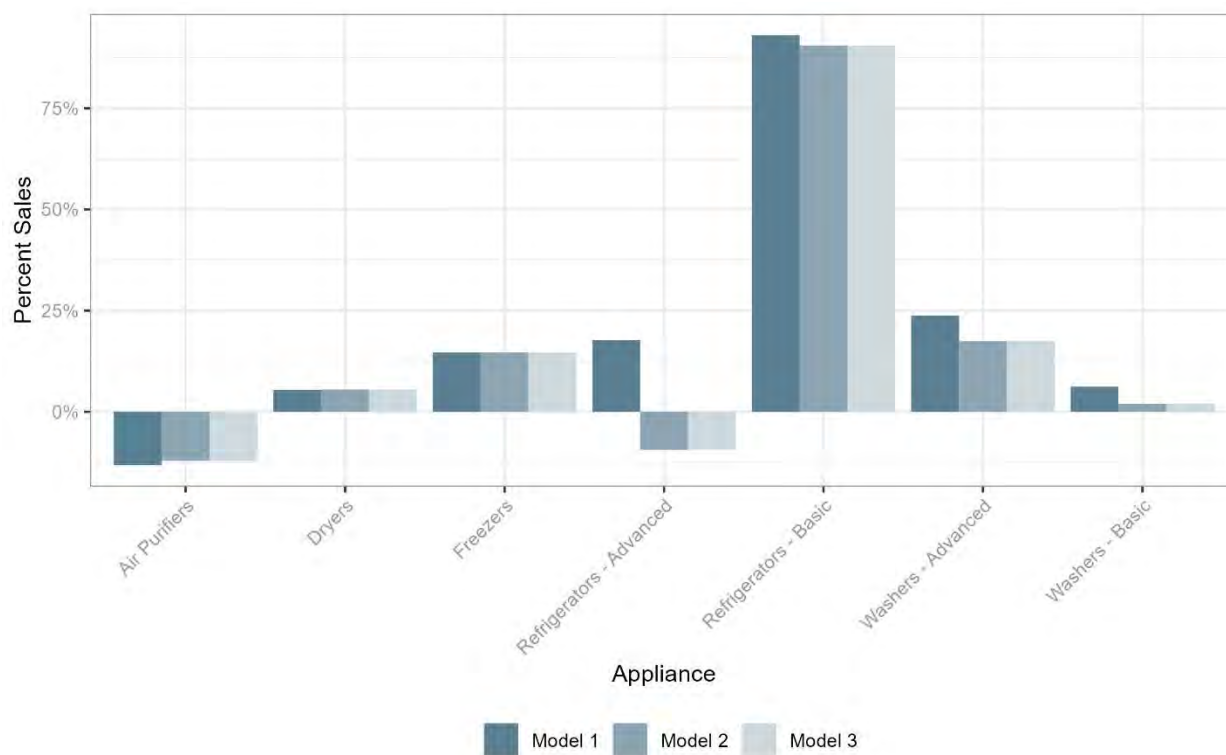
The estimated model coefficients were used to forecast sales of the qualified products in the absence of program support. The model estimated sales were compared to the actual sales to estimate the percentage increase in sales, which is the share of products that were sold due to the program. The increased sales percentage was calculated as:

$$\frac{\text{Observed Sales} - \text{Model Estimated Sales}}{\text{Observed Sales}}$$

The increased sales percentage is a positive value when the observed sales are greater than the forecasted sales and a negative value when the observed sales are less than the forecasted sales.

Figure 5-1 presents the percentage of increased sales estimated using each of the models.

Figure 5-1 Increased Sales Percentage



As shown in Figure 5-1, for most products, the three models produced similar estimates of the percentage of increased sales, but the coefficients were more divergent for advanced refrigerators.

To estimate an overall sales increase, ADM averaged the three model estimates of sales. The average value was weighted by the sum of the squared prediction errors for each of the model estimates. Prediction errors were operationalized as the sum of the squared difference between the predicted and observed values. Put differently, the more closely the model predicted sales aligned with the observed values, the greater the weight applied to that model estimates in calculating the overall average.

To determine if the observed predicted sales increase was statistically significant, ADM calculated the 90% confidence interval for the predicted increase. To calculate the confidence level, ADM calculated the standard error of the summed monthly predictions for each model as the square root of the sum of the standard errors for the monthly predicted values for each model. For example, for model 1, the standard error of the increase was calculated as:

$$SE_{Model\ 1} = \sqrt{\sum_i^n SE_{Model\ 1\ predicted\ value}}$$

To estimate the standard error of the weighted average increase calculated across the three model results, ADM used the following formula:

$$SE_{AverageIncrease} = \sqrt{\frac{\frac{SE_{Model\ 1}}{SSPE_{Model1}} + \frac{SE_{Model\ 2}}{SSPE_{Model2}} + \frac{SE_{Model\ 3}}{SSPE_{Model3}}}{\frac{1}{SSPE_{Model1}} + \frac{1}{SSPE_{Model2}} + \frac{1}{SSPE_{Model3}}}}$$

Figure 5-2 displays plots of the observed and forecasted sales during the pre- and post-program periods. The plots show a marked increase in sales of basic tier refrigerator units beginning in April 2023.



*Figure 5-2 Observed and Forecasted Qualified Product Sales (Vertical Bar Divides the Pre and Post Program Periods)*

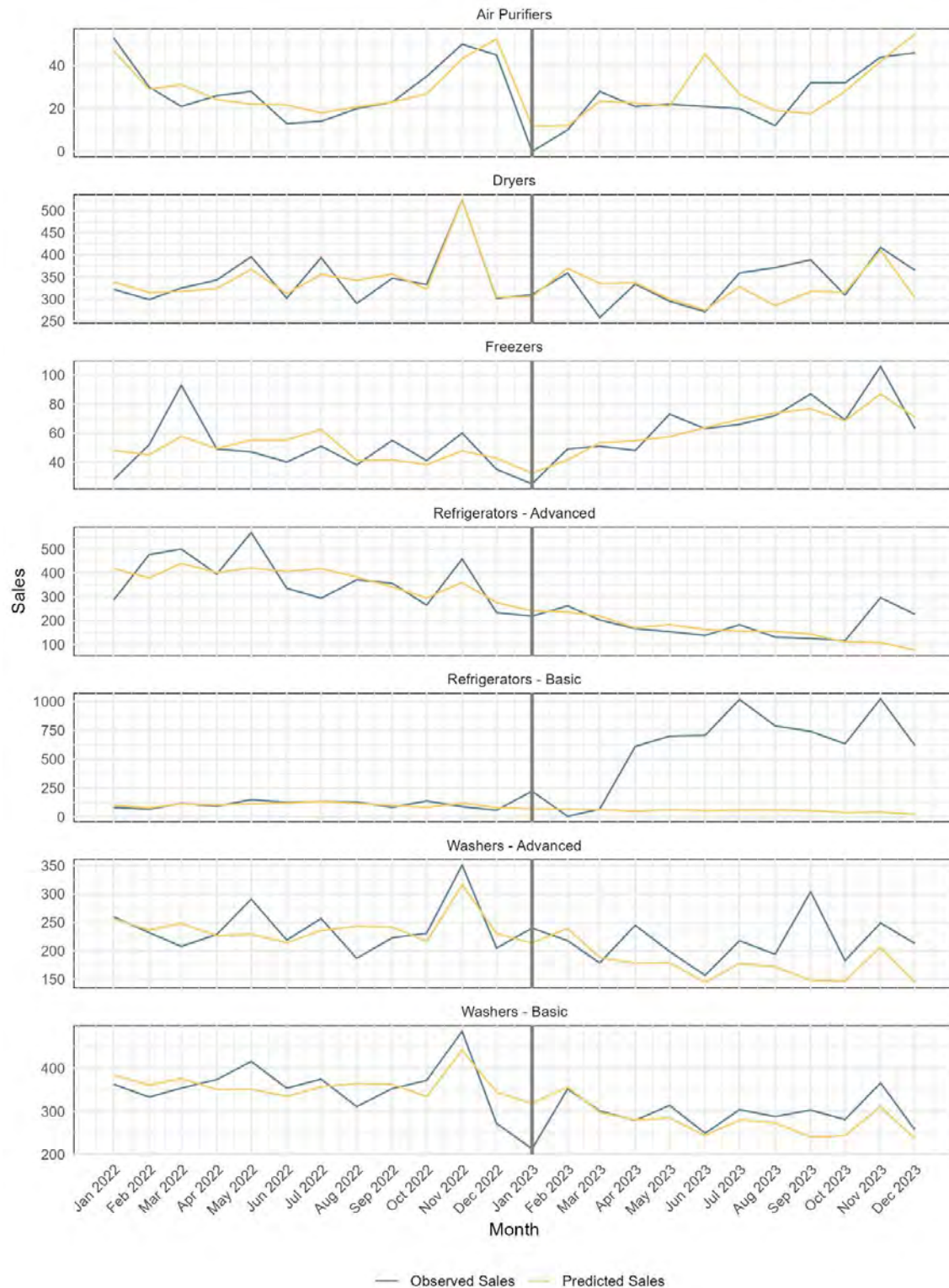
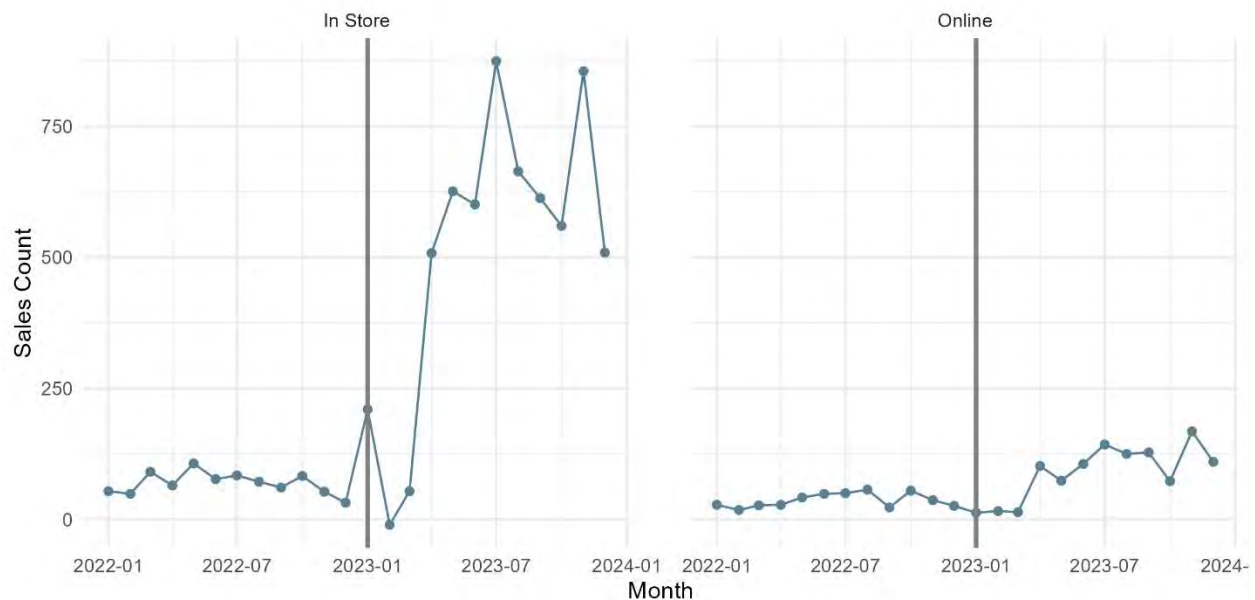


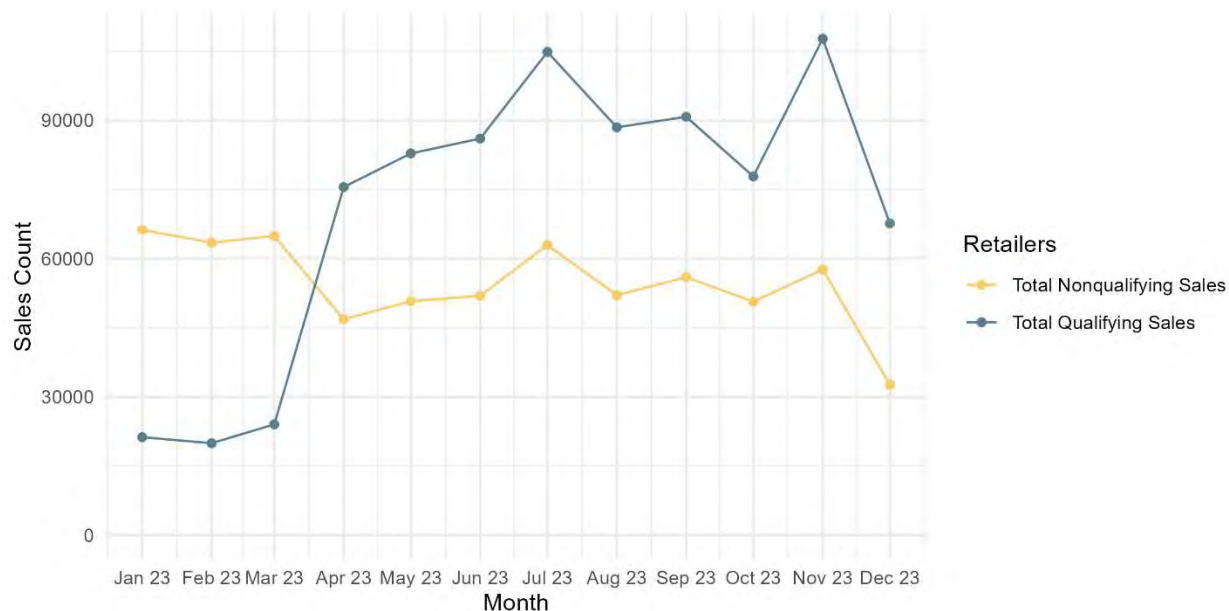


Figure 5-3 breaks out the basic tier ENERGY STAR® refrigerator sales by online and in-store sales. Although not shown because of the data confidentiality requirements for use of the use of retail products platform data, this pattern of sales is also present across multiple retailers and refrigerator manufacturers.

*Figure 5-3 In Store and Online Basic Tier ENERGY STAR Refrigerator Sales (Vertical Bar Divides the Pre and Post Program Periods)*



As shown in Figure 5-2, the national trend in observed sales for refrigerators through the ENERGY STAR® Retail Products Platform that met the basic ENERGY STAR® standard was anomalous because the sales were several times higher during the post period than during the pre-period. The increase began in April 2023 and remained high for the remainder of 2023.

*Figure 5-4 National Sales Trend for Basic Tier Refrigerators*

#### 5.4.1. Results of Ex Post Net Savings Estimation

ADM assumed that the net impact of the program was 0 if the net sales value 1) was negative, indicating that sales were less than predicted based on pre-program sales or 2) the 90% confidence interval for the increase in sales contained 0, suggesting that the sales increase was within the range of normal sample variation. As such, ADM assumed the net program effect for these products was 0. Table 5-4 summarizes the sales effects used to estimate the program savings.

*Table 5-4 Final Net Sale Values*

| <i>Product</i>           | <i>Average Increase</i> | <i>90% Confidence Interval (Lower/Upper)</i> | <i>Percent Increase in Sales</i> |
|--------------------------|-------------------------|--|----------------------------------|
| Air Purifiers            | -37                     | -51 / -22                                    |                                  |
| Dryers                   | 156                     | 129 / 183                                    | 4%                               |
| Freezers                 | 23                      | 3 / 42                                       | 3%                               |
| Refrigerators - Advanced | 257                     | 213 / 301                                    | 12%                              |
| Refrigerators - Basic    | 6,484                   | 6,459 / 6,509                                | 91%                              |
| Washers - Advanced       | 458                     | 429 / 487                                    | 18%                              |
| Washers - Basic          | 141                     | 108 / 173                                    | 4%                               |

Table 5-5 compares the net sales impact found for the I&M program and compares it to values found in three other evaluations of the ENERGY STAR® Retail Products Platform. As shown, the estimates are variable but there is some consistency for dryers, and advanced refrigerators. Each of the benchmark evaluations was performed for the first year the program was offered.

Table 5-5 Percent Increase Benchmark Comparison

| Product                  | I&M  | Con Edison | PG&E  | ComEd* |
|--------------------------|------|------------|-------|--------|
| Air Purifiers            | -13% |            | -5%   |        |
| Dryers                   | 4%   | 10%        | 8%    |        |
| Freezers                 | 3%   | 11%        | 63%   |        |
| Refrigerators - Advanced | 12%  | 15%        | 15%   | 0%     |
| Refrigerators - Basic    | 91%  |            | 2%    |        |
| Washers - Advanced       | 18%  | -43%       | -104% | 2%     |
| Washers - Basic          | 4%   |            | 85%   |        |

Sources:

Con Edison Retail Products Platform (RPP) Evaluation 2017. EMI Consulting. June 2018.

Pacific Gas & Electric ENERGY STAR Retail Products Platform (ESRPP). Program Pilot Early Evaluation. Final Report. January 2019.

ComEd ENERGY STAR Retail Products Platform Pilot Impact Evaluation Report. Program Year 2020 (CY2020). Guidehouse. April 2021.

\*ComEd's program included basic and advanced tiers, but incentives were only provided for basic-tier clothes washers and advanced-tier refrigerators.

Table 5-6 summarizes the ex post annual net kWh and kW savings of the ENERGY STAR® Appliances Program. The annual net savings totaled 494,604 kWh and 58.48 kW.

Table 5-6 Program-Level Annual Net kWh and kW Savings

| Category                          | kWh       | kW     |
|-----------------------------------|-----------|--------|
| Ex Ante Gross Savings             | 2,053,849 | 314.61 |
| Gross Audited Savings             | 2,053,849 | 314.61 |
| Gross Verified Savings            | 2,053,849 | 314.61 |
| Ex Post Gross Savings             | 2,123,928 | 267.46 |
| Gross Realization Rate            | 103%      | 85%    |
| Ex Post Free Ridership            | 1,629,324 | 208.97 |
| Ex Post Non-Participant Spillover | 0         | -      |
| Ex Post Participant Spillover     | 0         | -      |
| Ex Post Net Savings               | 494,604   | 58.48  |
| Net-to-Gross Ratio                | 23%       | 22%    |
| Ex Post Net Lifetime Savings      | 8,060,877 | NA     |

### 5.5. Findings and Recommendations

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**The modeling results indicate low to moderate increases in sales attributable to the program, with a significant impact observed for basic tier refrigerators.** These findings align with those from other evaluations of the same program, except for the unusually high increase (91%) in basic tier refrigerator sales over baseline, which surpasses increases noted for other measures and programs. This rise in sales was consistent across different retailers and manufacturers, as reflected in national data from the ENERGY STAR® Retail Products Platform (ESRPP) portal.

Although this pattern may suggest the influence of the program intervention, the extent and timing of the change—specifically between March and April 2023—raise the possibility of other contributing factors. Analysis by ADM to pinpoint non-program related causes, such as updates in appliance standards, did not yield any findings. Thus, ADM applied the result from the baselining methodology recommended in the “ENERGY STAR® Retail Products Platform (RPP): Conditions and Considerations in Evaluating Market Transformation Programs” evaluation guidance document. It is important to acknowledge that despite the baselining approach being a pragmatic approach for assessing program impacts for this program model, it introduces uncertainties in establishing direct causality from the observed pre- and post-program data, due to the inability to completely rule out the potential influence of external factors. This caution also extends to conclusions about relatively small program impacts.

- **Recommendation 1: Program staff should consider that the results of the net program effect analysis could vary significantly from year to year.** While the net sales above the baseline sales were high this year for basic refrigerators, this may not be replicated in future years.

## 6. Home HVAC Midstream

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This chapter presents the results of both the impact and process evaluations of the 2023 Home HVAC Midstream Program that Indiana Michigan Power (I&M) offered to its residential customers during the period of January 2023 through December 2023.

The objectives of the evaluation were to:

- Assess gross and net energy (kWh) savings and peak demand (kW) reductions resulting from participation in the program during the program year.
- Complete a process evaluation of the program.
- Provide recommendations for program improvement as appropriate.

### 6.1. Program Description

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The rebates provided in the Home HVAC Midstream Program offset a portion of the cost barriers inhibiting the local stocking practices for more efficient HVAC measures. The prescriptive rebates in this program are pre-determined cash reimbursements for typical energy efficiency measures undertaken by residential end use customers. Measure rebates in this program are designed with the intent to provide a partial offset of the incremental measure cost but serve to offset the cost for distributors to stock the more efficient measures eligible for rebates in this program.

### 6.2. Data Collection

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Data used to support the impact evaluation of the program included:

- Program tracking data from the primary tracking database;
- Program summary data from the I&M DSM EE Program Scorecard; and
- Participant survey data and/or distributor interview data.

ADM collected data from customers that receive the rebated equipment and from participating distributors. This data was used to confirm the installation of the measures, provide data on the appropriate baseline for the installation, and inform the process evaluation and estimation of net savings.

Table 6-1 summarizes the data collection activities. ADM aimed to conduct a survey of all end-users who installed the equipment eligible for rebates by the end of October 2023. To engage participants, a letter containing a QR code, and a link was sent out to customers. This initial contact was supplemented by telephone outreach, during which a maximum of three calls were made to each customer. For participating in the survey, end-users received a \$10 gift card.

The distributor recruitment approach included, an initial email communication from ADM inviting distributors to the interview, email follow up by I&M's implementation contractor to encourage distributors to participate, and telephone follow-up by ADM to recruit interview respondents. Distributors were offered a \$50 gift card to complete the interview.

Table 6-1 Home HVAC Midstream Survey and Interview Data Collection

| Survey                                     | Mode                                   | Time Frame    | Number of Contacts | Number of Completions |
|--|--|---------------|--------------------|-----------------------|
| Home HVAC Midstream Customer Survey        | Mailed letter with telephone follow up | November 2023 | 102                | 25                    |
| Home HVAC Midstream Distributor Interviews | Telephone                              | November 2023 | 6                  | 2                     |

### 6.3. Estimation of Ex Post Gross Savings

#### 6.3.1. Methodology for Estimating Ex Post Gross Energy Savings

##### 6.3.1.1. Review of Documentation

ADM reviewed the program tracking data and to ensure that the data provides sufficient information to identify unique customers for surveying and to calculate energy and demand impacts. The data from the system was reviewed for duplicate entries.

##### 6.3.1.2. Procedures for Estimating Measure-Level Gross Energy Savings

Table 6-2 presents information on savings calculation formulas, savings calculation inputs, incremental cost, and effective useful life values and data sources applicable to the ENERGY STAR® Retail Products Platform.

Table 6-2 Home HVAC Midstream Program Calculation Input Information

| Variable Type                           | Variable Name             | Variable Value | Variable Value Source   |
|---|---------------------------|----------------|---|
| <b>Measure Name: Ductless Heat Pump</b> |                           |                |   |
| Savings - 1                             | $\Delta kWh$ Baseline 1   |                | $\frac{((Capacity_{heat\_ee} / HSPF_{base}) - (Capacity_{heat\_ee} / HSPF_{ee}))}{1000 * EFLH_{heat}} + \frac{((Capacity_{cool\_ee} / SEER_{base}) - (Capacity_{cool\_ee} / SEER_{ee}))}{1000 * EFLH_{cool}} + \frac{((Heating\_kwh_{exist} - ((Capacity_{heat\_ee} / HSPF_{base}) / 1000 * EFLH_{heat})) * ER_{factor}) + (((Capacity_{cool\_exist} / SEER_{exist}) - (Capacity_{cool\_ee} / SEER_{base})) / 1000 * ER_{factor} * EFLH_{cool})}{1000 * ER_{factor} * EFLH_{cool}}$ |
| Savings - 2                             | $\Delta kW$ Baseline 1    |                | $\frac{((Capacity_{cool\_ee} / EER_{base}) - (Capacity_{cool\_ee} / EER_{ee}))}{1000 * CF} + \frac{((Capacity_{cool\_exist} / EER_{exist}) - (Capacity_{cool\_exist} / EER_{base}))}{1000 * CF * ER_{factor}}$  |
| Savings - 2                             | $\Delta kWh$ (Baseline 2) |                | $\frac{((Capacity_{heat\_ee} / HSPF_{base}) - (Capacity_{heat\_ee} / HSPF_{ee}))}{1000 * EFLH_{heat}} + \frac{((Capacity_{cool\_ee} / SEER_{base}) - (Capacity_{cool\_ee} / SEER_{ee}))}{1000 * EFLH_{cool}}$   |
| Savings - 2                             | $\Delta kW$ (Baseline 2)  |                | $\frac{((Capacity_{cool\_ee} / EER_{base}) - (Capacity_{cool\_ee} / EER_{ee}))}{1000 * CF}$   |
| Input                                   | $Capacity_{cool\_exist}$  | Varies         | Tracking data.  |
| Input                                   | $Capacity_{cool\_ee}$     | Varies         | Tracking data.  |
| Input                                   | $EFLH_{cool}$             | Varies         | Indiana TRM V2.2, p. 104.   |
| Input                                   | $SEER_{exist}$            | 11.15          | Indiana TRM V2.2, p. 104.   |
| Input                                   | $SEER_{base}$             | 13.28          | Illinois TRM 11.0 Vol. 3, p. 177.   |

## Indiana Residential Portfolio

| <i>Variable Type</i>                      | <i>Variable Name</i>       | <i>Variable Value</i> | <i>Variable Value Source</i>  |
|---|----------------------------|-----------------------|---|
| Input                                     | <i>SEER_ee</i>             | Varies                | AHRI. Characteristics of applicable equipment.  |
| Input                                     | <i>EER_exist</i>           | Varies                | Indiana TRM V2.2, p. 105.   |
| Input                                     | <i>EER_base</i>            | 11.35                 | Illinois TRM 11.0 Vol. 3, p. 177.   |
| Input                                     | <i>EER_ee</i>              | Varies                | AHRI. Characteristics of applicable equipment.  |
| Input                                     | <i>Capacity_heat_ee</i>    | Varies                | Tracking data.  |
| Input                                     | <i>EFLH_heat</i>           | Varies                | Indiana TRM V2.2, p. 104.   |
| Input                                     | <i>HSPF_base</i>           | 5.53                  | Illinois TRM 11.0 Vol. 3, p. 177.   |
| Input                                     | <i>HSPF_ee</i>             | Varies                | AHRI. Characteristics of applicable equipment.  |
| Input                                     | <i>CF</i>                  | 0.88                  | Indiana TRM V2.2, p. 105.   |
| Input                                     | <i>Heating_kwh_exist</i>   | Varies                | Pre-project annual electric energy usage. Based on econometric analysis of interval meter data and capped at estimate of electric resistance baseline usage.  |
| Input                                     | <i>ER_factor</i>           | Varies                | Based on analysis of survey responses.  |
| EUL - 1                                   |                            | 5                     | Indiana TRM V2.2, p. 102-103.   |
| EUL - 2                                   |                            | 13                    | Indiana TRM V2.2, p. 102-103.   |
| Inc Cost                                  |                            | Varies                | Illinois TRM V11.0 Vol. 3 Vol. 3, p. 178-189.   |
| <b>Measure Name: Air Source Heat Pump</b> |                            |                       |   |
| Savings - 1                               | <i>ΔkWh Baseline 1</i>     |                       | $\begin{aligned} &(((\text{Capacity\_heat\_ee} / \text{HSPF\_base}) - (\text{Capacity\_heat\_ee} / \text{HSPF\_ee})) / 1000 * \text{EFLH\_heat}) + (((\text{Capacity\_cool\_ee} / \text{SEER\_base}) - (\text{Capacity\_cool\_ee} / \text{SEER\_ee})) / 1000 * \text{EFLH\_cool}) + \\ &((\text{Heating\_kwh\_exist} - ((\text{Capacity\_heat\_ee} / \text{HSPF\_base}) / 1000 * \text{EFLH\_heat})) * \text{ER\_factor}) + (((\text{Capacity\_cool\_exist} / \text{SEER\_exist}) - (\text{Capacity\_cool\_ee} / \text{SEER\_base})) / 1000 * \text{ER\_factor} * \text{EFLH\_cool}) \end{aligned}$ |
| Savings - 2                               | <i>ΔkW Baseline 1</i>      |                       | $((\text{Capacity\_cool\_ee} / \text{EER\_base}) - (\text{Capacity\_cool\_ee} / \text{EER\_ee})) / 1000 * \text{CF} + ((\text{Capacity\_cool\_exist} / \text{EER\_exist}) - (\text{Capacity\_cool\_exist} / \text{EER\_base})) / 1000 * \text{CF} * \text{ER\_factor}$  |
| Savings - 2                               | <i>ΔkWh (Baseline 2)</i>   |                       | $(((\text{Capacity\_heat\_ee} / \text{HSPF\_base}) - (\text{Capacity\_heat\_ee} / \text{HSPF\_ee})) / 1000 * \text{EFLH\_heat}) + (((\text{Capacity\_cool\_ee} / \text{SEER\_base}) - (\text{Capacity\_cool\_ee} / \text{SEER\_ee})) / 1000 * \text{EFLH\_cool})$   |
| Savings - 2                               | <i>ΔkW (Baseline 2)</i>    |                       | $((\text{Capacity\_cool\_ee} / \text{EER\_base}) - (\text{Capacity\_cool\_ee} / \text{EER\_ee})) / 1000 * \text{CF}$  |
| Input                                     | <i>Capacity_cool_exist</i> | Varies                | Tracking data.  |
| Input                                     | <i>Capacity_cool_ee</i>    | Varies                | Tracking data.  |
| Input                                     | <i>EFLH_cool</i>           | Varies                | Indiana TRM V2.2, p. 104.   |
| Input                                     | <i>SEER_exist</i>          | 11.15                 | Indiana TRM V2.2, p. 104.   |
| Input                                     | <i>SEER_base</i>           | 14                    | Illinois TRM 11.0 Vol. 3, p. 94.  |
| Input                                     | <i>SEER_ee</i>             | Varies                | AHRI. Characteristics of applicable equipment.  |
| Input                                     | <i>EER_exist</i>           | Varies                | Indiana TRM V2.2, p. 105.   |
| Input                                     | <i>EER_base</i>            | 11                    | Illinois TRM 11.0 Vol. 3, p. 103.   |
| Input                                     | <i>EER_ee</i>              | Varies                | AHRI. Characteristics of applicable equipment.  |
| Input                                     | <i>Capacity_heat_ee</i>    | Varies                | Tracking data.  |
| Input                                     | <i>EFLH_heat</i>           | Varies                | Indiana TRM V2.2, p. 104.   |
| Input                                     | <i>HSPF_base</i>           | 8.2                   | Illinois TRM 11.0 Vol. 3, p. 96.  |



| <i>Variable Type</i>                         | <i>Variable Name</i>     | <i>Variable Value</i> | <i>Variable Value Source</i>  |
|--|--------------------------|-----------------------|---|
| Input  | <i>HSPF_ee</i>           | Varies                | AHRI. Characteristics of applicable equipment.  |
| Input  | <i>CF</i>                | 0.88                  | Indiana TRM V2.2, p. 105.   |
| Input  | <i>Heating_kwh_exist</i> | Varies                | Pre-project annual electric energy usage. Based on econometric analysis of interval meter data and capped at estimate of electric resistance baseline usage.  |
| Input  | <i>ER_factor</i>         | Varies                | Based on analysis of survey responses.  |
| EUL - 1                                      |                          | 5                     | Indiana TRM V2.2, p. 102-103.   |
| EUL - 2                                      |                          | 13                    | Indiana TRM V2.2, p. 102-103.   |
| Inc Cost                                     |                          | Varies                | Illinois TRM V11.0 Vol. 3 Vol. 3, p. 91.  |
| <b>Measure Name: Central Air Conditioner</b> |                          |                       |   |
| Savings - 1                                  | <i>ΔkWh Baseline 1</i>   |                       | $((\text{Capacity\_cool} / \text{SEER\_base}) - (\text{Capacity\_cool} / \text{SEER\_ee})) / 1000 * \text{EFLH\_cool}) + ((\text{Capacity\_cool} / \text{SEER\_exist}) - (\text{Capacity\_cool} / \text{SEER\_base})) / 1000 * \text{ER\_factor} * \text{EFLH\_cool}$ |
| Savings - 2                                  | <i>ΔkW Baseline 1</i>    |                       | $((\text{Capacity\_cool} / \text{EER\_base}) - (\text{Capacity\_cool} / \text{EER\_ee})) / 1000 * \text{CF}) + ((\text{Capacity\_cool} / \text{EER\_exist}) - (\text{Capacity\_cool} / \text{EER\_base})) / 1000 * \text{ER\_factor} * \text{CF}$                     |
| Savings - 2                                  | <i>ΔkWh (Baseline 2)</i> |                       | $((\text{Capacity\_cool} / \text{SEER\_base}) - (\text{Capacity\_cool} / \text{SEER\_ee})) / 1000 * \text{EFLH\_cool}$  |
| Savings - 2                                  | <i>ΔkW (Baseline 2)</i>  |                       | $((\text{Capacity\_cool} / \text{EER\_base}) - (\text{Capacity\_cool} / \text{EER\_ee})) / 1000 * \text{CF}$  |
| Input  | <i>Capacity_cool</i>     | Varies                | Tracking data.  |
| Input  | <i>Capacity_cool</i>     | Varies                | Tracking data.  |
| Input  | <i>EFLH_cool</i>         | Varies                | Indiana TRM V2.2, p. 97.  |
| Input  | <i>SEER_exist</i>        | 11.15                 | Indiana TRM V2.2, p. 97.  |
| Input  | <i>SEER_base</i>         | 13                    | Illinois TRM 11.0 Vol. 3, p. 114.   |
| Input  | <i>SEER_ee</i>           | Varies                | AHRI. Characteristics of applicable equipment.  |
| Input  | <i>EER_exist</i>         | Varies                | Indiana TRM V2.2, p. 98.  |
| Input  | <i>EER_base</i>          | 10.5                  | Illinois TRM 11.0 Vol. 3, p. 116.   |
| Input  | <i>EER_ee</i>            | Varies                | AHRI. Characteristics of applicable equipment.  |
| Input  | <i>CF</i>                | 0.88                  | Indiana TRM V2.2, p. 105.   |
| Input  | <i>ER_factor</i>         | Varies                | Based on analysis of survey responses.  |
| EUL - 1                                      |                          | 5                     | Indiana TRM V2.2, p. 95.  |
| EUL - 2                                      |                          | 13                    | Indiana TRM V2.2, p. 95.  |
| Inc Cost                                     |                          | Varies                | Illinois TRM V11.0 Vol. 3 Vol. 3, p. 91.  |

### 6.3.1.2.1. Early Replacement Analysis

#### 6.3.1.2.1.1 Determining Early Replacement Likelihood Score (*ER\_factor*)

Responses to the following two participant survey questions were used to develop estimates of *ER\_factor* referenced in Table 6-2, which is the likelihood that an early replacement baseline is applicable to the estimation of equipment savings:



- Question 1 (LIKELIHOOD): Using a scale where 0 is “not at all likely” and 10 is “very likely”, how likely is it that you would have installed the same [EQUIPMENT\_TYPE] at about the same time if you had not received the discount?
- Question 2 (TIMING): When might you have installed the same [EFF\_MEASURE1/2] if the discount was not available?

Survey respondent  $ER\_Factor$  is calculated as follows:

$$ER\_factor = IF(TIMING \geq \text{two years}, (10 - LIKELIHOOD) / 10, 0)$$

If a customer is a survey respondent, then, in the savings analysis,  $ER\_factor$  is equal to value calculated per the formula above based on the customer’s survey responses. If a customer is a survey non-respondent, then  $ER\_factor$  is set equal to the average  $ER\_factor$  of survey respondents for the applicable measure.

#### 6.3.1.2.1.2 Determining Incremental Early Replacement Savings

Stipulated values and new equipment capacity values were employed to calculate the kWh estimates for normal replacement heating and cooling, as well as incremental early replacement cooling.

However, for estimating incremental early replacement heating savings, a different methodology was utilized due to the lack of data on pre-existing equipment characteristics. This methodology used customer interval energy usage data to establish the existing equipment baseline energy use for early replacements. The three-step process used to estimate the existing equipment energy use is described below.

#### Step 1. Develop initial estimate of existing heating energy usage.

For participants with complete interval energy usage data for 2022, econometric analysis of interval usage data was conducted using the following model:

$$kWh_i = B_0 + B_{1CDH_i} + B_{2HDH_i} + e_i$$

Where:

$kWh$  = Dependent variable; hourly power (kWh).

$CDH$  =  $MAX(\text{Outdoor Temperature} - 65^\circ F, 0)$

$HDH$  =  $MAX(65^\circ F - \text{Outdoor Temperature}, 0)$

Interval usage data-based estimates of annual heating energy usage ( $kWh\_exist\_heat\_ami$ ) are calculated as follows:

- If the t-statistic of the meter-specific value of B2 resulting from estimation of the model described above was less than 10.0, we set  $kWh\_exist\_heat\_ami$  equal to 0.

- If the t-statistic of the meter-specific value of B2 resulting from estimation of the model described above was equal to or greater than 10.0, we calculated kWh\_exist\_heat\_ami by multiplying the sum of the applicable annual heating degree hours (HDH) by the meter-specific value of B2 resulting from estimation of the model described above.

**Step 2. Cap initial estimate of existing heating energy usage at estimated resistance heating unit energy usage.**

Heating\_kwh\_inter was calculated as:

$$\text{Heating\_kwh\_exist\_inter} = \text{MIN}(\text{kWh\_exist\_heat\_ami}, \text{Electric\_resistance\_heating\_kWh})$$

Where:

$$\text{Electric\_resistance\_heating\_kWh} = ((\text{Capacity\_heat} * \text{EFLH\_heat} * (1 / 3.41)) / 1000)$$

**Step 3. Develop final estimate of existing heating energy usage, ensuring that no incremental early replacement heating energy savings are calculated unless substantiated by results of the analysis of interval data.**

Then, Heating\_kwh\_exist was calculated as:

$$\text{Heating\_kwh\_exist} = \text{MAX}(\text{Heating\_kwh\_exist\_inter}, \text{Baseline\_unit\_heating\_kwh})$$

Where:

$$\text{Baseline\_unit\_heating\_kwh} = ((\text{Capacity\_heat} * \text{EFLH\_heat} * (1 / \text{HSPF\_base})) / 1000)$$

Application of the third step ensures that incremental heating early replacement savings equal 0 kWh when there was insufficient pre-project kWh usage to substantiate a finding of incremental early replacement savings.

Again, incremental heating early replacement savings are calculated as:

$$(\text{Heating\_kwh\_exist} - (\text{Capacity\_heat} / \text{HSPF\_base} / 1000 * \text{EFLH\_heat})) * \text{ER\_factor}$$

ER\_factor is the estimated likelihood that an early replacement baseline is applicable. If a customer was a survey respondent, then ER\_factor was equal a value between 0 and 1 based on responses related to when equipment replacement would have occurred in the absence of the program. If a customer is a survey non-respondent, then ER\_factor was set equal to the average ER\_factor of survey respondents for the applicable measure.

### 6.3.2. Results of Ex Post Gross Savings Estimation

Table 6-3 summarizes the gross kWh savings of the Home HVAC Midstream Program by measure. The ex post annual energy savings for the program were 432,546 kWh with a realization rate of 73%.

Table 6-3 Measure-Level Annual Gross kWh Savings

| <i>Measure</i>          | <i>Quantity of Measures Incited</i> | <i>Ex Ante Gross kWh Savings</i> | <i>Gross Audited kWh Savings</i> | <i>Gross Verified kWh Savings</i> | <i>Ex Post Gross kWh Savings</i> | <i>Gross Realization Rate</i> |
|-------------------------|-------------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|-------------------------------|
| Ductless Heat Pump      | 55                                  | 118,322                          | 118,322                          | 118,322                           | 150,955                          | 128%                          |
| Air Source Heat Pump    | 181                                 | 437,766                          | 437,766                          | 437,766                           | 262,535                          | 60%                           |
| Central Air Conditioner | 87                                  | 36,177                           | 36,177                           | 36,177                            | 19,056                           | 53%                           |
| Total                   | 323                                 | 592,265                          | 592,265                          | 592,265                           | 432,546                          | 73%                           |

The following discusses factors affecting realization rates that differed substantially from 100%.

- Ductless heat pump (128%). Ex ante savings estimates ranged from 297 kWh to 2,323 kWh. The ex post analysis savings values ranged from 1,123 kWh to 5,060 kWh. Ex ante savings were larger than ex post estimates for smaller units and lower than ex post savings for larger capacity units.
- Air source heat pump (60%). Most of the measures installed were SEER 21 units and the ex ante savings estimate was 2,470 kWh for those units compared the 1,496 kWh ex post savings.
- Central air conditioner (53%). Ex ante air conditioner savings were higher than ex post savings for smaller units under 40,000 BTU/h but, approached or exceeded ex post savings for larger units. Additionally, there were seven units with ex ante savings that ranged from 1,840 kWh to 2,470 kWh, which equaled between 7% and 20% of the ex post savings.

In addition to the overestimation of savings discussed above, ADM identified five units with a measure name that did not correspond to the measure identified based on reviewing the AHRI number. As shown in Table 6-4 below, there was not a consistent pattern to the misidentifications.

Table 6-4 Instances of Missidentified Measures

| <i>Original Measure Name</i>              | <i>Corrected Measure Name</i>          |
|---|--|
| RES-MIDMINISP-1: Midstream Mini Splits    | RES-MIDSTHP-1: Midstream Heat Pump     |
| RES-MIDMINISP-1: Midstream Mini Splits    | RES-MIDSTHP-1: Midstream Heat Pump     |
| RES-MIDSTHP-1: Midstream Heat Pump        | RES-MIDMINISP-1: Midstream Mini Splits |
| RES-MIDSTHP-1: Midstream Heat Pump        | RES-MIDHVAC-1: Midstream Central Air   |
| RES-DHWMIDHP-1: Midstream HP Water Heater | RES-MIDSTHP-1: Midstream Heat Pump     |

Table 6-5 summarizes the gross peak demand reduction of the HVAC Midstream Program. The gross peak demand reduction for the program was 90.70 kW, with a realization rate of 57%.

Table 6-5 Measure-Level Annual Gross kW Savings

| <i>Measure</i>          | <i>Quantity of Measures Incited</i> | <i>Ex Ante Gross kW Savings</i> | <i>Gross Audited kW Savings</i> | <i>Gross Verified kW Savings</i> | <i>Ex Post Gross kW Savings</i> | <i>Gross Realization Rate</i> |
|-------------------------|-------------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|-------------------------------|
| Ductless Heat Pump      | 55                                  | 42.00                           | 42.00                           | 42.00                            | 9.92                            | 24%                           |
| Air Source Heat Pump    | 181                                 | 63.31                           | 63.31                           | 63.31                            | 46.72                           | 74%                           |
| Central Air Conditioner | 87                                  | 54.71                           | 54.71                           | 54.71                            | 34.06                           | 62%                           |
| Total                   | 323                                 | 160.02                          | 160.02                          | 160.02                           | 90.70                           | 57%                           |

#### 6.4. Estimation of Ex Post Net Savings

For the HVAC Midstream Program, ADM assessed free ridership using data collected from a customer survey for those who received discounted HVAC equipment and interviews with participating distributors. These methods aimed to identify both direct and indirect impacts of the program on the adoption of high-efficiency HVAC units. The program's direct effect on end-users was through offering discounts that reduced costs for end-users. Indirectly, it influenced the market by increasing the availability of efficient units and motivating distributors to promote these to buyers.

The integration of data from end-users and distributors was as follows:

- When End-Users Were Aware of the Discount, free ridership was estimated using the lower score between the end-user's and the average distributor's free ridership scores.
- When End-Users Were Unaware of the Discount, the average distributor score alone was utilized for free ridership estimation.

The approach to estimating free ridership for end-users and distributors is described below.

##### 6.4.1.1. Estimation End-User Free Ridership

The methodology for calculating end-user free ridership relies on participant responses in three key areas:

**Prior Intent to Install Efficient Equipment:** Determined by two questions:

- "Were you planning to install an energy-efficient [Equipment] before learning about the I&M discount?"
- "If yes, did you intend to specifically install an energy-efficient [Equipment] as opposed to a standard efficiency model?"

End-users who were not planning on installing an efficient system prior to learning about the discount are classified as non-free riders.

**Action in the Absence of Discount:** Evaluated through the question:

- "Without the I&M discount, what would have been your likely course of action?"

Table 6-6 summarizes how the responses to that question were scored.

*Table 6-6 Free Ridership Score of Action Taken without Discount*

| <i>Reported Action Taken without Discount</i>                                     | <i>Free Ridership Score</i> |
|---|-----------------------------|
| You would have bought the exact same system or one that was more energy efficient | 1                           |
| You would have bought a less efficient or lower cost system                       | .5                          |
| You would not have bought a new   | 0                           |

**Likelihood of Installing the Same Equipment Without Discount:** This aspect is quantified by converting the likelihood rating to the question “Using a scale where 0 is “not at all likely” and 10 is “very likely”, how likely is it that you would have installed the same [Equipment] at about the same time if you had not received the discount?” into a score:

- Likelihood Score = Likelihood Rating / 10

#### *6.4.1.2. Estimation Distributor Free Ridership*

Interviews with distributors were used to assess the program influence on distributor sales tactics, stocking practices, and on sales of qualified equipment. The responses and scoring approach are discussed below. Scoring was performed so that larger values indicated a greater likelihood of free ridership.

Because a limited number of distributor interviews were completed, the net savings analysis of distributor responses used responses from distributors operating in Indiana and in Michigan where I&M also offers the midstream program.

**Program Influence on Sales Tactics:** A sales tactics score was developed based on distributor reported tactics taken to sell more program-qualified equipment. Specifically, the sales tactics score was calculated by subtracting 0.2 from 1.0, so that lower scores indicated lower potential free-ridership, for each of the following tactics that a distributor reported taking:

- Upsell contractors to purchase program-qualified units.
- Conduct training workshops for contractors.
- Marketing of program-qualified units.
- Discuss the benefits of program-qualified units with design professionals (e.g., engineers or architects).
- Develop marketing or informational materials for service providers to use.

**Program Influence on Stocking:** Distributors who reported that they had increased their stocking of program qualified equipment because of the program were assigned a stocking score of 0 and all others were assigned a stocking score of 1.

**Program Influence Score:** The program influence score was developed using the distributors 0 to 10 rating on how influential the program has been on their sales of program qualified equipment. Specifically, the score was equal to 1 minus the rating divided by 10.

The overall free ridership score was equal to the average of the sales tactics, influence on sales, and stocking scores.

#### *6.4.1.3. Estimation of Participant Spillover*

There is limited opportunity for spillover in the midstream program because all qualified measure sales by participating distributors are included in the program sales. For this reason, ADM did not assess participant spillover.

#### *6.4.1.4. Estimation of Non-Participant Spillover*

ADM estimated non-participant spillover through a survey of non-participating customers in PY2021. No spillover was identified, and ADM did not apply non-participant savings to the PY2023 net savings estimate.

### **6.4.2. Results of Ex Post Net Savings Estimation**

Table 6-7 summarizes the free ridership rates developed from the survey of end-users and interviews with distributors.

*Table 6-7 Summary of Free Ridership Rates*

| <i>Measure Type</i>     | <i>Number of Responses</i> | <i>Free Ridership</i> |
|-------------------------|----------------------------|-----------------------|
| Ductless Heat Pump      | 5                          | 22%                   |
| Air Source Heat Pump    | 4                          | 42%                   |
| Central Air Conditioner | 15                         | 29%                   |

Table 6-8 summarizes the ex post annual net kWh and kW savings of the Home HVAC Midstream Program. The annual net savings totaled 290,703 kWh and 61.58 kW.

*Table 6-8 Program-Level Annual Net kWh and kW Savings*

| <i>Category</i>                   | <i>kWh</i> | <i>kW</i> |
|-----------------------------------|------------|-----------|
| Ex Ante Gross Savings             | 592,265    | 160.02    |
| Gross Audited Savings             | 592,265    | 160.02    |
| Gross Verified Savings            | 592,265    | 160.02    |
| Ex Post Gross Savings             | 432,546    | 90.70     |
| Gross Realization Rate            | 73%        | 57%       |
| Ex Post Free Ridership            | 141,844    | 29.12     |
| Ex Post Non-Participant Spillover | 0          | -         |
| Ex Post Participant Spillover     | 0          | -         |
| Ex Post Net Savings               | 290,703    | 61.58     |
| Net-to-Gross Ratio                | 67%        | 68%       |
| Ex Post Net Lifetime Savings      | 5,176,950  | na        |

## 6.5. Process Evaluation

### 6.5.1. Program Operations

The Residential HVAC Midstream Program partners with distributors to provide discounts on the cost of efficient HVAC and water heating equipment. The overall design of the program remained consistent with the 2022 program, described in greater detail in the 2022 EM&V report.

The program is currently underperforming in reaching its savings goals, as summarized in Table 6-9. The 2023 energy savings did increase, suggesting the program is moving in the right direction, but it still fell short of the target savings goal.

*Table 6-9 Ex Ante Savings and Progress Towards Goal*

|                 | <i>2022</i> | <i>2023</i> |
|-----------------|-------------|-------------|
| Ex Ante Savings | 25,768      | 592,265     |
| Savings Goals   | 1,295,783   | 2,363,924   |
| % of Goal       | 2%          | 25%         |

CLEAResult reported that external factors may be slowing sales and reported that distributors report a decline in sales of 4 to 8% year over year due to supply chain issues and cost increases. This is consistent with the 16.7% decrease in U.S. air conditioner and heat pump shipments reported by AHRI but does not fully account for the margin by which the savings target was missed.<sup>3</sup>

<sup>3</sup> AHRI Releases December 2023 U.S. Heating and Cooling Equipment Shipment Data.

As of December 2023, there were 25 distributor locations in Indiana. CLEAResult reported that recruitment of distributors was ongoing but stated that turnover at the distributors may be hindering those efforts. I&M believes that additional recruitment effort was needed and suggested that referring nationally operating companies to contact their peers working with the CLEAResult program to get their feedback.

I&M noted that the implementation contractor has begun to allow contractors to apply for incentives, bypassing the distributor application. This is also apparent in the program data which indicates a small share of total sales identified installing contractor companies as the payee. While allowing contractors into the program is not inherently problematic, it raises questions regarding how broadly this is communicated to the contractors that have worked with I&M in the past and what the guidelines are for allowing contractor participation and ensuring that sales associated with contractors are not also being counted by distributors. Additionally, it suggests that there is a breakdown in the distributor model if contractors believe they need to bypass it.

#### 6.5.2. Distributor Interviews

ADM interviewed HVAC distributors who participated in I&M's Midstream HVAC program to gather insights into the distributors' experiences, perspectives, and challenges related to their participation.

To develop the sample frame, ADM requested and received contact information from the implementation contractor CLEAResult for distributors operating in Indiana. The recruitment process involved ADM sending a maximum of three email invitations to each distributor. CLEAResult also assisted by notifying the distributors and encouraging them to participate in the interviews. In addition, ADM made follow-up telephone calls to the distributors to further encourage participation. Ultimately, two distributors agreed to be interviewed. Their responses and insights are summarized in the subsequent sections of this report.

One respondent's company was less active, whereas the other had sold more qualifying units.

##### 6.5.2.1. Roles and Responsibilities

The first interviewed distributor's role is the Vice President of the business. This person manages ten locations and the sales team, serving as the leader for multiple sales teams. The business is a wholesale distributor with a primary focus on HVAC, encompassing heating, ventilation, and air conditioning. Specializing in refrigeration services and boilers, the company's key offerings include cooling and heat pumps.

The other interviewed distributor serves as a local territory manager who oversees eleven counties with one location within the service territory. The business primarily specializes in supplying HVAC equipment and parts. However, it does not offer installation or maintenance services. Their business supplies HVAC systems larger than 5 tons, specifically focusing on light commercial-sized systems.



#### *6.5.2.2. Recruitment and Training*

Both companies learned of the program through outreach from I&M and/or CLEAResult. The first HVAC distributor reported that they have been involved in the program for a little over a year. The other distributor reported that they have been involved in the program since its inception.

The first distributor was motivated out of concern that if they did not participate, their customers might work with other distributors that offered the discounts. The other distributor was motivated by the ease of the program, emphasizing its simplicity in explaining to contractors and their ability to embrace the process. The streamlined process, including presenting benefits to consumers and facilitating easy submission for contractors through a one-page form, played a crucial role in their decision to participate.

Both distributors received training prior to taking part in the program. The program trainings were in-person or online, specifically through a representative stopping by a local branch and through Teams meetings for onboarding. Both participants noted that the training was helpful and provided the necessary information to understand the program and participate. One challenge mentioned was finding contractors that would provide the necessary information to qualify the equipment, which made it difficult to submit units for program incentives. The process involved educating contractors and navigating the complexities of obtaining required information from end users, made it a challenging but necessary endeavor.

One distributor proposed that CLEAResult could improve the training offered by sending reminders about available training sessions and making themselves more accessible for training. They acknowledge that if they request it, training is available, but a proactive approach from CLEAResult could enhance engagement. Additionally, one distributor expressed a desire for more information on how to be successful in the program. They seek insights on strategies that have proven effective for other supply houses, especially in cases where their own engagement with the program has been limited and customer awareness seems low. The other distributor did not provide specific suggestions for improvement but expressed that more proactive engagement might lead to better responsiveness.

#### *6.5.2.3. Sales Strategies and Stocking Practices*

The interviewed distributors use several strategies to sell more program-qualified units. They both indicated that they upsell contractors to purchase program-qualified units. One distributor indicated that they conduct training workshops for contractors and the other markets the program-qualified units. However, neither develop marketing or informational materials for service providers to use nor discuss the benefits of these units with design professionals such as engineers or architects.

*Table 6-10 Distributors Marketing Tactics*

| <i>Upsell contractors to purchase program-qualified units</i> | <i>Conduct training workshops for contractors</i> | <i>Marketing of program-qualified units</i> | <i>Discuss the benefits of program-qualified units with design professionals (e.g., engineers or architects)</i> | <i>Develop marketing or informational materials for service providers to use</i> |
|---|---|---|--|--|
| <i>Yes</i>  | <i>No</i>   | <i>Yes</i>                                  | <i>No</i>  | <i>No</i>  |
| <i>Yes</i>  | <i>Yes</i>  | <i>No</i>                                   | <i>Don't know</i>  | <i>No</i>  |

Distributors provided mixed feedback on the program's influence on their stocking practices. One respondent indicated that since enrolling in the program, their stocking of program-qualifying equipment had increased, while the other respondent stated that it had not. The distributor that is stocking more equipment noted that the program has not substantially influenced their stocking practices, with inventory adjustments to only a few specific models.

One respondent indicated that they have encountered challenges in procuring program-qualifying equipment in the past year, while the other has not encountered issues. The second distributor mentioned minor challenges, specifying issues with the availability of coils and similar components. These challenges highlight the broader industry impact of supply chain disruptions on the procurement of program-qualifying equipment.

Both distributors have been impacted by the new SEER2 efficiency standards, with changes in equipment lines and availability. Additionally, both respondents note cost changes for program-qualified and standard efficiency equipment in the last 18 months, with a 10% increase reported by the first distributor.

#### *6.5.2.4. Program Influence and Challenges*

The participation in I&M's HVAC Midstream program has had a negative impact for one of the distributors. They mentioned that the program introduced additional steps that they believe are unnecessary and increased their workload, reflecting a perceived burden rather than a positive influence on their operations. The other distributor did not say that the program has impacted their business.

The respondents mentioned several barriers and challenges in working with the program and providing discounts to buyers. One distributor identified paperwork as a significant challenge when working with the program and providing discounts to buyers, namely, that the program procedures and the application of the credit to invoices have increased the amount of paperwork for equipment sales. Moreover, the sporadic nature of dealing with these processes makes it difficult for those handling orders to keep the requirements top of mind. Another distributor highlighted the challenge of educating contractors about the program.

#### 6.5.2.5. Program Satisfaction, Feedback and Suggestions

The overall satisfaction levels with the program from the respondents varied. One respondent rated their satisfaction as 5 out of 10, while the other indicated they were “very satisfied.”

In terms of what is working well with the program, one distributor noted that Program Partner Central appears to work well, while the other emphasized the ease of the program as a successful element. Both respondents point to functional tools and simplicity as strengths of the program.

One distributor highlighted the need to raise contractor expectations, suggesting that it would be more helpful if contractors approached them with information about the program rather than the business having to initiate the introduction. This suggests a desire for a more proactive approach from contractors in engaging with the program, although it is inconsistent with one of the purported benefits of midstream programs – that they can leverage distributor marketing and outreach to encourage efficient equipment sales.<sup>4</sup>

The other distributor expressed a concern that approximately 15% of contractors effectively sell high-efficiency equipment, while the majority (85%) may struggle to convey the benefits of efficiency to consumers. The recommendation was to enhance the program by offering more options and possibly addressing educational aspects to improve overall contractor performance in promoting energy-efficient equipment to consumers.

### 6.6. Findings and Recommendations

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**Program sales of qualified equipment increased in PY2023 but fell short of the program goal.** Although the number of discounted units increased in the second year of the program, the sales continued to fall short of the savings targets for the program.

**Ex ante savings for air source heat pumps and central air conditioners were high.** The evaluation found that ex ante savings were high for central air conditioners and heat pumps.

- **Recommendation 1:** Review ex ante savings estimations and develop conservative estimates using normal replacement assumptions.

**Some units were identified incorrectly in the tracking data.** Based on review of AHRI information, the equipment type was sometimes misidentified in the program tracking data.

- **Recommendation 2:** Review invoice review procedures to ensure that equipment is correctly identified.

**Feedback from two of the distributors suggests that they are not engaged with the program, believe the administrative process to be burdensome, and think that additional support would improve their experience with the program.** Distributor responses suggest that

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<sup>4</sup> Bickel, S. et al. (2016). Swimming to Midstream: New Residential HVAC Program Models and Tools. ACEEE Summer Study on Energy Efficiency in Buildings.

there are some opportunities to help them better realize the value of the program. Some of the feedback included distributor interest in additional insight on how to drive sales when awareness is low, the perception that the participation process is an administrative burden, while at the same time not seeing any benefit to their business, and the observation that the low volume of sales makes the administrative process more challenging because they are not doing it routinely enough institutionalize the practice.

- **Recommendation 3:** Increase engagement with distributors and branch locations to talk about the program, ask about any issues they are faced, and collaboratively work together to identify ways that the program can help them increase their sales of efficient equipment.
- **Recommendation 4:** Provide sales training to distributor branch locations. For businesses that participate in a similarly implemented program in other regions that have been successful, identify a staff person who can share lessons learned for maximizing sales within the program.

**Distributors provided positive feedback on the training of administrative processes.**

Distributors found the training to be useful and effective.

**The program has begun allowing contractors to submit for incentives, suggesting potential problems with the distributor program model.** Program data indicates that a few contractor companies have received incentive payments through the program. This suggests that there is an issue with the midstream program that is not operating effectively and requiring contractors to bypass it. It also suggests that there may be a need to more clearly articulate the rules that allow for contractor participation, and to open this avenue to all contractors providing services in the area. Contractor participation may also further undermine distributor interest in engaging with the program.

- **Recommendation 5:** If contractor sales continue, clarify the process for onboarding contractors to the system and ensure that all contractors in the region have the opportunity to apply to participate.
- **Recommendation 6:** Consider restructuring the program into upstream and downstream components to better accommodate both distributor and contractor participation. The proposed midstream component should target equipment with the highest efficiency levels but lower market penetration, potentially benefiting from enhanced incentives to encourage increased stocking. Conversely, the downstream component would focus on equipment that offers marginal efficiency improvements over standard options. This separation aims to optimize incentive distribution and increase the availability of high-efficiency equipment.
- **Recommendation 7:** Meet with contractors to understand what challenges and issues they face using the distributor incentives. Leverage this information to provide additional training and guidance to distributors to improve the program's performance.

**Distributors suggested a greater collaboration and contractor awareness could improve the program.**

- **Recommendation 8:** Consider joint outreach with distributors and program staff to contractors, such as lunch and learn or one-on-one meetings.

## 7. Home Energy Products Online Marketplace

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This chapter presents the results of both the impact and process evaluations of the 2023 Home Energy Products Online Marketplace that Indiana Michigan Power (I&M) offered to its residential customers during the period of January 2023 through December 2023.

The objectives of the evaluation were to:

- Assess gross and net energy (kWh) savings and peak demand (kW) reductions resulting from participation in the program during the program year.
- Complete a process evaluation of the online marketplace.
- Provide recommendations for program improvement as appropriate.

### 7.1. Program Description

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The Home Energy Products Online Marketplace provides instant discounts to customers purchasing qualified energy efficient products from the program website. The marketplace also provides information on the efficiency of the products listed.

The objectives of the program include lowering electric consumption in the residential market sector through the purchase and installation of eligible energy efficiency measures and attributing electric energy savings to those purchases that receive a rebate.

The list of measures receiving incentives in PY2023 were:

- Wi-Fi Programmable Thermostats.
- Dehumidifiers.
- Air purifiers.
- Water heaters.

### 7.2. Data Collection

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#### 7.2.1. Participant Survey

ADM completed a survey of program participants to obtain data to estimate net savings and assess the customer experience.

To determine the minimum sample size needed to meet this precision requirement, ADM assumed a CV of .5, as is typically used in residential program evaluations. The sample size requirement was estimated using the following formula:

$$n = \left( \frac{1.645 * CV}{TP} \right)^2$$

Where,

1.645 = Z Score for 90% confidence interval in a normal distribution

CV = Coefficient of Variation

TP = Targeted Precision, 10% in this evaluation

With 10% targeted precision (TP), this called for a minimum sample of 68 participants. The survey resulted in 62 survey responses.

ADM administered the survey to a census of unique contacts for the Home Energy Products Online Marketplace. For the email survey, ADM contacted each participant up to three times to ask them to complete the survey. Table 7-1 summarizes the results of the survey data collection effort.

*Table 7-1 Home Energy Products Online Marketplace*

| <i>Survey</i>  | <i>Mode</i> | <i>Time Frame</i> | <i>Number of Contacts</i> | <i>Number of Completions</i> |
|--|-------------|-------------------|---------------------------|------------------------------|
| Home Energy Products Online Marketplace Participant Survey | Email       | September 2023    | 406                       | 41                           |
| Home Energy Products Online Marketplace Participant Survey | Email       | January 2024      | 113                       | 21                           |

## 7.2.2. Program Staff Interviews

ADM interviewed the I&M program coordinator to learn about the program website, portal for monitoring website activity, program marketing efforts and design.

## 7.3. Estimation of Ex Post Gross Savings

### 7.3.1. Methodology for Estimating Ex Post Gross Energy Savings

#### 7.3.1.1. Review of Documentation

I&M maintains program tracking information that includes a list of all participants, the measures that they purchased and received a discount for, and the kWh and kW savings associated with each measure. The first aspect of conducting measurements of program activity was to verify that the tracking data report of participants and measures was accurate. To this end, ADM reviewed the program data to verify that the fields required for performing the evaluation are tracked and populated (i.e., the data is not missing) and that the values are reasonable. ADM took several steps in verifying the number of measures installed, which consist of the following:

- Validating program tracking data by checking for duplicate or erroneous entries; and
- Conducting verification surveys with a sample of program participants to verify that customers listed in the program tracking database did indeed participate and that the number of measures claimed to be installed is accurate.

ADM also reviewed the savings estimates used to calculate ex ante energy impacts for installed measures. This evaluation activity is intended to support development of any actionable recommendations for refinement of the ex ante savings calculation approach.

### 7.3.1.2. Procedures for Estimating Measure-Level Gross Energy Savings

Table 7-2 presents information on savings calculation formulas, savings calculation inputs, incremental cost, and effective useful life values and data sources applicable to the Home Energy Products Online Marketplace Program.

*Table 7-2 Home Energy Products Online Marketplace Program Calculation Input Information*

| Variable Type                                     | Variable Name     | Variable Value | Variable Value Source  |
|---|-------------------|----------------|--|
| <b>Measure Name: Marketplace Smart Thermostat</b> |                   |                |  |
| Savings   | $\Delta kWh$      |                | $cooling\_kwh * ESF\_cool + heating\_kwh * ESF\_heat$                            |
| Savings   | $\Delta kW$       |                | 0  |
| Input   | $ESF\_cool$       | 0.084          | Illinois TRM V11.0 Vol. 3, p. 209.   |
| Input   | $cooling\_kwh$    | Varies         | Based on econometric analysis of interval meter data.                            |
| Input   | $ESF\_heat$       | 0.085          | Illinois TRM V11.0 Vol. 3, p. 207.   |
| Input   | $heating\_kwh$    | Varies         | Based on econometric analysis of interval meter data.                            |
| EUL   |                   | 15             | Indiana TRM V2.2, p. 120.  |
| Inc Cost  |                   | 250            | Indiana TRM V2.2, p. 120.  |
| <b>Measure Name: Marketplace Dehumidifier</b>     |                   |                |  |
| Savings   | $\Delta kWh$      |                | $Pints\_per\_Day * 0.473 / 24 * Hours * ((1 / L\_kWh\_base) - (1 / L\_kWh\_EE))$ |
| Savings   | $\Delta kW$       |                | $Pints\_per\_Day * 0.473 / 24 * ((1 / L\_kWh\_base) - (1 / L\_kWh\_EE)) * CF$    |
| Input   | $Hours$           | 2200           | Illinois TRM V11.0 Vol. 3, p. 19.  |
| Input   | $L\_kWh\_base$    | Varies         | Illinois TRM V11.0 Vol. 3, p. 18.  |
| Input   | $L\_kWh\_EE$      | Varies         | Characteristics of applicable equipment.   |
| Input   | $Pints\_per\_Day$ | Varies         | Characteristics of applicable equipment.   |
| Input   | $CF$              | 0.5            | Illinois TRM V11.0 Vol. 3, p. 20.  |
| EUL   |                   | 12             | Illinois TRM V11.0 Vol. 3, p. 18.  |
| Inc Cost  |                   | Varies         | Illinois TRM V11.0 Vol. 3, p. 19.  |
| <b>Measure Name: Marketplace Air Purifier</b>     |                   |                |  |
| Savings   | $\Delta kWh$      |                | $\Delta kWh$   |
| Savings   | $\Delta kW$       |                | $\Delta kWh / Hours * CF$  |
| Input   | $\Delta kWh$      | Varies         | Illinois TRM V11.0 Vol. 3, p. 8.   |
| Input   | $Hours$           | 5840           | Illinois TRM V11.0 Vol. 3, p. 8.   |
| Input   | $CF$              | 0.667          | Illinois TRM V11.0 Vol. 3, p. 8.   |
| EUL   |                   | 9              | Illinois TRM V11.0 Vol. 3, p. 6.   |
| Inc Cost  |                   | Varies         | Illinois TRM V11.0 Vol. 3, p. 6.   |
| <b>Measure Name: Marketplace Water Heater</b>     |                   |                |  |



|          |                  |        |   |
|----------|------------------|--------|---|
| Savings  | $\Delta kWh$     |        | $(1 / UEF_{base} - 1 / UEF_{new}) * GPD * Household * 365.25 * \gamma_{Water} * ((Temp_{out} - Temp_{in}) / 3412) + kWh_{cooling} - kWh_{heating}$                            |
| Savings  | $\Delta kW$      |        | $IFERROR(((1 / UEF_{base} - 1 / UEF_{new}) * GPD * Household * 365.25 * \gamma_{Water} * ((Temp_{out} - Temp_{in}) / 3412) + kWh_{cooling} - kWh_{heating}) / Hours * CF, 0)$ |
| Input    | $UEF_{base}$     | Varies | Federal appliance standard.   |
| Input    | $UEF_{new}$      | Varies | Tracking data. Characteristics of applicable equipment.   |
| Input    | $GPD$            | 17.6   | Illinois TRM 11.0 Vol. 3, p. 252.   |
| Input    | $\gamma_{Water}$ | 8.33   | Illinois TRM 11.0 Vol. 3, p. 252.   |
| Input    | $kWh_{cooling}$  | Varies | Indiana TRM V2.2, p. 65.  |
| Input    | $kWh_{heating}$  | Varies | Indiana TRM V2.2, p. 65. Based on heating type.   |
| Input    | $Hours$          | Varies | Indiana TRM V2.2, p. 66.  |
| Input    | $CF$             | Varies | Indiana TRM V2.2, p. 66.  |
| Input    | $Household$      | Varies | Illinois TRM 11.0 Vol. 3, p. 252. Varies based on household type.   |
| Input    | $Temp_{in}$      | Varies | Indiana TRM V2.2, p. 71. Varies by location.  |
| Input    | $Temp_{out}$     | 125    | Illinois TRM 11.0 Vol. 3, p. 252.   |
| EUL      |                  | 10     | Indiana TRM V2.2, p. 64.  |
| Inc Cost |                  | Varies | Indiana TRM V2.2, p. 64.  |

### 7.3.1.3. Verification and In-Service Rates

Table 7-3 shows the verification rates for program measures provided through the Home Energy Products Online Marketplace Program.

*Table 7-3 Summary of Measure Verification Rates*

| <i>Measure</i>               | <i>Number of Responses</i> | <i>Verification Rate</i> |
|------------------------------|----------------------------|--------------------------|
| Marketplace Smart Thermostat | 47                         | 98%                      |
| Marketplace Dehumidifier     | 9                          | 100%                     |
| Marketplace Air Purifier     | 6                          | 100%                     |

### 7.3.1.4. Analysis of Double Counting of Measures

The Online Marketplace offers air purifiers, which are also featured in the Home Energy Products ENERGY STAR® Appliances Program. Orders through the marketplace are processed by Best Buy, which participates in the Home Energy Products ENERGY STAR® Appliances Program. Because there were no procedures in place to prevent these measures from being included in both programs, there is a possibility of double counting the energy savings from air purifiers. To assess this risk, ADM compared the model numbers of air purifiers sold by Best Buy in the Home Energy Products ENERGY STAR® Appliances Program with those discounted through the Online Marketplace Program. ADM determined that air purifiers representing seven out of 20 models

were listed in both programs, indicating a possible overlap involving seven air purifiers. ADM opted not to revise savings estimates following this discovery due to a few key considerations: the uncertainty around whether the identified units were identical, the fact that only a subset of models overlapped between the two listings, and the minimal influence of the Home Energy Products ENERGY STAR® Appliances Program on the overall sales for PY2023, as highlighted by a significant rate of free ridership.

### 7.3.2. Results of Ex Post Gross Savings Estimation

Table 7-4 summarizes the gross kWh savings of the Home Energy Products Online Marketplace Program by measure. The ex post annual energy savings for the program were 154,060 kWh with a realization rate of 26%.

*Table 7-4 Measure-Level Annual Gross kWh Savings*

| <i>Measure</i>               | <i>Quantity of Measures Incented</i> | <i>Ex Ante Gross kWh Savings</i> | <i>Gross Audited kWh Savings</i> | <i>Gross Verified kWh Savings</i> | <i>Ex Post Gross kWh Savings</i> | <i>Gross Realization Rate</i> |
|------------------------------|--------------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|-------------------------------|
| Marketplace Smart Thermostat | 536                                  | 578,880                          | 578,880                          | 566,775                           | 138,475                          | 24%                           |
| Marketplace Dehumidifier     | 34                                   | 5,161                            | 5,161                            | 5,161                             | 4,513                            | 87%                           |
| Marketplace Air Purifier     | 20                                   | 2,060                            | 2,060                            | 2,060                             | 9,139                            | 444%                          |
| Marketplace Water Heater     | 2                                    | 2,512                            | 2,512                            | 2,512                             | 1,934                            | 77%                           |
| Total                        | 592                                  | 588,613                          | 588,613                          | 576,508                           | 154,060                          | 26%                           |

The following discusses factors affecting realization rates that differed substantially from 100%.

- Marketplace Smart Thermostat (24%). Thermostats were the primary driver of the program realization rate because they accounted for 98% of ex ante savings. The ex ante savings were based on a per unit savings of 1,080 kWh. The ex post analysis per unit savings ranged from 29 kWh to 994 kWh and were based on an econometric analysis of interval meter data to estimate the heating and cooling loads. The average estimated heating load was 1,502 kWh and the average estimated cooling load was 1,730 kWh.
- Marketplace Air Purifiers (444%). Ex ante savings were based on a per unit savings of 103 kWh per unit. Ex post savings were based on the unit's specifications and ranged from 133 kWh and 570 kWh.
- Marketplace Water Heater (77%). One of the two water heaters had a Uniform Energy Factor (UEF) value equal to that of a standard efficiency water heater (.92). The ex ante savings estimate was the same for both water heaters (1,256 kWh).

Table 7-5 summarizes the gross peak demand reduction of the Home Energy Products Online Marketplace Program. The gross peak demand reduction for the program was 2.33 kW, with a realization rate of 133%.

Table 7-5 Measure-Level Annual Gross kW Savings

| <i>Measure</i>               | <i>Quantity of Measures Incented</i> | <i>Ex Ante Gross kW Savings</i> | <i>Gross Audited kW Savings</i> | <i>Gross Verified kW Savings</i> | <i>Ex Post Gross kW Savings</i> | <i>Gross Realization Rate</i> |
|------------------------------|--------------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|-------------------------------|
| Marketplace Smart Thermostat | 536                                  | -                               | -                               | -                                | -                               |                               |
| Marketplace Dehumidifier     | 34                                   | 1.18                            | 1.18                            | 1.18                             | 1.03                            | 87%                           |
| Marketplace Air Purifier     | 20                                   | 0.24                            | 0.24                            | 0.24                             | 1.04                            | 435%                          |
| Marketplace Water Heater     | 2                                    | 0.34                            | 0.34                            | 0.34                             | 0.26                            | 78%                           |
| Total                        | 592                                  | 1.76                            | 1.76                            | 1.76                             | 2.33                            | 133%                          |

### 7.3.3. Estimation of Ex Post Net Savings

ADM estimated free ridership and participant spillover through a survey of program participants.

#### 7.3.3.1. Estimation of Free Ridership

##### 7.3.3.1.1. Prior Plans

A score to reflect the presence of prior plans will be based on the responses to the following two questions:

- Did you decide to purchase the measure before you learned about I&M's Online Marketplace or after you learned about I&M's Online Marketplace?
- Were you planning to buy the measure before you learned that you could get a rebate or discount through I&M's Online Marketplace?

Respondents who indicate that they decided to purchase the measure after viewing it on I&M's online marketplace and who said that they were not planning to purchase the item before learning of the marketplace were considered not to have prior plans and assigned a score of 0. All other respondents were assigned a plans score of 1.

##### 7.3.3.1.2. Likelihood of Purchasing

A likelihood of purchasing score was developed by dividing the numeric response to the following question by 10.

- How likely is it that you would have bought the same measure at about the same time if you could not have received the rebate or discount through the I&M Online Marketplace?

[Rated on a 0 – 10 Scale]

##### 7.3.3.1.3. Timing and Quantity Adjustments

A timing adjustment score was developed based on respondents reporting of when they would have purchased the equipment if they had not purchased the item through the marketplace. Table 7-6 shows how the score will be developed.

Table 7-6 Timing Adjustment Score

| <i>Likely Timing of Project in Absence of the Program</i> | <i>Timing Score</i> |
|---|---------------------|
| Within 6 months   | 1                   |
| Between 6 months and 1 year                               | .67                 |
| In more than 1 year to 2 years                            | .33                 |
| In two years or more                                      | 0                   |

A quantity adjustment score was developed based on how many percent fewer of the measures would have been purchased if they were not available through the online marketplace.

#### 12.3.5.1.4. Free Ridership Scoring

ADM calculated an overall project free ridership by combining the scores described above.

*Free Ridership = Prior Plans Score \* Program Influence \* Timing Score \* Quantity Adjustment*

#### 12.3.5.2. Methodology for Estimating Spillovers

Program participants may implement additional energy saving measures without receiving a program incentive because of their participation in the program. The energy savings resulting from these additional measures constitute program participant spillover effects.

To assess participant spillover savings, survey respondents were asked whether they implemented any additional energy saving measures like those offered on the marketplace, for which they did not receive a program discount.

Participants who reported implementing on one or more efficiency measures were asked two questions for use in developing a spillover score:

- SO1: Using the scale below, how important was the Enervee score in your decision to buy the additional items that you did not get a discount for?
- SO2: Using the scale below, how likely would you have been to buy those additional items if they were not available on the I&M Online Marketplace?

The response to these questions were used to develop a spillover score as follows:

*Spillover = Average(SO1, 10 - SO2)*

All the associated measure savings were considered attributable to the program if the resulting score was greater than 7.

#### 12.3.5.3. Methodology for Estimating Non-Participant Spillover

ADM estimated non-participant spillover through a survey of non-participating customers in PY2021. No spillover was identified, and ADM did not apply non-participant savings to the PY2023 net savings estimate.

#### 7.3.4. Results of Ex Post Net Savings Estimation

Table 7-7 summarizes the free ridership results for the measures.

*Table 7-7 Program-Level Annual Net kWh and kW Savings*

| <i>Measure</i>               | <i>Number of Responses</i> | <i>Free Ridership</i> |
|------------------------------|----------------------------|-----------------------|
| Marketplace Smart Thermostat | 40                         | 31%                   |
| Marketplace Dehumidifier     | 8                          | 23%                   |
| Marketplace Air Purifier     | 4                          | 31%                   |

Table 7-8 summarizes the ex post annual net kWh and kW savings of the Home Energy Products Online Marketplace Program. The annual net savings totaled 107,630 kWh and 1.75 kW.

*Table 7-8 Program-Level Annual Net kWh and kW Savings*

| <i>Category</i>                   | <i>kWh</i> | <i>kW</i> |
|-----------------------------------|------------|-----------|
| Ex Ante Gross Savings             | 588,613    | 1.76      |
| Gross Audited Savings             | 588,613    | 1.76      |
| Gross Verified Savings            | 576,508    | 1.76      |
| Ex Post Gross Savings             | 154,060    | 2.33      |
| Gross Realization Rate            | 26%        | 133%      |
| Ex Post Free Ridership            | 46,430     | 0.59      |
| Ex Post Non-Participant Spillover | 0          | -         |
| Ex Post Participant Spillover     | 0          | -         |
| Ex Post Net Savings               | 107,630    | 1.75      |
| Net-to-Gross Ratio                | 70%        | 75%       |
| Ex Post Net Lifetime Savings      | 1,557,917  | NA        |

#### 7.4. Process Evaluation

ADM completed a process evaluation of the Home Energy Products Online Marketplace Program. The process evaluation activities consisted of a review of program documentation, interviews and discussions with program staff, and a survey of program participants.

The objectives of the process evaluation were to:

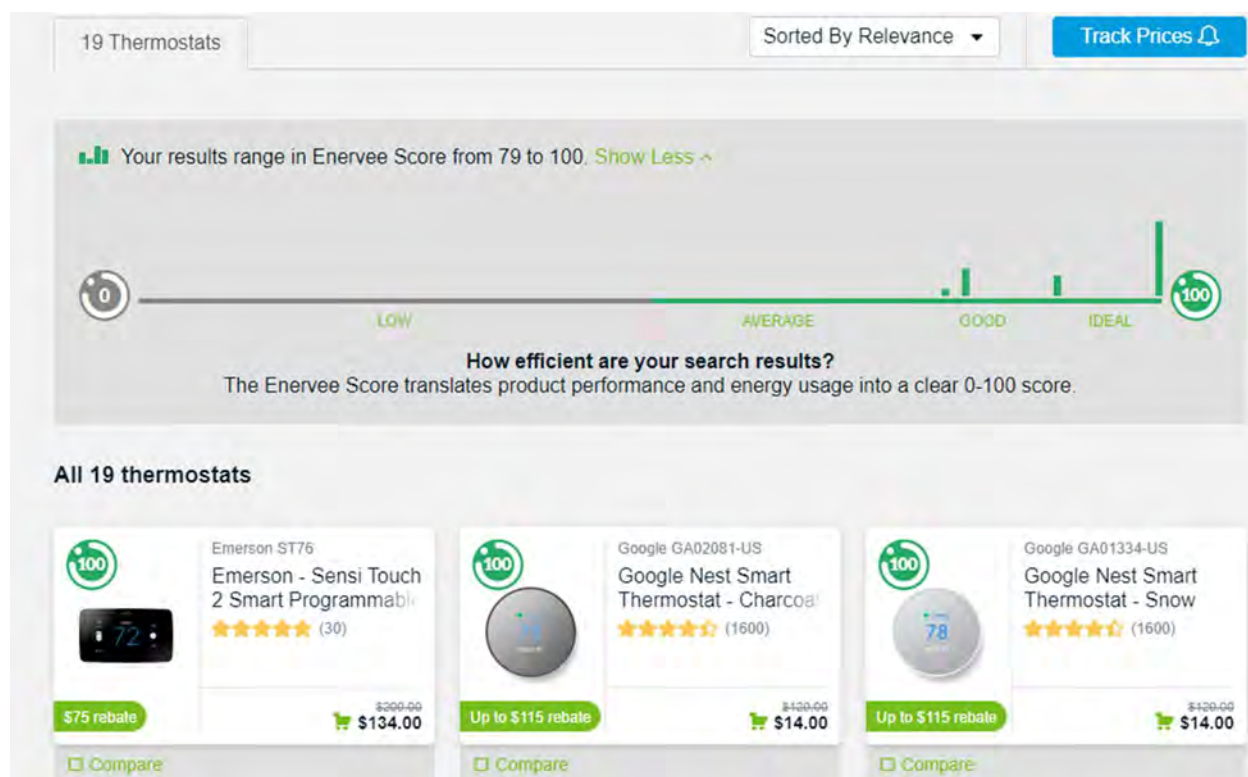
- Understand drivers and motivations for using the online marketplace.
- Understand how the online marketplace influences customer purchase decisions through a survey of program participants.
- Assess what are the motivations for using the online marketplace over other retailers.
- Assess participant satisfaction with the marketplace and their likelihood of recommending it to others.

Additionally, because the program transition to a new website experience for the online marketplace in 2023, ADM compared customer satisfaction metrics to 2022 participants to understand if there were any changes in participants experience with the website.

#### 7.4.1. Program Design and Operations

The Online Marketplace website provides instant discounts and rebates for a selection of efficient products. The program website is designed to influence customers to purchase more energy efficient products. To do this, the website provides an “Enervee Score” for the products viewed. This score is a metric for the products energy efficiency, relative to other products of different make and model. The score is a simple metric that uses the products annual kWh and normalizes for product characteristics that affect energy use, such as product size and capacity. The score is presented on a 0-100 scale to allow for easy comparisons. Figure 7-1 shows how the information is presented to a product purchaser. The score is presented on a 0-100 scale to allow for easy comparisons.

Figure 7-1 I&amp;M Online Marketplace



In addition to presenting information on the product's energy use, the website advertises the available rebates and compares pricing from multiple retailers.

Through the marketplace website, I&M offers instant discounts on select products. The customer receives the instant discount at the time of purchase when they add the product to their cart, complete the information necessary to verify that they are an I&M customer, and complete their purchase.

Rebates are offered for a broader list of products. The customer can use the website to shop for the rebated product and apply for a rebate, or they can purchase the product and apply for a rebate. To receive a rebate, the customer searches for the make and model information to validate the product. The website provides a tool that assists the customer by auto-populating the form with model names as the user types in the information. Once the model is entered, the customer completes a form to verify that they are an I&M customer. Online submissions for rebates are sent directly to I&M's partner, Enervee, for processing. Rebates submitted online receive an electronic Visa gift card.

I&M has limits set on the number of items that a customer can receive a rebate for. Table 7-9 summarizes the limits for each of the product categories that received rebates in PY2023.



*Table 7-9 Measure Rebate Limits*

| <i>Measure</i>            | <i>Limit</i>                |
|---------------------------|-----------------------------|
| Smart / Wi-fi thermostats | 2 per account, per lifetime |
| Air purifiers             | 3 per account, per lifetime |
| Dehumidifiers             | 2 per account, per lifetime |
| Water heaters             | 2 per account, per lifetime |

Variations in product prices pose difficulties in setting appropriate incentive levels. The program staff observed that the current website infrastructure lacks the functionality to establish an incentive at a value equivalent to the lower of two figures, for example, to configure the incentive for a thermostat to be either \$75 or 50% of the purchase price, whichever is lower. Currently, incentives are fixed either as a specific dollar amount or as a percentage of the purchase price. This limitation becomes problematic, particularly for certain products like smart thermostats, whose prices tend to decrease due to discounts from manufacturers or retailers.

#### *7.4.1.1. Marketing*

Enervue is responsible for marketing for the Online Marketplace products and Enervue uses email campaigns to drive participation in the program. Because the cost of the service to I&M is based on the total sales of products, not just rebated product sales, I&M's strategy has been to use a limited marketing approach to avoid increasing costs without commensurable energy saving benefits. Additionally, I&M can cross promote the Online Marketplace with customers that participate in other programs.

#### *7.4.1.2. Marketplace Portal*

I&M has access to a data portal that provides information on use of and engagement with the Online Marketplace. The portal dashboard provides the following metrics:

- Number of visits
- Unique visitors
- Time on site
- Returning visitors
- Page views (total and over time)
- Page views per visit (total and over time)

The dashboard also provides information on the top referring sites and information on what products are viewed by visitors. Engagement metrics based on users' use of the search or clicking on a product are also available.



The portal includes information on product sales and products that received incentives that can be used to monitor the ratio of incentivized sales to total sales.

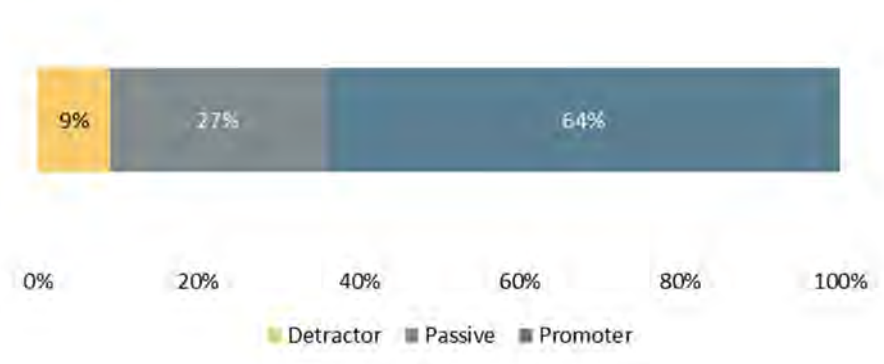
#### 7.4.2. Participant Survey Findings

ADM surveyed customers whose households participated in the Online Marketplace program. Customers completed an online survey that asked questions about their experience with the program, satisfaction with the items they purchased, ease of purchasing items through the Online Marketplace, and their home characteristics.

##### 7.4.2.1. Net Promoter Score

**More than half of the respondents were promoters.** Based on the survey findings, 9% of respondents were classified as Detractors, 27% as Passive, and 64% as Promoters in terms of their likelihood to recommend the program to others (see Figure 7-2). The Net Promoter Score (NPS) for the Online Marketplace program in Indiana was 55%.

*Figure 7-2 Net Promoter Score (n = 55)*



Promoters expressed overall satisfaction with the I&M Online Marketplace, highlighting various positive aspects of their experiences. Ease of use and quick ordering processes were commonly praised, with users appreciating the simplicity of transactions. A significant share of respondents emphasized the value of savings and discounts, particularly through rebates, making purchases more affordable. The convenience of purchasing smart products online at discounted rates was noted, contributing to positive feedback. Additionally, respondents shared positive experiences with the presentation of the program, praising its reliability, fast delivery, and overall value. Many respondents highlighted the savings and the appeal of discounted prices for energy efficient items.

Passive respondents provided a range of feedback contributing to their rating. Some positive aspects highlighted include the good variety and competitive pricing of products, along with the perceived value of emphasizing energy efficiency ratings. One respondent mentioned taking advantage of rebates on energy-saving equipment, emphasizing its importance for all. There were

concerns raised about the limited options, the absence of a standard return policy, and dissatisfaction with product specific concerns (e.g., integrations with digital assistants compared to other brands). Pricing was considered high by some, but the value was recognized through rebate offers.

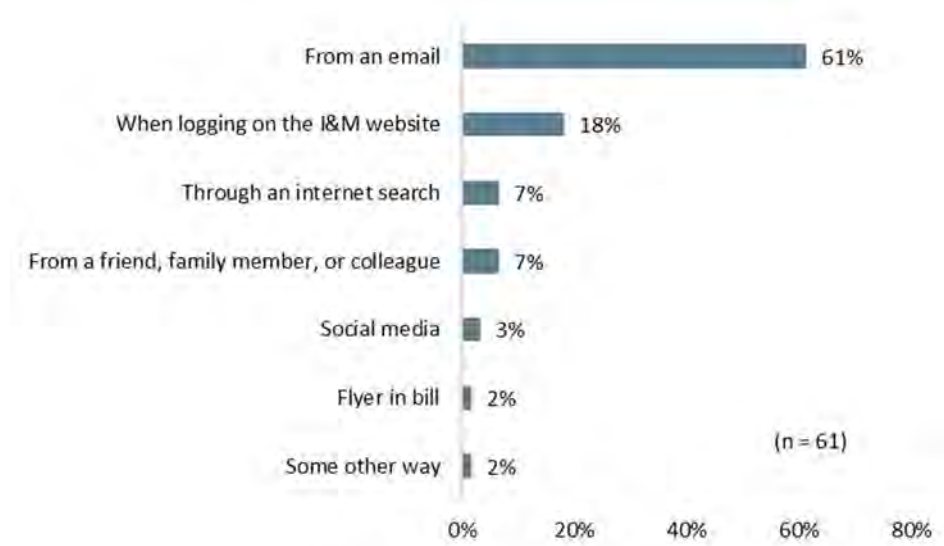
Detractors provided specific feedback about their lower ratings for the I&M Online Marketplace. One detractor cited a lack of clear product descriptions, especially in terms of compatibility with their furnace, as a reason for their lower rating. An added negative experience was noted by a respondent who bought a product that stopped working. Lastly, dissatisfaction was expressed by a customer who did not receive the ordered product, saying delivery issues as a contributing factor to their negative rating. Table 7-10 provides an overview of the themes identified in the comments.

*Table 7-10 Reason for NPS Rating*

| <i>Promoters (n = 35)</i>                              | <i>Number of Comments (n = 22)</i> |
|--|------------------------------------|
| Ease of use and ordering                               | 3                                  |
| Pleased with savings and discounts                     | 9                                  |
| Convenience and accessibility                          | 2                                  |
| Positive experience and value                          | 8                                  |
| <i>Detractors (n = 5)</i>                              | <i>Number of Comments (n = 4)</i>  |
| Would have preferred a discount on bill                | 1                                  |
| Not pleased with product description and compatibility | 1                                  |
| Issues with product reliability                        | 1                                  |
| Delivery issues  | 1                                  |
| <i>Passive (n = 15)</i>                                | <i>Number of Comments (n = 13)</i> |
| Generally positive comments                            | 7                                  |
| Concerns about reliability and specific products       | 3                                  |
| Miscellaneous comments                                 | 3                                  |

#### *7.4.2.2. Awareness and Engagement*

**Email communication played a significant role in informing customers about the Online Marketplace.** The majority of respondents (61%) discovered I&M's Online Marketplace through email communication. Other sources included the I&M website, friends, family members, or colleagues, internet searches, social media, and flyers in bills. See Figure 7-3 for more information.

*Figure 7-3 Sources of Awareness*

Among the 61% who learned about the marketplace from an email, the email content was nearly equally split between emails promoting the product purchased (30%), an I&M newsletter (27%), and an email with on the customers home energy use with information about the product (27%). Lastly, 3% mentioned learning about the marketplace through some other type of email.

**Discounts on product cost were a driving factor that motivated customers to purchase items from the Online Marketplace.** The majority (84%) of the responses, stated that their primary motivation for using the online marketplace was to save money on the product due to an available I&M discount (see Table 7-11). Convenience was mentioned by 33% as a motivating factor, followed by 23% citing the website's information on energy-saving products. Other factors included good product selection, information about product efficiency being available on the website, and finding the specific products they wanted.

Fifteen percent cited the information about the product efficiency provided on the website. Although this was less often selected as motivation for the purchase, of the 49% of respondents who recalled seeing the Enervee Score provided on the website, 64% rated the importance of the Enervee Score in their decision to purchase the product as an 8 or higher on a 10-point scale.

*Table 7-11 Motivation to Purchase Items from the Online Marketplace*

| <i>Responses</i>   | <i>Percentage of Responses<br/>(n = 61)</i> |
|--|---|
| To save money on the product because an I&M discount was available   | 84%   |
| It was convenient  | 33%   |
| The website provided information on products that save energy        | 23%   |
| The product selection was good                                       | 20%   |
| The information about the product efficiency provided on the website | 15%   |
| Other (e.g., had the products they wanted)                           | 3%  |

*7.4.2.3. Experience with the Online Marketplace*

**Most participants found the process of searching for products on the Online Marketplace user-friendly.** Most respondents (98%) found it easy to locate the products they were looking for on the Online Marketplace. Specifically, 57% described the experience as very easy, and 41% as easy. Two percent of survey respondents reported some difficulty (see Table 7-12). The respondent who found it difficult to find products on the Online Marketplace mentioned that insufficient information about the product, specifically the thermostat, was the primary challenge. They indicated the need for more detailed information about the compatibility of the thermostat with their furnace.

*Table 7-12 Ease of Purchasing Products through the Online Marketplace*

| <i>Responses</i> | <i>Percentage of Responses<br/>(n = 61)</i> |
|------------------|---|
| Very difficult   | 2%  |
| Difficult        | 0%  |
| Easy             | 41%   |
| Very easy        | 57%   |

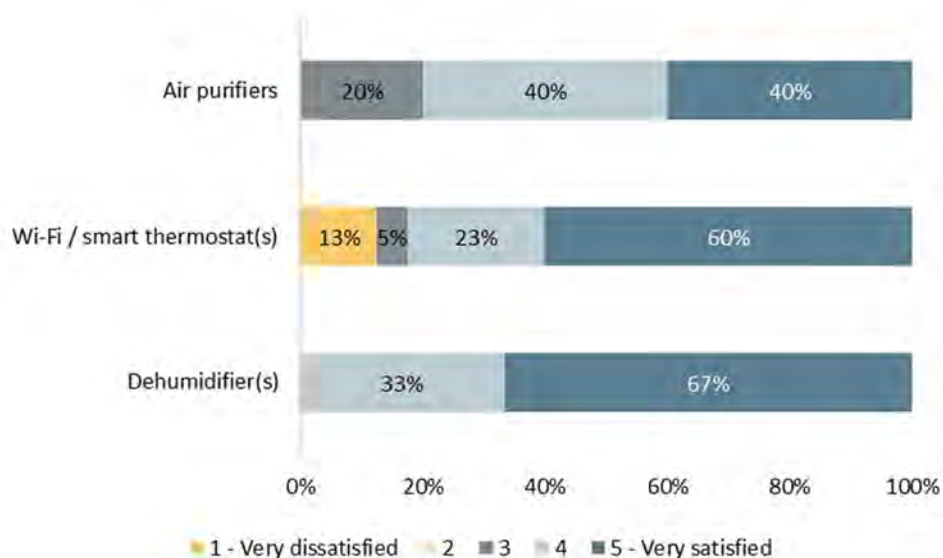
**Most participants purchased their products through the Online Marketplace vs. purchasing the product elsewhere and seeking a program rebate.** Eighty-two percent of respondents said they purchased products through the Online Marketplace. Table 7-13 shows that purchases made via the online marketplace were prevalent across various product categories: 67% for air purifiers, 63% for dehumidifiers, and an impressive 93% for smart thermostats. Conversely, 13% of respondents reported purchasing products from alternative locations. This varied by product type: 33% for air purifiers, 38% for dehumidifiers, and only 7% for smart thermostats.

*Table 7-13 Purchase Source for Products and Rebate Applications*

| <i>Responses</i>                         | <i>Percentage of All Responses (n = 62)</i> | <i>Percentage of Air Purifiers (n = 6)</i> | <i>Percentage of Dehumidifiers (n = 8)</i> | <i>Percentage of Smart Thermostats (n = 45)</i> |
|--|---|--|--|---|
| Purchased through the Online Marketplace | 82%   | 67%  | 63%  | 93%   |
| Bought it somewhere else                 | 13%   | 33%  | 38%  | 7%  |

#### 7.4.2.4. Satisfaction with the Online Marketplace and Products

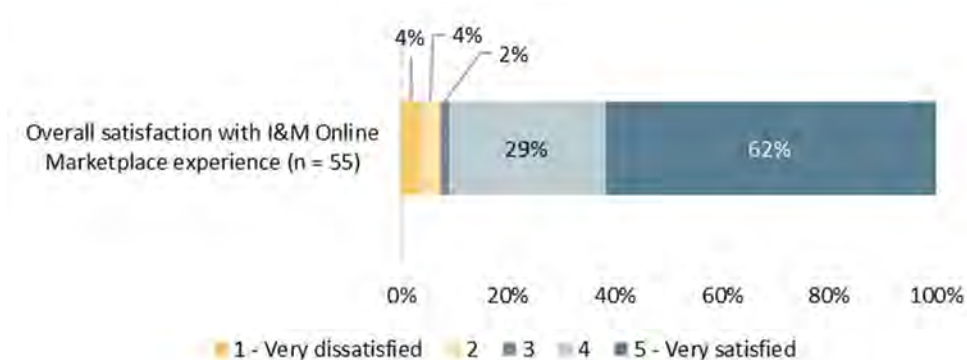
**Overall, satisfaction was generally high for dehumidifiers, Wi-Fi/smart thermostats, and air purifiers.** For dehumidifiers, 100% of survey respondents were either very or somewhat satisfied. In the case of Wi-Fi/smart thermostats, 83% were either very or somewhat satisfied. Air purifiers also received positive feedback, with 80% being very or somewhat satisfied. See Figure 7-4 for more details.

*Figure 7-4 Satisfaction with Online Marketplace Products*

**Most participants found the information on the receipt of the Online Marketplace purchase to be clear.** Many respondents, 65%, found the information on the receipt for their Online Marketplace program purchase to be very clear. Additionally, 31% reported it as somewhat clear. A small percentage, 2%, indicated that the information was somewhat unclear, while another 2% found it not at clear at all. Among those who found the information to be unclear, both respondents identified issues related to installation and compatibility with furnace connections and did not reference issues with the information provided on the receipt specifically.

**Most respondents conveyed a positive experience with the I&M Online Marketplace.** Many respondents, 62%, were very satisfied and an additional 29% reported being satisfied (see Figure 7-5). While a small percentage, 4% being somewhat dissatisfied and 2% very dissatisfied. Several respondents provided feedback on what would have improved their purchase experience on the I&M Online Marketplace. One respondent expressed dissatisfaction due to not receiving the thermostat they ordered and was unsure how difficult it would be to set it up. Another emphasized the importance of product reliability during lower temperatures. Additionally, a respondent highlighted the need for a better product description to assess compatibility with their furnace. Lastly, one respondent expressed dissatisfaction with the discount application process.

*Figure 7-5 Overall Satisfaction with the Online Marketplace*



#### 7.4.2.5. Customer Satisfaction Comparison of 2022 to 2023

**Customers reported satisfaction with the service.** In comparing the overall satisfaction between 2022 and 2023, there were not statistically significant differences in responses. The table below compares the 2022 and 2023 results.

*Table 7-14 Comparison of 2022 and 2023 Overall Satisfaction*

| Responses             | Percentage of 2022 Responses (n = 139) | Percentage of 2023 Responses (n = 55) |
|-----------------------|--|---------------------------------------|
| 1 – Very dissatisfied | 2%                                     | 4%                                    |
| 2                     | 6%                                     | 4%                                    |
| 3                     | 9%                                     | 2%                                    |
| 4                     | 22%                                    | 29%                                   |
| 5 – Very satisfied    | 62%                                    | 62%                                   |

**More respondents were promoters in 2023 but the difference from 2022 was not statistically significant.** Sixty-four percent of respondents were promoters in 2023 compared to 51% in 2022. See Table 7-15 for additional details.

*Table 7-15 Comparison of 2022 and 2023 Net Promoter Scores*

| <i>Responses</i> | <i>Percentage of<br/>2022<br/>Responses<br/>(n = 139)</i> | <i>Percentage of<br/>2023<br/>Responses<br/>(n = 55)</i> |
|------------------|---|--|
| Promoter         | 51%   | 64%  |
| Passive          | 29%   | 27%  |
| Detractor        | 19%   | 9%   |
| NPS              | 30%   | 55%  |

#### 7.4.2.6. Demographic Findings

The survey responses regarding the home's ownership and type indicate that 96% of participants own their home and 4% rent it. In terms of home type, the majority (89%) are single-family houses detached from any other house, 4% are manufactured or mobile homes, 6% are single-family houses attached to one or more other houses (e.g., duplex, row house, or townhome), and 2% live in apartments within buildings. The average number of people currently living in participants' homes year-round is approximately 2.7. Participants reported a range of annual household incomes, with 56% indicating their income was \$50,000 or more and 9% of respondents indicated their income was less than \$50,000 (35% refused to answer).

#### 7.5. Findings and Recommendations

**The program offered a limited range of products in PY2023.** During PY2023, customers purchased discounted smart thermostats, dehumidifiers, air purifiers, and water heaters.

**The program has controls in place for incentives, limiting the number of measures customers can purchase under one account number.** The program monitors incentive levels, but staff noted that changes in manufacturer pricing could cause the incentives to cover varying shares of the measure costs. The marketplace platform does not allow for setting a fixed dollar amount or a minimum share of the measure cost. Additionally, there are limits on the number of measures that can be purchased by an account.

**There is a risk of double counting air purifiers sold through the Online Marketplace and the ENERGY STAR® Appliances Program.** Orders through the marketplace are processed by Best Buy, which participates in the Home Energy Products ENERGY STAR® Appliances Program. Without procedures to prevent these measures from being counted in both programs, there is a risk of double counting the energy savings from air purifiers. ADM identified seven units that might have been double counted but chose not to revise the savings estimates due to uncertainties around whether the identified units were identical, only a subset of models overlapped between the two listings, and the minimal impact of the Home Energy Products ENERGY STAR® Appliances Program on overall sales for PY2023, despite a significant rate of free ridership.

- **Recommendation 1:** ADM recommends either discontinuing incentives for air purifiers through the ENERGY STAR® Appliances program or limiting Online Marketplace air



purifier rebate submissions to purchases made through retailers that do not participate in that program.

**Enervee email campaigns I&M's cross promotion with other programs are the primary marketing approaches used.** The data indicates that email campaigns were the most effective method for informing customers about the online marketplace, with 61% of product purchasers discovering it through this channel. Additionally, 18% of customers found the marketplace via the I&M website. In PY2023, I&M adopted a conservative approach to marketing the program. This strategy was influenced by the cost structure of the online marketplace service, which is tied to the total number of products sold. This includes both efficiently discounted products and other items sold through the Enervee marketplace without discounts.

- **Recommendation 2:** Monitor traffic and purchasing patterns in response to email campaigns to assess the impact on non-qualified products that would increase the cost of the service. By analyzing the data, there is an opportunity to refine marketing efforts for specific products in a way that promotes sales without significantly increasing the purchases of non-qualified products. This targeted strategy can optimize marketing by focusing on driving sales of products that contribute positively to the program's goals without disproportionately affecting service costs. It also enables identification of which product promotions are most effective, allowing for more efficient allocation of marketing resources towards those offering the best return on investment.

**The discounts and information provided by the website motivate customer purchases.** Besides the available discounts, the Online Marketplace provides information on product efficiency to encourage the selection of efficient equipment options. Survey responses suggest both factors motivated purchase decisions. The discount was more commonly cited as a motivating factor (84% cited it) than information about energy efficiency (15% cited this), but of the 49% who saw the Enervee Score summarizing product efficiency, 64% rated its importance in their decision as 8 or higher on a 10-point scale.

**Most participants found the Online Marketplace user-friendly, with 98% reporting ease in locating products.** Customers reported satisfaction with the service, and the new website platform was well received, maintaining consistent satisfaction levels with the previous website.

**Customers reported satisfaction with the service.** The new website platform has been well received and the level of satisfaction with it was consistent with the level of satisfaction with the previous website.

**More respondents were promoters in 2023, but the difference from 2022 was not statistically significant.** Sixty-four percent of respondents were promoters in 2023, compared to 51% in 2022.



## 8. Cost Effectiveness Evaluation

The following cost effectiveness tests were performed for each program: Total Resource Cost (TRC) test, Utility Cost Test (UCT), Participant Cost Test (PCT), and Ratepayer Impact Measure (RIM) test. A score above one signifies that, from the perspective of the test, the program benefits were greater than the program costs. The benefits and costs associated with each test are defined in Table 8-1.

*Table 8-1 Summary of Benefits and Costs Included in each Cost Effectiveness Test*

| Variable                    | Definition   | PCT     |      | UCT     |      | RIM     |      | TRC     |      |
|-----------------------------|--|---------|------|---------|------|---------|------|---------|------|
|                             |  | Benefit | Cost | Benefit | Cost | Benefit | Cost | Benefit | Cost |
| Incentives                  | Incentives paid to customers.  | ✓       |      |         | ✓    |         | ✓    |         |      |
| Program Installation Costs  | Installation costs paid by program.  |         |      |         | ✓    |         | ✓    |         | ✓    |
| Bill Savings / Lost Revenue | Reduction in electricity costs faced by customers as a result of implementation of program measures. Equal to revenue lost to the utility. | ✓       |      |         |      |         | ✓    |         |      |
| Avoided Energy Costs        | Energy-related costs avoided by utility.   |         |      | ✓       |      | ✓       |      | ✓       |      |
| Avoided Capacity Costs      | Capacity-related costs avoided by utility, including T&D.  |         |      | ✓       |      | ✓       |      | ✓       |      |
| Incremental Costs           | Incremental costs associated with measure implementation, as compared with what would have been done in absence of program.                |         | ✓    |         |      |         |      |         | ✓    |
| Program Overhead Costs      | Program costs other than incentive or installation costs.  |         |      |         | ✓    |         | ✓    |         | ✓    |

### 8.1. PY2023 Cost Effectiveness Evaluation

The following tables summarize key financial benefit and cost inputs for the various tests as well as the test results for each residential program during PY2023.

## Indiana Residential Portfolio

Table 8-2 Home Online Energy Checkup

| Variable                     | PCT          |      | UCT        |            | RIM          |              | TRC        |            |
|------------------------------|--------------|------|------------|------------|--------------|--------------|------------|------------|
|                              | Benefit      | Cost | Benefit    | Cost       | Benefit      | Cost         | Benefit    | Cost       |
| Incentives                   | \$ -         |      |            | \$ -       |              | \$ -         |            |            |
| Program Installation Costs   |              |      |            | \$ -       |              | \$ -         |            | \$ -       |
| Bill Savings (NPV)           | \$ 1,087,668 |      |            |            |              |              |            |            |
| Lost Revenue (NPV)           |              |      |            |            |              | \$ 1,403,489 |            |            |
| Avoided Energy Costs (NPV)   |              |      | \$ 486,034 |            | \$ 486,034   |              | \$ 486,034 |            |
| Avoided Capacity Costs (NPV) |              |      | \$ 68,402  |            | \$ 68,402    |              | \$ 68,402  |            |
| Avoided T&D Costs (NPV)      |              |      | \$ 21,403  |            | \$ 21,403    |              | \$ 21,403  |            |
| Incremental Costs            |              | \$ - |            |            |              |              |            | \$ -       |
| Program Overhead Costs       |              |      |            | \$ 381,278 |              | \$ 381,278   |            | \$ 381,278 |
| Total Benefits               | \$ 1,087,668 |      | \$ 575,838 |            | \$ 575,838   |              | \$ 575,838 |            |
| Total Costs                  | \$ -         |      | \$ 381,278 |            | \$ 1,784,767 |              | \$ 381,278 |            |
| Test Score                   | N/A          |      | 1.51       |            | 0.32         |              | 1.51       |            |

Table 8-3 AMI Data Portal

| Variable                     | PCT        |      | UCT       |           | RIM        |            | TRC       |           |
|------------------------------|------------|------|-----------|-----------|------------|------------|-----------|-----------|
|                              | Benefit    | Cost | Benefit   | Cost      | Benefit    | Cost       | Benefit   | Cost      |
| Incentives                   | \$ -       |      |           | \$ -      |            | \$ -       |           |           |
| Program Installation Costs   |            |      |           | \$ -      |            | \$ -       |           | \$ -      |
| Bill Savings (NPV)           | \$ 169,313 |      |           |           |            |            |           |           |
| Lost Revenue (NPV)           |            |      |           |           |            | \$ 169,313 |           |           |
| Avoided Energy Costs (NPV)   |            |      | \$ 47,608 |           | \$ 47,608  |            | \$ 47,608 |           |
| Avoided Capacity Costs (NPV) |            |      | \$ 20,954 |           | \$ 20,954  |            | \$ 20,954 |           |
| Avoided T&D Costs (NPV)      |            |      | \$ 10,295 |           | \$ 10,295  |            | \$ 10,295 |           |
| Incremental Costs            |            | \$ - |           |           |            |            |           | \$ -      |
| Program Overhead Costs       |            |      |           | \$ 24,291 |            | \$ 24,291  |           | \$ 24,291 |
| Total Benefits               | \$ 169,313 |      | \$ 78,857 |           | \$ 78,857  |            | \$ 78,857 |           |
| Total Costs                  | \$ -       |      | \$ 24,291 |           | \$ 193,604 |            | \$ 24,291 |           |
| Test Score                   | N/A        |      | 3.25      |           | 0.41       |            | 3.25      |           |

Table 8-4 Residential Income Qualified Weatherproofing

| Variable                     | PCT        |      | UCT        |            | RIM          |            | TRC        |            |
|------------------------------|------------|------|------------|------------|--------------|------------|------------|------------|
|                              | Benefit    | Cost | Benefit    | Cost       | Benefit      | Cost       | Benefit    | Cost       |
| Incentives                   | \$ 0       |      |            | \$ 0       |              | \$ 0       |            |            |
| Program Installation Costs   |            |      |            | \$ 306,065 |              | \$ 306,065 |            | \$ 306,065 |
| Bill Savings (NPV)           | \$ 280,987 |      |            |            |              |            |            |            |
| Lost Revenue (NPV)           |            |      |            |            |              | \$ 357,545 |            |            |
| Avoided Energy Costs (NPV)   |            |      | \$ 122,267 |            | \$ 122,267   |            | \$ 122,267 |            |
| Avoided Capacity Costs (NPV) |            |      | \$ 33,698  |            | \$ 33,698    |            | \$ 33,698  |            |
| Avoided T&D Costs (NPV)      |            |      | \$ 10,076  |            | \$ 10,076    |            | \$ 10,076  |            |
| Incremental Costs            |            | \$ - |            |            |              |            |            | \$ -       |
| Program Overhead Costs       |            |      |            | \$ 419,489 |              | \$ 419,489 |            | \$ 419,489 |
| Total Benefits               | \$ 280,987 |      | \$ 166,041 |            | \$ 166,041   |            | \$ 166,041 |            |
| Total Costs                  | \$ -       |      | \$ 725,554 |            | \$ 1,083,100 |            | \$ 725,554 |            |
| Test Score                   | N/A        |      | 0.23       |            | 0.15         |            | 0.23       |            |

Table 8-5 Home Energy Products ENERGY STAR® Appliances

| Variable                     | PCT        |            | UCT        |            | RIM        |            | TRC        |            |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
|                              | Benefit    | Cost       | Benefit    | Cost       | Benefit    | Cost       | Benefit    | Cost       |
| Incentives                   | \$ 201,000 |            |            | \$ 201,000 |            | \$ 201,000 |            |            |
| Program Installation Costs   |            |            |            | \$ -       |            | \$ -       |            | \$ -       |
| Bill Savings (NPV)           | \$ 346,483 |            |            |            |            |            |            |            |
| Lost Revenue (NPV)           |            |            |            |            |            | \$ 524,964 |            |            |
| Avoided Energy Costs (NPV)   |            |            | \$ 187,118 |            | \$ 187,118 |            | \$ 187,118 |            |
| Avoided Capacity Costs (NPV) |            |            | \$ 46,659  |            | \$ 46,659  |            | \$ 46,659  |            |
| Avoided T&D Costs (NPV)      |            |            | \$ 12,884  |            | \$ 12,884  |            | \$ 12,884  |            |
| Incremental Costs            |            | \$ 289,798 |            |            |            |            |            | \$ 289,798 |
| Program Overhead Costs       |            |            |            | \$ 161,947 |            | \$ 161,947 |            | \$ 161,947 |
| Total Benefits               | \$ 547,483 |            | \$ 246,660 |            | \$ 246,660 |            | \$ 246,660 |            |
| Total Costs                  | \$ 289,798 |            | \$ 362,947 |            | \$ 887,910 |            | \$ 451,744 |            |
| Test Score                   | 1.89       |            | 0.68       |            | 0.28       |            | 0.55       |            |

Table 8-6 Home HVAC Midstream

| Variable                     | PCT        |            | UCT        |            | RIM        |            | TRC        |            |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
|                              | Benefit    | Cost       | Benefit    | Cost       | Benefit    | Cost       | Benefit    | Cost       |
| Incentives                   | \$ 156,613 |            |            | \$ 156,613 |            | \$ 156,613 |            |            |
| Program Installation Costs   |            |            |            | \$ -       |            | \$ -       |            | \$ -       |
| Bill Savings (NPV)           | \$ 208,911 |            |            |            |            |            |            |            |
| Lost Revenue (NPV)           |            |            |            |            |            | \$ 326,553 |            |            |
| Avoided Energy Costs (NPV)   |            |            | \$ 118,365 |            | \$ 118,365 |            | \$ 118,365 |            |
| Avoided Capacity Costs (NPV) |            |            | \$ 52,964  |            | \$ 52,964  |            | \$ 52,964  |            |
| Avoided T&D Costs (NPV)      |            |            | \$ 14,346  |            | \$ 14,346  |            | \$ 14,346  |            |
| Incremental Costs            |            | \$ 140,973 |            |            |            |            |            | \$ 140,973 |
| Program Overhead Costs       |            |            |            | \$ 128,328 |            | \$ 128,328 |            | \$ 128,328 |
| Total Benefits               | \$ 365,524 |            | \$ 185,675 |            | \$ 185,675 |            | \$ 185,675 |            |
| Total Costs                  | \$ 140,973 |            | \$ 284,941 |            | \$ 611,494 |            | \$ 269,301 |            |
| Test Score                   | 2.59       |            | 0.65       |            | 0.30       |            | 0.69       |            |

Table 8-7 Home Energy Products Online Marketplace

| Variable                     | PCT        |           | UCT        |            | RIM        |            | TRC        |            |
|------------------------------|------------|-----------|------------|------------|------------|------------|------------|------------|
|                              | Benefit    | Cost      | Benefit    | Cost       | Benefit    | Cost       | Benefit    | Cost       |
| Incentives                   | \$ 42,810  |           |            | \$ 42,810  |            | \$ 42,810  |            |            |
| Program Installation Costs   |            |           |            | \$ -       |            | \$ -       |            | \$ -       |
| Bill Savings (NPV)           | \$ 72,091  |           |            |            |            |            |            |            |
| Lost Revenue (NPV)           |            |           |            |            |            | \$ 105,212 |            |            |
| Avoided Energy Costs (NPV)   |            |           | \$ 37,672  |            | \$ 37,672  |            | \$ 37,672  |            |
| Avoided Capacity Costs (NPV) |            |           | \$ 975     |            | \$ 975     |            | \$ 975     |            |
| Avoided T&D Costs (NPV)      |            |           | \$ 294     |            | \$ 294     |            | \$ 294     |            |
| Incremental Costs            |            | \$ 92,672 |            |            |            |            |            | \$ 92,672  |
| Program Overhead Costs       |            |           |            | \$ 117,574 |            | \$ 117,574 |            | \$ 117,574 |
| Total Benefits               | \$ 114,901 |           | \$ 38,941  |            | \$ 38,941  |            | \$ 38,941  |            |
| Total Costs                  | \$ 92,672  |           | \$ 160,384 |            | \$ 265,596 |            | \$ 210,246 |            |
| Test Score                   | 1.24       |           | 0.24       |            | 0.15       |            | 0.19       |            |

# 2023 Indiana Residential Portfolio

## EM&V Report

### Volume II of II

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Indiana Michigan Power

April 2024

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# 1. Introduction

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Under contract with the Indiana Michigan Power (I&M), ADM Associates, Inc., (ADM) performed evaluation, measurement and verification (EM&V) activities to confirm the energy savings (kWh) and demand reduction (kW) realized through the demand side management programs that I&M implemented in Indiana in 2023.

This report is divided into two volumes providing information on the impact, process, and cost-effectiveness evaluation of the I&M portfolio of residential programs implemented in Indiana during the 2023 program year. Volume II contains chapters presenting detailed information regarding evaluation methodologies, data collection instruments, and evaluation results. Volume II is organized as follows:

- Chapter 2: Home Online Energy Checkup Participant Survey Instrument
- Chapter 3: Residential Income Qualified Weatherproofing Survey Instruments
- Chapter 4: Home HVAC Midstream Interview Guide and Survey Instrument
- Chapter 5: Home Energy Products Online Marketplace Participant Survey
- Chapter 6: Home Online Energy Checkup Participant Survey Results
- Chapter 7: Residential Income Qualified Weatherproofing Survey Results
- Chapter 8: Home HVAC Midstream Customer Survey Results
- Chapter 9: Home Energy Products Online Marketplace Participant Survey Results

See report Volume I for narrative and summary information pertaining to the evaluation methods and results.

## 2. Home Online Energy Checkup Participant Survey Instrument

---

1. Thank you for taking this survey about your experience with I&M's Online Energy Checkup Program. Your feedback is very important and will help I&M improve the programs and services it offers customers like you.

ADM Associates is conducting this survey on I&M's behalf. Your responses are confidential and will be used for research purposes only. ADM Associates does not share survey data with third parties for marketing purposes. ADM's full privacy statement can be viewed at: [admenenergy.com/privacy](http://admenenergy.com/privacy)

When you take the survey, once you have entered a response for each question, use the arrow at the bottom right of the screen to get to the next question. Click the box below and then click on the arrow at the bottom right to continue with the survey.

2. reCAPTCHA
3. Our records indicate that your household participated in I&M's Online Energy Checkup program and received a kit that contained [KIT DESCRIPTION] in the mail. Is that correct?
  1. Yes
  2. No (TERMINATE SURVEY)
  98. Don't know (TERMINATE SURVEY)

[Display Q4 = 2, then Terminate Survey]

4. What is wrong with our information?

[Display Q5 if Q1 = 1]

5. The Online Energy Checkup includes a survey that asked you questions about your home to help identify ways to save energy. Were you the person that completed the online energy checkup survey?
  1. Yes
  2. No (TERMINATE SURVEY)
  98. Don't know (TERMINATE SURVEY)

6. How did you first learn about I&M's Online Energy Checkup program?

[Randomize Order of 1 – 10]

2. Mailer from I&M
3. I&M Website ([www.electricideas.com](http://www.electricideas.com) or [indianamichiganpower.com](http://indianamichiganpower.com))
4. Friend or Relative (word-of-mouth)
6. I&M Representative
7. I&M Newsletter
8. I&M email
9. Community event
10. Social media ([Facebook](#), [Instagram](#) or [Twitter](#))

11. My I&M account web portal
  12. Other (Please Specify)
  98. Don't know
7. Why did you decide to complete the online energy checkup survey and receive the energy efficiency kit? (Please select all that apply)
1. To learn about ways to save money on energy bill(s)
  2. Environmental reasons
  3. The items were provided free of charge
  4. Other (Please Specify)
  98. Don't know
8. According to our records, you received KIT\_DESC in your kit. The next few questions are about those items that you received in the kit.

## INSTALLATION

### Showerhead

[Display Q9 if KIT = ELEC]

9. Is the showerhead currently installed?

1. Yes
2. No
98. Don't know

[Display Q10 if Q9 = 2]

10. Do you plan to install the showerhead in the next 6 months?

1. Yes
2. No
98. Don't know

[Display Q11 if Q9 = 2]

11. Why have you not installed the showerhead? (Select all that apply) [Multiselect]

1. I did not receive the showerhead
2. I have not had the time to install it
3. I am not interested in installing it
4. I did not need the showerhead
5. I did not know how to install the showerhead
6. I need physical assistance or tools to install it
7. I don't like low-flow devices



- 8. I gave it away
- 9. I plan on moving or installing it in another location
- 10. Other (Please specify)
- 98. Don't know

## Kitchen faucet aerator

[Display Q12 if KIT = ELEC]

12. Is the kitchen faucet aerator currently installed?

- 1. Yes
- 2. No
- 98. Don't know

[Display Q13 if Q12 =2]

13. Do you plan to install the kitchen faucet aerator in the next 6 months?

- 1. Yes
- 2. No
- 98. Don't know

[Display Q14 if Q12 =2]

14. Why have you not installed the kitchen faucet aerator? (Select all that apply) [Multiselect]

- 1. I did not receive it
- 2. I have not had the time to install it
- 3. I am not interested in installing it
- 4. I did not know how to install it
- 5. I need physical assistance or tools to install it
- 6. I don't like low-flow devices
- 7. I gave it away
- 8. I plan on moving or installing it in another location
- 9. Other (Please specify)
- 98. Don't know

## Bathroom faucet aerator

[Display Q15 if KIT = ELEC]

15. How many of the two bathroom faucet aerators are currently installed?

- 0. 0
- 1. 1
- 2. 2

98. Don't know

[Display Q16 if Q15 = 0, 1]

16. You said that you have not installed [2 - Q15 RESPONSE] bathroom faucet aerator(s). How many of those do you think you will install in the next 6 months?

- 0. [Display if Q15 = 0 OR 1] 0
- 1. [Display if Q15 = 0 OR 1] 1
- 2. [Display if Q15 = 0] 2
- 98. Don't know

[Display Q17 if Q15 = 0, 1]

17. Why have you not installed both of the bathroom faucet aerators? (Select all that apply)  
[Multiselect]

- 1. I did not receive them
- 2. I have not had the time to install them
- 3. I am not interested in installing them
- 4. I don't like them
- 5. I did not know how to install them
- 6. I need physical assistance or tools to install them
- 7. I don't like low-flow devices
- 8. I gave one or both away
- 9. I plan on moving or installing them in another location
- 10. Other (Please specify)
- 98. Don't know

#### Nightlight

[Display Q18 if KIT = ELEC]

18. Is the LED night light currently installed?

- 1. Yes
- 2. No
- 98. Don't know

[Display Q19 if Q18 = 0, 1]

19. Do you plan to install the LED night light in the next 6 months?

- 1. Yes
- 2. No
- 98. Don't know

[If Q18 = 1, set LED\_Install to "Did the", if Q19 = 1, set LED\_Install to "Will the"]

[Display Q20 if Q18 = 0,1]

20. Why have you not installed the LED night light? (Select all that apply)

[Multiselect]

1. I did not receive it
2. I have not had the time to install it
3. I am not interested in installing it
4. I don't like it
5. I didn't need it
6. I gave it away
6. Other (Please specify)
98. Don't know

[Display Q21 if Q18 = 1 or Q19 = 1]

21. [LED\_Install] night light replace a different night light or plug into an unused outlet?

1. Replace a night light
2. Plug into an unused outlet
98. Don't know

Advanced Power Strips

[Display Q22 if Kit = GAS]

22. Is the advanced power strip currently installed?

1. Yes
2. No
98. Don't know

[Display Q23 if Q22 = 2]

23. Do you plan to install the power strip in the next 6 months?

1. Yes
2. No
98. Don't know

[Display Q24 if Q22 = 2]

24. Why have you not installed the power strip? (Select all that apply)

[Multiselect]

1. The power turned off while I was using equipment that was plugged into it
2. Not interested in it

3. Damaged/didn't work right
4. I did not know how to use it
5. For another reason (Please describe)

[If Q22= 1 or Q23=1, set APS\_install to "do you have plugged", if Q23= 1, set APS\_install to "will you plug"]

25. What kind of equipment [APS\_install] into the advanced power strip?

1. Audio/visual/entertainment equipment
2. Computer/office equipment
3. Other types of equipment

[Display if Q25 = 3]

26. What other types of equipment are plugged into the advanced power strip?

#### FREE RIDERSHIP

27. Thinking back to before you completed the Online Energy Checkup, had you purchased any of the following items in the last three years?

[Scale: 1 = Yes, 2 = No, 98 = Don't know]

- a. [Display if KIT = ELEC] Bathroom faucet aerators
- b. [Display if KIT = ELEC] Kitchen faucet aerator
- c. [Display if KIT = ELEC] High efficiency showerheads
- d. [Display if KIT = ELEC] LED night lights
- e. [Display if KIT = GAS] Advance power strips

[Display if KIT = ELEC]

28. Before you heard of the Online Energy Checkup Program, did you have specific plans to buy any of the kit items ([KIT\_DESC]) that were sent to you?

1. Yes
2. No
98. Don't know

[Display Q29 if Q28 = 1 and KIT = ELEC]

29. For each of the following items, please indicate if you had plans to buy the item before you heard of the Online Energy Checkup Program.

[Scale: 1 = Yes, 2 = No, 98 = Don't know]

- a. Bathroom faucet aerators
- b. Kitchen faucet aerator

- c. High efficiency showerheads
- d. LED night lights

[Display if KIT = GAS]

30. Before you heard of the Online Energy Checkup Program, did you have specific plans to buy an advanced power strip?

- 1. Yes
- 2. No
- 98. Don't know

[Display Q31 if Q29A = 1]

31. How many of the two bathroom faucet aerators that you received did you plan to buy?

- 0. 0
- 1. 1
- 2. 2
- 98. Don't know

32. Using a scale where 0 means "not at all likely" and 10 means "very likely", if you had not completed the Online Energy Checkup or received the energy conservation kit, how likely would you have been to buy any of the following items on your own within 12 months of when you received them?

[Scale: 0 = 0 (Not at all likely), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (Very likely)]

- a. [Display if KIT = ELEC] Bathroom faucet aerators
- b. [Display if KIT = ELEC] Kitchen faucet aerator
- c. [Display if KIT = ELEC] High efficiency showerheads
- d. [Display if KIT = ELEC] LED night lights
- e. [Display if KIT = GAS] Advance power strips

[Display Q33 if any in Q32A-E > 0]

33. Based on your response, there is some likelihood that you would have bought some of the kit items in the next 12 months. Given that, we would like to know why you had not already bought the items on your own. [Multiselect]

Had you not already bought the kit items because: (Please select all that apply)

- 1. You didn't want to spend the money
- 2. You had not gotten around to buying the items
- 3. You didn't know where to buy the items

- 4. You didn't know enough about the items
- 5. For other reasons
- 98. Don't know

[Display Q34 if Q33 = 5]

34. What were those other reasons for why you had not previously bought the items?

#### AUDIT TOOL

[Display Section if Q5 = 1]

35. The next few questions are about your experience with the online energy checkup survey.

36. Using a scale where 1 means "very difficult" and 5 means "very easy", how easy or difficult was it to complete the online checkup?

[Scale: 1 = 1 (Very difficult), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very easy)]

[Display Q37 if Q36 < 3]

37. What difficulty did you have completing the online checkup? (Select all that apply)

[Multiselect]

- 1. Signing on
- 2. Not familiar with computers/technology
- 3. The survey would not load
- 4. The screen froze up
- 5. Received some type of error message that prevented completion of the survey
- 6. Couldn't answer some questions
- 7. Other (Please specify)
- 98. Don't know

38. How much did the online checkup increase your knowledge of how to save energy in your home?

[Scale: 1 = 1 (Not at all), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (A great deal)]

#### SPILOVER SECTION

39. Have you bought any additional energy efficient items on your own without a financial incentive or rebate because of a recommendation or information provided by the Online Energy Checkup?

- 1. Yes
- 2. No
- 98. Don't know



[Display Q40if Q39=1]

40. Since completing the online checkup in [YEAR] have you bought any of the following?

Please do not include items provided in the kit.

Select all that apply.

[Multiselect]

1. A smart thermostat
2. An ENERGY STAR appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer
3. Water heater pipe insulation
4. Water heater jacket, blanket, or insulation
5. Additional low flow faucet aerators
6. Additional low flow showerheads
7. An ENERGY STAR window or room air conditioner
8. An energy efficient water heater
9. Something else that saves energy in your home
98. Don't know

[Display if Q40 = 1]

41. Why did you not get an I&M incentive, rebate, or discount for that energy saving equipment?

[Multiselect]

1. Was not aware there was a rebate available
2. Did not have the time to complete rebate application
3. Found out about rebate too late
4. Did not think my equipment was eligible
5. Submitted a rebate application that was rejected
6. You did get a rebate or discount from I&M
7. For some other reason (Please describe)
98. Don't know

[Display if Q40 = 1]

42. What type of thermostat did the smart thermostat replace?

1. A programmable thermostat that allows you to schedule the temperature settings for different times of the day
2. A standard thermostat that lets you set on/off temperatures
3. A different Wi-Fi smart thermostat

98. Don't know

[Display if Q40 = 1]

43. Does the smart thermostat control a central cooling system, a central heating system, or both?

- 1. Central cooling system
- 2. Central heating system
- 3. Both cooling and heating systems
- 98. Don't know

[Display if Q43 = 2 or 3]

44. What type of central heating system do you have?

- 1. Central furnace
- 2. Heat pump
- 3. Other (Please specify)
- 98. Don't know

[Display if Q40 = 2 or 3]

45. What is the main fuel used by the central heating system?

- 1. Natural gas
- 2. Electricity
- 3. Oil
- 4. Propane
- 5. Wood
- 98. Don't know

[Display if Q40 = 2]

46. What kind of appliance did you purchase?

[Display if Q40 = 2]

47. How do you know it is an energy efficient appliance?

[Display if Q40 = 3]

48. About how many feet of water heater pipe insulation did you purchase and install?

[Display if Q40 = 5]

49. How many low flow faucet aerators did you install in bathroom sinks?

[Display if Q40 = 5]

50. How many low flow faucet aerators did you install in kitchen sinks?

[Display if Q40 = 6]

51. How many low flow showerheads did you install?



[Display if Q40 = 7]

52. How many ENERGY STAR window or room air conditioners did you install?

[Display if Q40 = 7]

53. How many square feet is the room that the ENERGY STAR air conditioner is installed in? if you installed multiple air conditioners, please provide the average room size.

[Display if Q40 = 8]

54. How do you know that the water heater you installed is an energy efficient water heater?

[Display if Q40 = 8]

55. What type of water heater did you install? Was it a...

1. Natural gas storage tank water heater
2. Electric storage tank water heater
3. Heat pump water heater
4. A natural gas tank less water heater
5. Some other type of water heater (Please Specify)
98. Don't know

[Display if Q40 = 9]

56. What other energy efficient items did you install?

[Display if Q40 = 1 - 9]

57. In approximately what month and year did you install the energy efficient items that you did not receive an incentive for?

[Display if Q40 = 1 - 9]

58. Using the scale below, how important was the experience with the Online Energy Checkup Survey and PDF with energy saving recommendations in your decision to purchase the items you just mentioned?

[Scale: 0 = 0 (Not at all important), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (Extremely important)]

[Display if Q40 = 1 - 9]

59. Using the scale below, how likely would you have been to purchase those additional items if you had not participated in the Online Energy Checkup Program and received the PDF with energy saving recommendations?

[Scale: 0 = 0 (Not at all likely), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (Extremely likely)]

#### SATISFACTION

60. Using the scale below, please rate how dissatisfied or satisfied you are with each of the following:

[Scale: 1 = 1 (Very dissatisfied), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very satisfied)]

- a. The online energy checkup service, overall
- b. The information provided by the online energy checkup
- c. [Display if KIT = GAS] The advanced powerstrip
- d. [Display if KIT = ELEC] The kitchen aerator
- e. [Display if KIT = ELEC] The bathroom aerators
- f. [Display if KIT = ELEC] The showerhead
- g. [Display if KIT = ELEC] The night light

[Display Q61 if ANY IN Q60 < 3]

61. Why are you dissatisfied with those aspects of the program you mentioned?

62. Given your experience with the Online Checkup program, how likely are you to recommend it to your friends or family?

[Scale: 0 = 0 (Not at all likely), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (Extremely likely)]

63. Why did you give it that rating?

64. Using the scale below, how dissatisfied or satisfied are you with I&M as your electricity service provider?

[Scale: 1 = 1 (Very dissatisfied), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very satisfied)]

#### DEMOGRAPHICS/HOME CHARACTERISTICS

65. The next few questions are about your household. This information will be kept anonymous but you do not need to answer any question you do not want to answer.

66. Do you own the home that you completed the online energy checkup for, rent it, or own it and rent it to someone else?

1. Own
2. Rent
3. Own and rent to someone else
99. Prefer not to answer

67. Which of the following best describes your home? Is it a...

1. Manufactured home
2. Single-family house detached from any other house
3. Single family house attached to one or more other houses, for example, duplex, row house, or townhome
4. Apartment in a building with 2 to 3 units
5. Apartment in a building with 4 or more units
6. Other (Please Specify)
99. Prefer not to answer

68. When was your home built?

1. Before 1950
2. 1950 to 1959
3. 1960 to 1969
4. 1970 to 1979
5. 1980 to 1989
7. 1990 to 1999
8. 2000 to 2009
9. 2010 or later
99. Prefer not to answer

69. What is the approximate square footage of your home? Your best estimate is fine.

[TEXT BOX]

70. What is the main fuel used for heating your home?

1. Electricity
2. Natural Gas
3. Propane
4. Something else (Please Specify)
5. Don't heat home
99. Prefer not to answer

71. What fuel does your main water heater use?

- 1. Electricity
- 2. Natural Gas
- 3. Propane
- 4. Something else (Please Specify)
- 5. Don't heat home
- 99. Prefer not to answer

72. Including yourself, how many people currently live in your home year-round?

- 1. 1
- 2. 2
- 3. 3
- 4. 4
- 5. 5
- 6. 6
- 7. 7
- 8. 8 or more
- 99. Prefer not to answer

73. How many bathroom faucets do you have in your home?

- 1. 1
- 2. 2
- 3. 3
- 4. 4
- 5. 5
- 6. 6
- 7. 7
- 8. 8 or more
- 99. Prefer not to answer

74. How many showers do you have in your home?

- 1. 1
- 2. 2
- 3. 3
- 4. 4
- 5. 5
- 6. 6
- 7. 7
- 8. 8 or more
- 98. Prefer not to answer

### 3. Residential Income Qualified Weatherproofing Survey Instruments

#### 3.1. Virtual Kit Participant Survey Instrument

##### Kit contents

| Electric Water Heater Kit             |          | Gas Water Heater Kit          |          |
|---------------------------------------|----------|-------------------------------|----------|
| Item                                  | Quantity | Item                          | Quantity |
| Advanced Power Strip (7 Plug)         | 1        | Advanced Power Strip (7 Plug) | 1        |
| LED bulbs (9 W)                       | 8        | LED bulbs (9 W)               | 8        |
| High efficiency showerheads (1.5 gpm) | 2        | LED night lights (.33 W)      | 2        |
| Kitchen faucet aerator (1.5 gpm)      | 1        |                               |          |
| Bathroom faucet aerators (1 gpm)      | 2        |                               |          |
| LED night lights (.33 W)              | 2        |                               |          |

1. Thank you for taking this survey about your experience with I&M's Income Qualified Home Energy Checkup Program. Your feedback is very important and will help I&M improve the programs and services it offers customers like you.

ADM Associates is conducting this survey on I&M's behalf. Your responses are confidential and will be used for research purposes only. ADM Associates does not share survey data with third parties for marketing purposes. ADM's full privacy statement can be viewed at: [admenergy.com/privacy](http://admenergy.com/privacy)

2. reCaptcha
3. Our records indicate that your household participated in I&M's Income Qualified Home Energy Checkup program and received a kit in the mail that contained energy efficient items for installation in your home. Is that correct?
  1. Yes
  2. No (TERMINATE SURVEY)
  98. Don't know (TERMINATE SURVEY)

4. How did you first learn about I&M's Income Qualified Home Energy Checkup program?

[Randomize 1 – 8]

1. Email from I&M
2. Mailer from I&M or message on your utility bill
3. I&M Website ([www.electricideas.com](http://www.electricideas.com) or [indianamichiganpower.com](http://indianamichiganpower.com))
4. Friend or relative (word-of-mouth)
5. Program representative
6. Community or public event with program representatives
7. Social media (Facebook, Instagram or Twitter)
8. Other (Please Specify)

98. Don't know

5. How did you sign up for the program?

1. Using the online form on the I&M website
2. By telephone
3. Some other way (please describe)

6. How easy or difficult was it to sign up for the program?

1. Very easy
2. Somewhat easy
3. Somewhat difficult
4. Very difficult

[Display Q7 if Q6 = 3 or 4]

7. What was difficult about the sign-up process?

#### Installation

8. We would like to know if you have had a chance to install any of the kit items and how many of the items are currently installed.

How many of the 8 LED lightbulbs are currently installed?

0. 0
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8
98. Don't know

[Display Q9 if Q8 = 1 - 8]

9. What types of bulbs did you replace with the new LED light bulbs? (Please select all that apply)

[Multiselect]

1. CFLs
2. Incandescent/halogen
3. LEDs
98. Don't know

[Display Q10 if Q9 = 1]

10. How many CFLs did the new LED light bulbs replace?

[Display Q10 if Q9 = 2]

11. How many incandescent/halogen light bulbs did the new LED light bulbs replace?

[Display Q11 if Q9 = 3]

12. How many LED light bulbs did the new LED light bulbs replace?

[Display Q13 if Q8 = 0 - 7]

13. You indicated that you have not installed [8- Q8 RESPONSE] LED bulb(s). How many of those do you think you will install in the next 6 months?

- 0. 0 [Display if Q8 = 0, 1, 2, 3, 4, 5, 6, 7]
- 1. 1 [Display if Q8 = 0, 1, 2, 3, 4, 5, 6, 7]
- 2. 2 [Display if Q8 = 0, 1, 2, 3, 4, 5, 6]
- 3. 3 [Display if Q8 = 0, 1, 2, 3, 4, 5]
- 4. 4 [Display if Q8 = 0, 1, 2, 3, 4]
- 5. 5 [Display if Q8 = 0, 1, 2, 3]
- 6. 6 [Display if Q8 = 0, 1, 2]
- 7. 7 [Display if Q8 = 0, 1]
- 8. 8 [Display if Q8 = 0]
- 98. Don't know

[Display Q14 if Q8 = 0, 1, 2, 3, 4, 5, 6, OR 7]

14. Why have you not installed all of the LED bulbs yet? (Select all that apply)

- 1. I did not receive 8 bulbs
- 2. I have not had the time to install them
- 3. I am not interested in installing them
- 4. I am waiting for light bulbs to burn out before replacing them
- 5. I don't like them
- 6. Some of the bulbs were broken/did not work
- 6. Other (Please specify)
- 98. Don't know

15. Before you received the energy efficiency kit, what share of the light bulbs in your home were LED? Your best guess is fine.

- 1. None
- 2. Some but less than 25%
- 3. Between 25% and 75%
- 4. More than 75%
- 98. Don't know



16. Have you started using the advanced power strip that you received in the kit?

- 1. Yes
- 2. No
- 98. Don't know

[Display Q17 if Q16 = 2]

17. Why are you not using the Advanced Power Strip? (Select all that apply)

- 1. The power turned off while I was using equipment that was plugged into it
- 2. I'm not sure how to use it
- 3. I'm not interested in using it
- 4. I didn't have a need for it
- 5. Other (Please specify)
- 98. Don't know

[Display Q18 if Q16 = 2]

18. Do you plan to start using the advanced power strip in the next six months?

- 1. Yes
- 2. No

[If Q16 = 1, SET APS\_USE TO

"is plugged into",

if Q18 = 1, SET APS\_USE TO,

"will you plug into"]

[Display if Q16 = 1 OR Q18 = 1]

19. What kind of equipment [APS\_USE] the advanced power strip?

[Multiselect]

- 1. Audio/visual/entertainment equipment
- 2. Computer/office equipment
- 3. Other types of equipment

[Display if Q19 = 3]

20. What other types of equipment are plugged into the advanced power strip?

[Display Q21 if KIT = ELEC]

21. How many of the two showerheads are currently installed?



- 0. 0
- 1. 1
- 2. 2
- 98. Don't know

[Display Q22 if Q21 = 0, 1]

22. You indicated that you have not installed [2 - Q21 RESPONSE] showerheads. How many of those do you think you will install in the next 6 months?

- 0. [Display if Q21 = 0 OR 1] 0
- 1. [Display if Q21 = 0 OR 1] 1
- 2. [Display if Q21 = 0] 2
- 98. Don't know

[Display Q23 if Q21 = 0, 1]

23. Why have you not installed both of the showerheads? (Select all that apply)

[Multiselect]

- 1. I did not receive both showerheads
- 2. I have not had the time to install them
- 3. I am not interested in installing them
- 4. I do not have enough showers to use them
- 5. I did not know how to install the showerheads
- 6. I need physical assistance or tools to install them
- 7. I don't like them
- 8. Other (Please specify)
- 98. Don't know

[Display Q24 if KIT = ELEC]

24. Is the kitchen faucet aerator currently installed?

- 1. Yes
- 2. No
- 98. Don't know

[Display Q25 if Q24 = 2]

25. Do you plan to install the kitchen faucet aerator in the next 6 months?

- 1. Yes
- 2. No

[Display Q26 if Q24 = 2]

26. Why have you not installed the kitchen faucet aerator? (Select all that apply)

[Multiselect]

1. I did not receive it
2. I have not had the time to install it
3. I am not interested in installing it
4. I did not know how to install it
5. I need physical assistance or tools to install it
6. I don't like it
7. Other (Please specify)
98. Don't know

[Display Q27 if KTF = ELÉC]

27. How many of the two bathroom faucet aerators you received are currently installed?

0. 0
1. 1
2. 2
98. Don't know

[Display Q28 if Q27 = 0, 1]

28. You indicated that you have not installed [2 - Q27 RESPONSE] bathroom faucet aerator(s). How many of those do you think you will install in the next 6 months?

0. [Display if Q21 = 0 OR 1] 0
1. [Display if Q21 = 0 OR 1] 1
2. [Display if Q21 = 0] 2
98. Don't know

[Display q29 if q27 = 0, 1]

29. Why have you not installed both of the bathroom faucet aerators? (Select all that apply)

[Multiselect]

1. I did not receive them
2. I have not had the time to install them
3. I am not interested in installing them
4. I don't like them
5. I did not know how to install them
6. I need physical assistance or tools to install them
7. Other (Please specify)
98. Don't know

30. How many of the two LED night lights are currently installed?

- 0. 0
- 1. 1
- 2. 2
- 98. Don't know

[Display Q31 if Q30= 0, 1]

31. You indicated that you have not installed [2 - Q30 RESPONSE] LED night light(s). How many of those do you think you will install in the next 6 months?

- 0. [Display if Q21 = 0 OR 1] 0
- 1. [Display if Q21 = 0 OR 1] 1
- 2. [Display if Q21 = 0] 2
- 98. Don't know

[Display Q32 if Q30 = 0,1]

32. Why have you not installed both of the LED night lights? (Select all that apply)

[Multiselect]

- 1. I did not receive them
- 2. I have not had the time to install them
- 3. I am not interested in installing them
- 4. I don't like them
- 5. I didn't need them
- 6. Other (Please specify)
- 98. Don't know

[Display Q33 if Q30 = 1 or 2]

33. When you installed the LED night light(s), did you replace a night light(s) that you already had, or did you plug it into an empty outlet?

- 1. Replaced a night light
- 2. Installed the night light in an empty socket
- 3. [Display if Q30 = 2] Replaced one night light and installed the other in an empty socket
- 98. Don't know

[Display Q34 if Q30 = 2]

34. Did either of the night lights that you installed replace a night light that you already had or did they plug into unused outlets?

- 1. Neither replaced a night light they already had
- 2. One replaced a night light they already had
- 3. Both replaced a night light they already had

98. Don't know

[Display Q35 if Q31 = 1 or 2]

35. When you install the nightlight(s) you haven't already installed, will you...

1. Replace another night light
2. Install in an empty socket
3. [Display if Q31 = 2] Replace one night light and install the other in an empty socket
98. Don't know

#### Experience with virtual audit

36. The next few questions are about the virtual audit of your home. Were you the person in your household who participate in the virtual audit?

1. Yes
2. No
98. Don't know

[Display Q37 if Q36 = 1]

37. About how long did the virtual audit take?

1. 15 minutes or less
2. 15 to 30 minutes
3. 30 to 45 minutes
4. 45 to 60 minutes
5. More than 60 minutes
98. Don't know

[Display q38 if q36 = 1]

38. Did the person you spoke with provide any energy saving tips?

1. Yes
2. No

[Display Q39 if Q38 = 1]

39. What energy saving tips do you recall?

[Display Q40 if Q36 = 1]

40. Overall, how useful was the virtual audit for helping you understand ways you can save energy?

1. 1 (Not at all useful)
2. 2

3. 3

4. 4

5. 5 (Very useful)

[Display Q41 if Q40= 1, 2, or 3]

41. Why do you think the audit was not very useful for helping you understand ways you can save energy?

#### Participant satisfaction

42. Using the scale below, please rate how dissatisfied or satisfied you are with each of the following:

[SCALE: 1 = 1 (Very dissatisfied), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very satisfied)]

- a. The energy checkup service, overall
- b. The information provided through the virtual audit
- c. The kit items that you received

[Display Q43 if ANY IN Q42 < 3]

43. Why are you dissatisfied with those aspects of the program you mentioned?

[TEXT BOX]

44. Using the scale below, how dissatisfied or satisfied are you with I&M as your electricity service provider?

[SCALE: 1 = 1 (Very dissatisfied) 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very satisfied)]

#### Demographics/Home characteristics

45. The next few questions are about your household. Like all of your responses, this information will be kept confidential but you do not need to answer any question you do not want to answer.

46. Do you own the home that you completed the virtual assessment for, rent it, or own it and rent it to someone else?

- 1. Own
- 2. Rent
- 3. Own and rent to someone else
- 99. Prefer not to answer

47. Which of the following best describes your home? Is it a...

1. Manufactured home
2. Single-family house detached from any other house
3. Single family house attached to one or more other houses, for example, duplex, row house, or townhome
4. Apartment in a building with 2 to 3 units
5. Apartment in a building with 4 or more units
6. Other (Please Specify)
99. Prefer not to answer

48. When was your home built?

1. Before 1950
2. 1950 to 1959
3. 1960 to 1969
4. 1970 to 1979
5. 1980 to 1989
7. 1990 to 1999
8. 2000 to 2009
9. 2010 or later
99. Prefer not to answer

49. What is the main fuel used for heating your home?

1. Electricity
2. Natural Gas
3. Propane
4. Something else
5. Don't heat home
99. Prefer not to answer

50. What fuel does your main water heater use?

1. Electricity
2. Natural Gas
3. Propane
4. Something else
5. Don't heat home
99. Prefer not to answer

54. Which of the following best describes your annual household income?

1. Less than \$10,000
2. \$10,000 to less than \$20,000
3. \$20,000 to less than \$30,000
4. \$30,000 to less than \$40,000
5. \$40,000 to less than \$50,000
6. \$50,000 to less than \$75,000
7. \$75,000 to less than \$100,000
8. \$100,000 to less than \$150,000
9. \$150,000 to less than \$200,000
10. \$200,000 or more
99. Prefer not to answer

### 3.2. In-Home Participant Survey Instrument

1. Our records indicate that your household participated in I&M's Home Energy Checkup Program by receiving an in-home energy assessment and some energy saving home improvements. Is that correct?

1. Yes
2. No (TERMINATE SURVEY)
98. Don't know (TERMINATE SURVEY)

#### Program Awareness

2. How did you first learn about I&M's Home Energy Checkup Program?

1. Email from I&M
2. I&M postal mailing
3. I&M Website (www.electricideas.com or indianamichiganpower.com)
4. Friend or Relative (word-of-mouth)
5. I&M Representative
6. Community event
7. Social media (Facebook, Instagram or Twitter)
8. Other (Specify)
98. Don't know

#### Energy Audit

3. Your home received a home energy checkup as part of your participation in the program. Did you schedule the home energy checkup you received through the program?

1. Yes
2. No, another person in my household scheduled it
3. I am not aware that a home energy assessment was performed

[Display if Q3=1 OR 2]

4. What were the main reasons you wanted to have the checkup done in your home? Select all that apply.

1. Required to in order to receive the home improvements
2. Recommended by contractor
3. Recommended by friend or family
4. Wanted to better understand the condition of my home
5. Concerned about a specific issue(s) in my home
6. Save energy to save money
7. Save energy to protect the environment
8. Wanted to make my home more comfortable

[Display if Q3=1 OR 2]



5. Did the energy expert that did the home checkup ask you about any concerns you had about your home?

- 1. Yes
- 2. No
- 98. Not Sure

[Display if Q3= 1 OR 2]

6. Did the energy expert discuss the findings from the checkup with you?

- 1. Yes
- 2. No
- 98. Not Sure

[Display if Q3= 1 OR 2]

7. At the end of your checkup, did you receive a report or list of recommendations for making your home more energy efficient?

- 1. Yes
- 2. No
- 98. Not Sure

[Display if Q3= 1 OR 2]

8. On a scale of 1 to 5, where 1 means "Very dissatisfied" and 5 means "Very satisfied", how satisfied were you with each of the following?

- 1. The amount of time between scheduling and when the checkup took place
- 2. The time it took to complete the checkup
- 3. The professionalism of the energy expert
- 4. The quality of the work performed during the checkup
- 5. The energy checkup overall

[If any Q8 statement < 3]

9. Why were you dissatisfied with [PIPED RESPONSES < 3]?

10. Not including the energy efficiency improvements that were made to your home, did you learn about any tips for reducing energy use in your home during the checkup?

- 1. Yes
- 2. No
- 98. Don't know

[Display Q11 if Q10= 1]



11. What tips for reducing your energy use did you learn from the home energy checkup?

[Display Q12 if Q11 = 1]

12. Have you implemented any of the energy saving tips that you learned about from the home energy checkup?

- 1. Yes
- 2. No
- 98. Don't know

[Display Q13 if Q12 = 1]

13. Which energy saving tips have you implemented?

[Display if Q3= 1 OR 2]

14. Overall, how useful was the information provided in the home energy checkup? Would you say it was...

- 1. Not at all useful
- 2. Not very useful
- 3. Somewhat useful
- 4. Very useful

#### Major Measure Verification [Display if MA|MEAS\_COUNT > 0]

15. According to our records you made the following home improvements through I&M's Home Energy Checkup Program. Is this information correct?

[Scale: 1 = Correct, 2 = Incorrect, 98 = Don't know]

- a) [Display if DUCTLESS\_HP = 1] Ductless heat pump
- b) [Display if REFRIGERATOR = 1] Refrigerator
- c) [Display if AIR\_SEALING = 1] Air sealing to reduce air leakage and drafts
- d) [Display if INSULATION = 1] Insulation

[Display if any in Q15= 1]

16. The next question is about the [VERIFIED MEASURES] installed through the program. How long did it take for a contractor to contact you to have those improvements made after the checkup was completed?

- 1. Less than 2 weeks
- 2. 2 – 4 weeks

- 3. 5- 6 weeks
- 4. 7- 8 weeks
- 5. More than 8 weeks
- 98. Don't know

[Display if Q16= 1-5]

17. You said it took [PIPED Q16 RESPONSE] for a contractor to contact you about making the improvements. About how long did it take to have the work done from when you first had the energy checkup completed?

- 1. Less than 2 weeks
- 2. 2 - 4 weeks
- 3. 5- 6 weeks
- 4. 7- 8 weeks
- 5. More than 8 weeks
- 98. Don't know

#### Direct Install Verification [Display if di\_meas = 1]

18. According to our records you received the following energy saving items through I&M's Home Energy Checkup Program. Is this information correct?

[Scale: 1 = Correct, 2 = Incorrect, 98 = Don't know]

- a) [Display if LED\_QUANT > 0] [LED\_QUANT] LED light bulbs
- b) [Display if BATH\_AERATOR\_QUANT > 0] [BATH\_AERATOR\_QUANT] energy and water efficient bathroom faucet aerators(s)
- c) [Display if KITCHEN\_AERATOR\_QUANT > 0] [KITCHEN\_AERATOR\_QUANT] energy and water efficient kitchen faucet aerator(s)
- d) [Display if SHOWER\_QUANT > 0] [SHOWER\_QUANT] energy and water efficient showerheads
- e) [Display if PIPEWRAP = 1] Pipe wrap
- f) [Display if APS\_QUANT > 0] [APS\_QUANT] advanced power strip(s)
- g) [Display if NIGHTLIGHT\_QUANT > 0] [NIGHTLIGHT\_QUANT] Night light(s)

[Display Q19 if Q18A = 2]

19. How many LED light bulbs were installed in your home?

[Display Q20 if Q18B = 2]

20. How many energy and water efficient bathroom faucet aerators were installed in your home?

[Display Q21 if Q18C = 2]

21. How many energy and water efficient kitchen faucet aerators were installed?

[Display Q22 if Q18D = 2]

22. How many energy and water efficient showerheads were installed?

[Display Q22 if Q18D = 2]

23. How many advanced power strips were installed?

[Display Q22 if Q18D = 2]

24. How many nightlights were installed?

[Set variables: If verified (Q1B = 1), set to tracked quantity, else set to value provided in response.]

LED\_INSTALLED

BATH\_INSTALLED

KITCHEN\_INSTALLED

SHOWER\_INSTALLED

APS\_INSTALLED

NIGHTLIGHT\_INSTALLED]

#### Nightlights and APS Verification

[Display if NIGHTLIGHT\_INSTALLED > 0]

25. Are you currently using all the [NIGHTLIGHT\_INSTALLED] nightlights that you received?

1. Yes

2. No (How many are you using?)

[Display if Q25 = 1 or Q25 = 2 and currently installed count > 0]

26. How many of the nightlights that you are currently using replaced an existing nightlight?

[Display if APS\_INSTALLED > 0]

27. Are you currently using the advanced power strip?

1. Yes

2. No

[Display if Q27 = 2]

28. Why are you not using the advanced power strip? (Select all that apply)

[Multiselect]

1. The power turned off while you were using the equipment plugged into it
2. You did not know how to use it
3. You are not interested in using it
4. You didn't have a need for it
5. For some other reason
98. Don't know

25. What kind of equipment is plugged into the advanced power strip?

[Multiselect]

1. Audio/visual/entertainment equipment
2. Computer/office equipment
3. Other types of equipment

[Display if Q27 = 3]

30. What other types of equipment are plugged into the advanced power strip?

[Display if APS\_INSTALLED > 0]

31. Did the person who completed the energy checkup of your home install the advanced power strip?

1. Yes
2. No
98. Don't know

[Display if Q31 = 1]

32. Have you changed what was plugged into the advanced power strip?

1. Yes
2. No
98. Don't know

#### LED

[Display section if LED\_INSTALLED > 0]

33. Are all the [LED\_INSTALLED] LED bulbs that you received currently installed in a lamp?

1. Yes
2. No (How many are currently installed?)

34. What types of bulbs did the new LED light bulbs replace? (Please select all that apply)

[Multiselect]

1. CFLs
2. Incandescent/halogen
3. LEDs
98. Don't know

[Display Q35 if Q33 = 1]

35. How many CFLs did the new LED light bulbs replace?

[Display Q35 if Q33 = 2]

36. How many incandescent/halogen light bulbs did the new LED light bulbs replace?

[Display Q36 if Q33 = 3]

37. How many LED light bulbs did the new LED light bulbs replace?

#### Low-Flow Devices

[Display if BATH\_INSTALLED > 0]

38. Are all the [BATH\_INSTALLED] bathroom faucet aerators that you received currently installed in your home?

1. Yes
2. No (How many are currently installed?)

[Display if KITCHEN\_INSTALLED > 0]

39. Are all the [KITCHEN\_INSTALLED] kitchen aerators that you received currently installed in your home?

1. Yes
2. No (How many are currently installed?)

[Display if SHOWER\_INSTALLED > 0]

40. Are all the [SHOWER\_INSTALLED] low-flow showerheads that you received currently installed in your home?

1. Yes
2. No (How many are currently installed?)

**Program Satisfaction**

41. Using a scale where 1 means "very dissatisfied" and 5 means "very satisfied," please rate how satisfied you are with each of the following:

[Scale: 1 = 1 (Very dissatisfied), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very satisfied)]

- a. Performance of the items or improvements installed
- b. The effort required to sign up to participate in the program
- c. The quality of the installation work
- d. The program overall

[Display Q42 if ANY IN Q41 < 3]

42. Why are you dissatisfied with the following aspects of the program?

43. Using the same scale where 1 means "very dissatisfied" and 5 means "very satisfied," how satisfied are you with I&M as your electricity service provider?

[Scale: 1 = 1 (Very dissatisfied), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very satisfied)]

44. How likely are you to recommend Home Energy Checkup Program to a friend or colleague?

[Scale: 0 (Not at all likely) – 10 (Extremely likely)]

45. Why do you give it that rating?

**Demographics/Home Characteristics**

The next few final questions are about your household. This information will be kept confidential, but you do not need to answer any question you do not want to answer.

46. Do you own the home that participated in the Home Energy Checkup Program, rent it, or own it and rent it to someone else?

1. Own
2. Rent
3. Own and rent to someone else
99. Prefer not to answer

47. Which of the following best describes your home? Is it a...

1. Manufactured home
2. Single-family house detached from any other house
3. Single family house attached to one or more other houses, for example, duplex, row house, or townhome
4. Apartment in a building with 2 to 3 units
5. Apartment in a building with 4 or more units
6. Other (Specify)

99. Prefer not to answer

48. How many bathroom faucets do you have in your home?

0. 0

1. 1

2. 2

3. 3

4. 4

5. 5

6. 6

7. 7

8. 8 or more

99. Prefer not to answer

49. How many showers do you have in your home?

0. 0

1. 1

2. 2

3. 3

4. 4

5. 5

6. 6

7. 7

8. 8 or more

98. Prefer not to answer

50. When was your home built?

1. Before 1950

2. 1950 to 1959

3. 1960 to 1969

4. 1970 to 1979

5. 1980 to 1989

7. 1990 to 1999

8. 2000 to 2009

9. 2010 or later

99. Prefer not to answer

51. Including yourself, how many people currently live in your home year-round?

1. 1

2. 2

3. 3

4. 4



- 5. 5
- 6. 6
- 7. 7
- 8. 8 or more
- 99. Prefer not to answer

52. Which of the following best describes your annual household income?

- 1. Less than \$10,000
- 2. \$10,000 to less than \$20,000
- 3. \$20,000 to less than \$30,000
- 4. \$30,000 to less than \$40,000
- 5. \$40,000 to less than \$50,000
- 6. \$50,000 to less than \$75,000
- 7. \$75,000 to less than \$100,000
- 8. \$100,000 to less than \$150,000
- 9. \$150,000 to less than \$200,000
- 10. \$200,000 or more
- 99. Prefer not to answer

53. Did your home receive any assistance in paying your electricity bill in the past year?

- 1. Yes
- 2. No
- 98. Don't know

## 4. Home HVAC Midstream Interview Guide and Survey Instrument

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### 4.1. Participating Distributor Interview Guide

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#### Business Background

*Objective: Warm up and get additional background information on the business.*

1. To begin with, can you tell me about your role in your business?
2. Could you tell me a little about your business and the types of equipment and services you provide?
3. Do you supply larger HVAC systems of greater than 5 tons?
4. How many locations does [Company] operate within I&M's Indiana and/or Michigan service territory?

Indiana:

Michigan:

5. Does your business sell any of the following types of equipment? [Ask for equipment types that did not receive a discount to understand if they offer the equipment]

1. [Display if CAC = 0] Central air conditioners
2. [Display if minisplit = 0] Mini-split systems
3. [Display if heatpump = 0] Heat pumps
4. [Display if hpwh = 0] Heat pump water heaters
5. [Display if geothermal = 0] Geothermal heat pumps

6. How did you first hear about I&M's Midstream Program?
7. To your knowledge, how long has [Company] been a participating distributor in the program?

[Program started June 2022]

8. What information about the program was most useful to you when deciding to participate in the Residential HVAC Midstream program?

#### Training

*Objective: Understand the adequacy of the program training and understand if there are opportunities for improvement.*

9. Did CLEAResult provide you with training prior to participating in the program?
10. What kind of training did you receive?
  1. In-person
  2. Live online webinar
  3. Pre-recorded webinar
  4. Some other way (please specify)
11. How helpful was that training for understanding the program and what you needed to do to participate?
12. How could CLEAResult improve the training they provide to distributors?

## Program Influence

13. I have a few questions about how the program might have affected your business practices. To begin with, can you tell me which of the following strategies you use, if any, to sell more program-qualified units? [YES=1, NO=2, AND 98=DON'T KNOW]
1. Upsell contractors to purchase program-qualified units
  2. Conduct training workshops for contractors
  3. Marketing of program-qualified units
  4. Discuss the benefits of program-qualified units with design professionals (e.g., engineers or architects)
  5. Develop marketing or informational materials for service providers to use
14. On a scale from 0 to 10, where 0 means "not at all" and 10 means "greatly influenced," how influential has the Midstream Program been on your sales of program-qualified equipment? [INSERT 0-10 SCALE AS DEFINED ABOVE, WITH 98= DON'T KNOW]
15. We understand that many factors can affect your decisions about what equipment you choose to stock, but we are interested in understanding how the Midstream program may have affected your stocking practices of energy efficient, program-qualified equipment. Since enrolling in the program, has your stocking of any of the program qualified equipment increased?
16. [If Yes, ask which equipment type and if they stocked that equipment before participating in the program]

[Display Q17 IF Q15=1]

17. To what extent has the Midstream program influenced this increase in stock of high efficiency HVAC units? Please give an answer on a scale from 0 to 10 where 0 means "no influence" and 10 means "a great deal of influence."

[Insert 0-10 scale as defined above, with 98= Don't know]

18. Do you think that you sold more of the HVAC units than you would have if the I&M discounts were not available?

Yes  
No

[Display Q18=1]

19. How much did the I&M program increase the sales for each type of equipment that I will list?

Please provide your best estimate as a percent.

[Ask for each type of equipment that discounts were received for.]

1. [Display if CAC > 0] Central air conditioners

2. [Display if minisplit > 0] Mini-split systems
3. [Display if heatpump > 0] Heat pumps
4. [Display if hpwh > 0] Heat pump water heaters
5. [Display if geothermal > 0] Geothermal heat pumps

#### Market Conditions

20. What percentage of buyers are aware of the I&M equipment discounts before you tell them about it?
21. Have you faced any challenges in procuring program-qualified equipment in the past 12 months? What have those been?
22. Have you noticed any impacts of the new SEER2 efficiency standards? Have the requirements increased the number of units available that meet the older efficiency standards and can still be sold in northern states but not in southern states?
23. Have the costs of program qualified equipment changed in the last 18 months? Have you seen similar cost changes for standard efficiency equipment?
24. How has participating in I&M's HVAC Midstream program impacted your business?

#### Satisfaction

25. Overall, what do you think is working well with the I&M midstream program?
  26. What barriers or challenges does your business face in working with the program and providing discounts to buyers? [Probe about effect on sales margin, difficulty meeting data tracking requirements, burden of paperwork, etc.]
  27. What do you think could be improved about the program?
  28. What could the program do to help you sell more program units?
  29. Overall, how satisfied are you with the program?
- [Follow up with questions about how much those factors are limiting sales currently]
30. Is there anything else you would like to discuss about your experience as a distributor in the I&M Residential HVAC Midstream program?

## 4.2. Customer Survey Instrument

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### Introduction

4. Just to confirm, did you install a new [EQUIPMENT\_TYPE] in 2023 at your home located at?

1. Yes
2. No

[Display if Q4 = 2]

5. What is incorrect about the information we have?

1. You installed new heating equipment but it was not a [EQUIPMENT\_TYPE]
2. You installed [EQUIPMENT\_TYPE] but not at that location
3. You did not install any new heating or cooling equipment in 2023

[If Q5 = 3, Terminate Survey]

[Display if Q5 = 1]

6. What type of equipment did you install?

[Display if Q5 = 2]

7. Is the location where the equipment is installed a home or a business?

1. Home
2. Business
3. Other (Please explain)

[Display if Q5 = 2]

8. Does the location receive electricity service from Indiana-Michigan Power (I&M)?

1. Yes
2. No
99. Not sure

### Program Influence

9. Did you know that the [EQUIPMENT\_TYPE] included a discount provided by I&M?

1. Yes
2. No

[Display if Q9 = 1]

10. Were you planning to install an energy efficient [EQUIPMENT\_TYPE] before you learned about the discount provided by I&M?

1. Yes
2. No
99. Not sure

[Display if Q11 = 1]

11. Just to be clear, did you have plans to specifically install an energy efficient [EQUIPMENT\_TYPE] instead of installing a standard efficiency [EQUIPMENT\_TYPE]?

- 1. Yes
- 2. No
- 98. Not sure

[Display if Q8 = 1]

12. Would you have been able to afford the high efficiency [EQUIPMENT\_TYPE] if the discount was not available?

- 1. Yes
- 2. No
- 98. Not sure

[Display if Q9 = 1]

13. If the discount was not provided by I&M, which of the following best describes what you would have done?

- 1. You would have bought the exact same [EQUIPMENT\_TYPE] or one that was more energy efficient
- 2. You would have bought a less efficient or lower cost [EQUIPMENT\_TYPE]
- 3. You would not have bought a new [EQUIPMENT\_TYPE]

[Display if Q8 = 1]

14. Using a scale where 0 is "not at all likely" and 10 is "very likely", how likely is it that you would have installed the same [EQUIPMENT\_TYPE] at about the same time if you had not received the discount?

[Use scale as stated in question]

[Display if Q8 = 1]

15. When might you have installed the same [EFF\_MEASURE1/2] if the discount was not available?

- 1. At the same time as when you installed it
- 2. Within 6 months of when you installed it
- 3. Between 6 months and 1 year
- 4. In more than 1 year to 2 years
- 5. In two years or more
- 6. Never, would not have installed an energy efficient [EQUIPMENT\_TYPE]
- 98. Don't know



16. Did the contractor you worked with recommend that you install the energy efficient [EQUIPMENT\_TYPE]?

1. Yes
2. No

#### Heat pump baseline

[Display section if EQUIPMENT\_TYPE = heat pump, ductless heat pump, or geothermal heat pump]

17. Did the [EQUIPMENT\_TYPE] replace some old heating and cooling equipment?

1. Yes, it replaced both cooling and heating equipment
2. Yes, it replaced cooling equipment
3. Yes, it replaced heating equipment
4. No, it was a new installation that did not replace any equipment

[Display if Q17 = 1]

18. Did the [EQUIPMENT\_TYPE] replace a heat pump?

1. Yes
2. No
99. Don't know

#### Heat pump replacement

[Display section if Q18 = 1]

19. Was the old heat pump working at the time it was replaced?

1. Yes
2. No

20. Thinking about the old heat pump you replaced, which of the following best describes when and how it was originally installed.

1. You bought the house new and the unit was original equipment when you bought it.
2. It was original equipment in a newly constructed home when the previous owner bought it.
3. It was there when you bought the house from a previous owner.
4. You or your family installed the old unit.
5. Other (Please specify)

21. Do you know the approximate age of the old heat pump that was replaced?

1. Yes (How old was it?)
2. No

[Display section if Q21 = 2]



22. Which of the following do you think is the most likely age of the old heat pump?

1. More than 20 years old
2. 15 – 20 years old
3. 10 – 15 years old
4. Less than 10 years old

Other heating equipment replacement:

[Display section if Q17 = 5 OR Q18 =2]

23. Was the old heating equipment working at the time it was replaced?

1. Yes
2. No

24. What type of heating system did you have before you installed the [EQUIPMENT\_TYPE]?

1. Electric resistance heating
2. An air source heat pump
3. Some other kind of heating system
4. No heating equipment
98. Don't know

[Display if Q24 = 1]

25. Was your electric resistance heating system an electric furnace or baseboard heating?

1. Electric furnace
2. Electric baseboard heating
98. Don't know

26. Thinking about the old heating equipment you replaced, which of the following best describes when and how it was originally installed.

1. You bought the house new and the unit was original equipment when you bought it.
2. It was original equipment in a newly constructed home when the previous owner bought it.
3. It was there when you bought the house from a previous owner.
4. You or your family installed the old unit.
5. Other (Please specify)

27. Do you know the approximate age of the old heating equipment that was replaced?

1. Yes (How old was it?)
2. No

[Display if Q27 = 2]

28. Which of the following do you think is the most likely age of the old heating equipment:

1. More than 20 years old
2. 15 – 20 years old
3. 10 – 15 years old
4. Less than 10 years old

#### Cooling equipment replacement

[Display section if (Q17 = 1 AND Q18 = 2) OR (Q17 = 1 AND Q18 = 98) OR Q17 = 2]

29. Was the cooling equipment that you replaced a central air conditioner?

1. Yes
2. No
98. Don't know

[Display if Q29 = 1]

30. Thinking about the [Q29 Response] you replaced, which of the following best describes when and how it was originally installed in.

1. You bought the house new and the unit was original equipment when you bought it.
2. It was original equipment in a newly constructed home when the previous owner bought it.
3. It was there when you bought the house from a previous owner.
4. You or your family installed the old unit.
5. Other (Please specify)

[Display if Q29 = 1]

31. Was the old central air conditioner working at the time it was replaced?

1. Yes
2. No

[Display if Q29 = 1]

32. Do you know the approximate age of the old central air conditioner that was replaced?

1. Yes (How old was it?)
2. No

[Display if Q32 = 2]

33. Which of the following do you think is the most likely age of the old central air conditioner:

1. More than 20 years old
2. 15 – 20 years old
3. 10 – 15 years old
4. Less than 10 years old

## Central air conditioner

[Display section if EQUIPMENT\_TYPE = air conditioner]

34. Did the central air conditioner that you installed replace a different central air conditioner?

1. Yes
2. No
98. Don't know

[Display if Q34 = 1]

35. Thinking about the central air conditioner that you replaced, which of the following best describes when and how it was originally installed in.

1. You bought the house new and the unit was original equipment when you bought it.
2. It was original equipment in a newly constructed home when the previous owner bought it.
3. It was there when you bought the house from a previous owner.
4. You or your family installed the old unit.
5. Other (Please specify)

[Display if Q34 = 1]

36. Was the old air conditioner working at the time it was replaced?

1. Yes
2. No

[Display if Q34 = 1]

37. Do you know the approximate age of the old air conditioner that was replaced?

1. Yes (How old was it?)
2. No

[Display if Q37 = 2]

38. Which of the following do you think is the most likely age of the old air conditioner:

1. More than 20 years old
2. 15 – 20 years old
3. 10 – 15 years old
4. Less than 10 years old

### Home characteristics

39. Which of the following best describes your home? Is it a...

1. Manufactured home
2. Single-family house detached from any other house
3. Single family house attached to one or more other houses, for example, duplex, row house, or townhome
4. Apartment in a building with 2 to 3 units
5. Apartment in a building with 4 or more units
6. Other (Please describe)
98. Don't know

40. When was your home built?

1. Before 1950
2. 1950 to 1959
3. 1960 to 1969
4. 1970 to 1979
5. 1980 to 1989
7. 1990 to 1999
8. 2000 to 2009
9. 2010 or later
98. Don't know

41. What is the approximate square footage of your home? Your best estimate is fine.

## 5. Home Energy Products Online Marketplace Participant Survey

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1. Thank you for taking this survey about your experience with I&M's Online Marketplace service. Your feedback is very important and will help I&M improve the programs and services it offers customers like you.

ADM Associates is conducting this survey on I&M's behalf. Your responses are confidential and will be used for research purposes only. ADM Associates does not share survey data with third parties for marketing purposes. ADM's full privacy statement can be viewed at: [admenergy.com/privacy](http://admenergy.com/privacy)

When you take the survey, once you have entered a response for each question, use the arrow at the bottom right of the screen to get to the next question. Click the box below and then click on the arrow at the bottom right to continue with the survey.

2. reCAPTCHA

3. Our records indicate that your household received a rebate or discount on [ALL\_MEASURES] through I&M's Online Marketplace in 2023.  
Are you familiar with this?

1. Yes
2. No [TERMINATE SURVEY]

4. To begin with, we would like to verify the items that you received an I&M Online Marketplace discount or rebate on. Is this information correct?

[Scale: 1 = Yes, 2 = No, 98 = Don't know]

- a. [if DEHUMIDIFIER\_QUANT > 0] [DEHUMIDIFIER\_QUANT] Dehumidifier(s)
- b. [if LED\_QUANT > 0] [LED\_QUANT] LED light bulb(s)
- c. [if APS\_QUANT > 0] [APS\_QUANT] Advanced power strip(s)
- d. [if SHOWER\_QUANT > 0] [SHOWER\_QUANT] High efficiency showerhead(s)
- e. [if BATH\_QUANT > 0] [BATH\_QUANT] High efficiency bathroom faucet aerator(s)
- f. [if KITCHEN\_QUANT > 0] [KITCHEN\_QUANT] High efficiency kitchen faucet aerator(s)
- g. [if TSTAT\_QUANT > 0] [TSTAT\_QUANT] Wi-Fi / smart thermostat(s)
- h. [if AIR\_QUANT > 0] [AIR\_QUANT] Air purifier(s)
- i. [if LED\_BATTERY\_QUANT > 0] [LED\_BATTERY\_QUANT] LED light bulbs with batter back up
- j. [if SOCKET\_QUANT > 0] [SOCKET\_QUANT] WiFi plus Bluetooth smart socket(s)
- k. [if TV\_QUANT > 0] [TV\_QUANT] Television(s)
- l. [if CENTRAL\_AC\_QUANT > 0] [CENTRAL\_AC\_QUANT] Central air conditioner(s)
- m. [if CENTRAL\_HP\_QUANT > 0] [CENTRAL\_HP\_QUANT] Central heat pump(s)

[Display Q5 if any in Q4 = 2]

5. What is incorrect about our information?

[Multiselect, make 3 exclusive]

1. The number of products you got a rebate or discount for
2. The type of products you got a rebate or discount for
3. You did not get an I&M Online Marketplace discount or rebate for the product

[Display Q6 if Q5=1]

6. How many of the products did you get a rebate or discount for?

[Table of text boxes]

1. [If Q4a = 2] Dehumidifier(s)
2. [If Q4b = 2] LED light bulb(s)
3. [If Q4c = 2] Advanced power strip(s)
4. [If Q4d = 2] High efficiency showerhead(s)
5. [If Q4e = 2] High efficiency bathroom faucet aerator(s)
6. [If Q4f = 2] High efficiency kitchen faucet aerator(s)
7. [If Q4g = 2] Wi-Fi / smart thermostat(s)
8. [If Q4h = 2] Air purifier(s)
9. [If Q4i = 2] LED light bulbs with batter back up
10. [If Q4j = 2] WiFi plus Bluetooth smart socket(s)

[Display Q7 if Q5=2]

7. What products did you buy from the I&M Online Marketplace?

[TERMINATE SURVEY if NONE IN Q4 = 1]

#### Awareness and Motivation

8. How did you first learn about I&M's Online Marketplace?

[Randomize 1-4]

1. From an email
2. From a friend, family member, or colleague
3. Through an internet search
4. When logging on the I&M website
5. In some other way (Please describe)

[Display if Q8 = 1]

9. What kind of email did you learn about the marketplace from?

1. An email promoting the Online Marketplace product you purchased

2. An email promoting a different Online Marketplace product than the one you purchased
3. An I&M newsletter
4. An email with information on my home energy use and information on the Online Marketplace
5. Some other kind of email (Please describe)

10. Which of the following are reasons why you chose to shop on the Online Marketplace?

[Select all that apply. Randomize 1-4]

1. To save money on the product because an I&M discount was available
2. The website provided information on products that save energy
3. It was convenient
4. The product selection was good
5. For some other reason (Please describe)

11. How easy was it to find the product(s) you were looking for on the Online Marketplace?

1. Very easy
2. Easy
3. Difficult
4. Very difficult

[Display if Q11= 3 or 4]

12. What was difficult or what would have made it easier to find the product(s)?

13. How easy was it to identify products that are eligible for an I&M rebate or discount?

1. Very easy
2. Easy
3. Difficult
4. Very difficult

[Display if QError! Reference source not found.= 3 or 4]

14. What was difficult or what would have made it easier to find the rebated or discounted products?

#### LED Verification

[Display Section if Q4E= 1]

15. Are/is the [LED\_QUANT] LED light bulbs that you purchased from the Online Marketplace currently installed?

1. Yes
2. [Display if LED\_QUANT > 1] Some are



3. No, none are

[Display if Q15= 2]

16. How many of the [LED\_QUANT] LED light bulbs that you purchased are currently installed?

[Display if Q15= 2 or 3]

17. How many more of the [UNINSTALLED\_COUNT] LED light bulbs that you have not installed do you think you will install in the next six months?

[Display if Q15= 2 or 3]

18. Why have you not installed all of the LED bulbs yet? (Select all that apply)

1. I have not had the time to install them
2. I am not interested in installing them
3. I am waiting for light bulbs to burn out before replacing them
4. I don't like them
5. Some or all of the bulbs were broken
6. Other (Please specify)
99. Don't know

#### LED with Battery Backup Verification

[Display Section if Q4B= 1]

19. Are/is the [LED\_BATTERY\_QUANT] LED light bulbs with a battery backup that you purchased from the Online Marketplace currently installed?

1. Yes
2. [Display if LED\_QUANT > 1] Some are
3. No, none are

[Display if Q19= 2]

20. How many of the [LED\_BATTERY\_QUANT] LED light bulbs with a battery backup that you purchased are currently installed?

[Display if Q19= 2 or 3]

21. How many more of the [LED\_BATTERY\_QUANT] LED light bulbs with a battery backup do you think you will install in the next six months?

[Display if Q19= 1 or 2]

22. Are you using the light bulbs with the battery backup in the same way you would use any other light bulb, or are you using them for a special use such as where you don't have an outlet?

1. Using it the same as any other light bulb

2. Using them for a special application

[Display if Q22= 1 or 2]

23. Could you briefly describe how you are using the light bulbs with battery backup?

[Display if Q19= 1 or 2]

24. About how many hours are you using the light bulbs with a battery back up in a typical week?

If you are using more than one, please provide an average.

Your best guess is fine.

#### APS Verification

[Display Section if Q4B = 1]

25. Did you order the energy-saving Advanced Power Strip(s) for use in a home or a business location?

1. For use in a home

2. For use in a business

3. [Display if APS\_QUANT >1] Both, or use in a home and a business

26. How many of the {APS\_QUANT} energy saving Advanced Power Strip(s) that you purchased from the I&M online marketplace are you currently using?

1. 1

2. 2

3. 3

4. 4

5. 5

6. 6

7. 7

8. 8

9. 9

10. 10

11. 11

12. 12

[Display Q27 if APS\_QUANT - Q26 >0]

27. Why are you not using the Advanced Power Strip? (Select all that apply)

1. The power turned off while I was using equipment that was plugged into it

2. I'm not sure how to use it
3. I'm not interested in using it
4. I didn't have a need for it
5. Other (Please specify)
98. Don't know

[Display Q28 if APS\_QUANT - Q26 > 0]

28. How many of the [APS\_QUANT - Q26] Advanced Power Strip(s) you have not started using do you think you will start using in the next six months?

[Display Q29 if Q26 > 0]

29. For each of the advanced power strips that you are currently using, please tell us what type of equipment is plugged into the power strip.

[Scale: 1. Audio/visual/entertainment equipment, 2. Computer/office equipment, 3. Other types of equipment]

1. [Display if Q26 > 0] Advanced power strip 1
2. [Display if Q26 > 1] Advanced power strip 2
3. [Display if Q26 > 2] Advanced power strip 3
4. [Display if Q26 > 3] Advanced power strip 4
5. [Display if Q26 > 4] Advanced power strip 5
6. [Display if Q26 > 5] Advanced power strip 6
7. [Display if Q26 > 6] Advanced power strip 7
8. [Display if Q26 > 7] Advanced power strip 8
9. [Display if Q26 > 8] Advanced power strip 9
10. [Display if Q26 > 9] Advanced power strip 10
11. [Display if Q26 > 10] Advanced power strip 11
12. [Display if Q26 > 11] Advanced power strip 12

[Display Q30 if any in Q17 = 3]

30. What other kind of equipment are you using with the power strip(s)?

#### Shower Verification

[Display Section if Q4C = 1]

17. Are/is the [SHOWER\_QUANT] high efficiency showerhead(s) that you purchased from the Online Marketplace currently installed?

1. Yes
2. [Display if SHOWER\_QUANT > 1] Some are
3. No, none are

[Display if Q17= 1]

31. How many of the [SHOWER\_QUANT] high efficiency showerhead(s) that you purchased are currently installed?

[Display if Q17= 2 or 3]

32. How many more of the high efficiency showerhead(s) do you think you will install in the next six months?

[Display if Q17= 2 or 3]

33. Why have you not installed all of the high efficiency showerhead(s)? (Select all that apply)

1. I have not had the time to install them
2. I am not interested in installing them
3. I need help installing them
4. I don't like them
5. Doesn't fit my shower
6. Other (Please specify)
98. Don't know

#### Bath Verification

[Display Section if Q40 = 1]

34. Are/is the [BATH\_QUANT] high efficiency bathroom faucet aerator(s) that you purchased from the Online Marketplace currently installed?

1. Yes
2. [Display if BATH\_QUANT > 1] Some are
3. No, none are

[Display if Q34= 2]

35. How many of the [BATH\_QUANT] high efficiency bathroom faucet aerator(s) that you purchased are currently installed?

[Display if Q34= 2 or 3]

36. How many more of the high efficiency bathroom faucet aerator(s) do you think you will install in the next six months?

[Display if Q34= 2 or 3]

37. Why have you not installed all of the high efficiency bathroom faucet aerator(s)? (Select all that apply)

1. I have not had the time to install them
2. I am not interested in installing them
3. I need help installing them
4. I don't like them
5. Doesn't fit my faucet
6. Other (Please specify)
98. Don't know

#### Kitchen Verification

[Display Section if Q4E = 1]

38. Are/Is the [KITCHEN\_QUANT] high efficiency kitchen faucet aerator(s) that you purchased from the Online Marketplace currently installed?

1. Yes
2. [Display if KITCHEN\_QUANT > 1] Some are
3. No, none are

[Display if Q38= 2]

39. How many of the [KITCHEN\_QUANT] high efficiency kitchen faucet aerator(s) that you purchased are currently installed?

[Display if Q38= 2 or 3]

40. How many more of the high efficiency kitchen faucet aerator(s) do you think you will install in the next six months?

[Display if Q38= 2 or 3]

41. Why have you not installed all of the high efficiency kitchen faucet aerator(s)? (Select all that apply)

1. I have not had the time to install them
2. I am not interested in installing them
3. I need help installing them
4. I don't like them
5. Doesn't fit my faucet
6. Other (Please specify)
98. Don't know

#### Smart Plug Verification

[Display Section if Q4E = 1]

42. Are/is the [SOCKET\_QUANT] WiFi plus Bluetooth smart socket(s) that you purchased from the Online Marketplace currently installed?

1. Yes
2. [Display if SOCKET\_QUANT > 1] Some are
3. No, none are

[Display if Q42= 2]

43. How many of the [SOCKET\_QUANT] WiFi plus Bluetooth smart socket(s) that you purchased are currently installed?

[Display if Q42= 2 or 3]

44. How many more of the WiFi plus Bluetooth smart socket(s) do you think you will install in the next six months?

[Display if Q42= 1 or 2]

45. We would like to know how you are using the WiFi plus Bluetooth smart socket(s) that you got. If you are using more than one WiFi plus Bluetooth smart socket, please think of one of them when answering the next few questions.  
What do you have plugged into the device?

1. Air purifier
2. Coffee pot / electric tea kettle
3. Computer / computer monitor
4. DVD player
5. DVR
6. Game console
7. Lamp
8. Microwave
9. Mobile device (such as a phone or tablet)
10. Room air conditioner
11. Space heater
12. Stereo/smart speaker or other music player
13. Television set
14. Toaster / toaster oven
15. Something else

46. What other device do you have plugged into the WiFi plus Bluetooth smart socket?

47. Do you use the WiFi plus Bluetooth smart socket to schedule when the [Q45 RESPONSE] is turned on and off?

1. Yes
2. No

98. Don't know

48. Do you use the WiFi plus Bluetooth smart socket connectivity to manually turn the device on and off?

1. Yes
2. No

49. About how much less time is the [Q45 RESPONSE] turned on now that you are controlling it with the WiFi plus Bluetooth smart socket??

1. None - it is on for the same amount of time
2. About 20% less
3. About 40% less
4. About 60% less
5. At least 80% less
98. Not sure

### Thermostat Verification

[Display Section if Q4F = 1]

50. Are/is the Wi-Fi thermostat(s) that you received a rebate for currently installed and working?

1. Yes
2. No
98. Don't know

[Display if Q50 = 2]

51. What is wrong with the Wi-Fi thermostat or why is it not installed?

52. What type of thermostat did the Wi-Fi thermostat replace?

1. A programmable thermostat that allows you to schedule the temperature settings for different times of the day
2. A standard thermostat that lets you set on/off temperatures
3. A different Wi-Fi smart thermostat
98. Don't know

[Display if Q52 = 1]

53. Was the programmable thermostat that was replaced programmed with scheduled times to adjust the temperature at the time you replaced it with the WiFi thermostat?

1. Yes
2. No
98. Don't know



54. Does the Wi-Fi thermostat control a central cooling system, a central heating system, or both?

- 1. Central cooling system
- 2. Central heating system
- 3. Both cooling and heating systems
- 98. Don't know

[Display if Q54 = 2 OR 3]

55. What type of central heating system do you have?

- 1. Central furnace
- 2. Heat pump
- 3. Other (Please specify)
- 98. Don't know

[Display if Q54 = 2 OR 3]

56. What is the main fuel used by the central heating system?

- 1. Electricity
- 2. Natural Gas
- 3. Propane
- 4. Something else (Please specify)
- 98. Don't know

#### Free Ridership

57. The next few questions are about the [EFF\_MEASURE1] that you got a rebate or discount for from the I&M Online Marketplace. You may have received a rebate or discount on other products but these questions are about the [EFF\_MEASURE1].

58. Did you purchase the [EFF\_MEASURE1] on the I&M Online Marketplace or did you buy it somewhere else and apply for a rebate using the Online Marketplace?

- 1. Made the purchase using the I&M Online Marketplace
- 2. Bought it somewhere else

59. Did you decide to buy the [EFF\_MEASURE1]...

- 1. Before you learned about I&M's Online Marketplace
- 2. After you learned about I&M's Online Marketplace
- 98. Don't know

[Display if Q58 = 1 (Purchased product through I&M Online Marketplace)]

60. Did you shop for [EFF\_MEASURE1] at any other retailers before buying it on I&M's Online Marketplace?

1. Yes
2. No

[Display if Q60 = 1]

61. What is the most important reason for why you decided to buy the [EFF\_MEASURE1] on I&M's Online Marketplace instead of from another retailer?

[RANDOMIZE 1 - 4]

1. It was convenient
2. Shipping was free
3. The instant rebate / price of the product
4. You felt confident in the quality
5. The information about the product efficiency provided on the website
6. For some other reason (Please explain)

62. The I&M's Online Marketplace website shows you an Enervee Score that tells you how energy efficient a product is compared to other products.

[insert image]

Do you recall seeing the Enervee Score for the [EFF\_MEASURE1] you bought?

1. Yes
2. No

[Ask if Q62 = 1]

63. How important was the Enervee Score in your decision to buy the [EFF\_MEASURE1]?

[Scale: 0 (Not at all important) - 10 (very important)]

64. Were you planning to buy an [EFF\_MEASURE1] before you learned that you could get a rebate or discount through I&M's Online Marketplace?

1. Yes
2. No
98. Don't know

65. Would you have been able to buy the [EFF\_MEASURE1] if the rebate or discount was not available through I&M's Online Marketplace?

1. Yes
2. No
98. Don't know

[Display Q66 if Q65 = 1]

66. Just to confirm, if the rebate or discount was not available through the program, would you still have paid the additional cost to buy an [EFF\_MEASURE1]?

1. Yes
2. No
98. Don't know

[Display Q67 if EFF\_MEASURE1 = "smart thermostat"]

67. What kind of thermostat would you most likely have bought if the rebate or discount from I&M was not available?

1. The same smart or learning thermostat
2. A different smart or learning thermostat
3. A programmable or manual thermostat
4. Would not have purchased a new thermostat
98. Don't know

[Display Q68 if EFF\_MEASURE1 = "ENERGY STAR air purifier" OR "ENERGY STAR dehumidifier" OR "high efficiency central air conditioner", "high efficiency central heat pump", "high efficiency room air conditioner", "ENERGY STAR television"]

68. What efficiency level of product would you most likely have bought if the rebate or discount from I&M was not available?

1. The same or higher efficiency
2. A less efficient product
3. The lowest efficiency or lowest cost option
4. Would not have purchased the product
98. Don't know

69. How likely is it that you would have bought the same [EFF\_MEASURE1] at about the same time if you could not have received the rebate or discount through the I&M Online Marketplace?

[Scale: 0 (Not at all likely) = 0, 1=1, 2=2, 3=3, 4=4, 5=5, 6=6, 7=7, 8=8, 9=9, 10 (very likely)=10]

70. Did you buy the [EFF\_MEASURE1] sooner than you would have if the information and rebate from the program had not been available?

1. Yes
2. No
98. Don't know

[Display Q71 if Q70 = 1]

71. When might you have bought the same [EFF\_MEASURE1] if you had not participated in the program?

1. Within 6 months of when you purchased it
2. Between 6 months and 1 year
3. In more than 1 year to 2 years
4. In two years or more
98. Don't know

72. At the time you bought them, would you have bought the same number of [EFF\_MEASURE1] if a rebate or discount was not available through I&M's Online Marketplace?

1. Yes
2. No, would not have purchased any
3. No, would have purchased fewer [EFF\_MEASURE1]
98. Don't know

[Display Q73 if Q72 = 3]

73. About how many percent fewer [EFF\_MEASURE1] do you think you would have bought?

1. 1–10% fewer
2. 11–20% fewer
3. 21–30% fewer
4. 31–40% fewer
5. 41–50% fewer
6. 51–60% fewer
7. 61–70% fewer
8. 71–80% fewer
9. 81–90% fewer
10. 91–100% fewer

### Spillover

[Display section if Q62 = 1 (Is aware of the Enervee Score)]

74. Since buying the [ALL\_MEASURES] from the I&M online marketplace, have you bought any additional energy saving products from the online marketplace?

1. Yes
2. No

[Display Q75 if Q74= 1]

75. Did you buy any of those products without getting an instant rebate from I&M?

1. Yes
2. No

[Display Q76 if Q75 = 1]

76. What products did you buy from the I&M online marketplace without getting an instant rebate for?

Please select all that apply.

[Multiselect]

1. Smart Wifi-connected thermostat
2. Low-flow showerhead
3. ENERGY STAR air purifier
4. ENERGY STAR dehumidifier
5. ENERGY STAR EV charger
6. ENERGY STAR window or room air conditioner
7. Something else that saves energy
98. Do not recall

[Display if Q76 = 1]

77. What type of thermostat did the smart thermostat replace?

1. A programmable thermostat that allows you to schedule the temperature settings for different times of the day
2. A standard thermostat that lets you set on/off temperatures
3. A different Wi-Fi smart thermostat
98. Don't know

[Display if Q76 = 1]

78. Does the smart thermostat control a central cooling system, a central heating system, or both?

1. Central cooling system
2. Central heating system
3. Both cooling and heating systems
98. Don't know

[Display if Q78 = 2 or 3]

79. What type of central heating system do you have?

1. Central furnace
2. Heat pump
3. Other (Please specify)
98. Don't know

[Display if Q78 = 2 or 3]

80. What is the main fuel used by the central heating system?

1. Natural gas
2. Electricity
3. Oil

- 4. Propane
- 5. Wood
- 98. Don't know

[Display if Q76 = 2]

81. How many low-flow shower heads did you buy?

[Display if Q76 = 2]

82. What is the gallons per minute rating of the showerhead? Your best guess is fine.

[Display if Q76 = 3]

83. How many ENERGY STAR air purifiers did you buy?

[Display if Q76 = 4]

84. How many ENERGY STAR dehumidifiers did you buy?

[Display if Q76 = 6]

85. How many ENERGY STAR window or room air conditioners did you buy?

[Display if Q76 = 7]

86. What other energy efficient items did you buy?

[Display if Q76 = 1–7]

87. In approximately what month and year did you buy the additional items from the marketplace that did not receive an I&M discount?

[Display if Q76 = 1–7]

88. Using the scale below, how important was the Enervee score in your decision to buy the additional items that you did not get a discount for?

[Scale: 0 = 0 (Not at all important), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (Extremely important)]

[Display if Q76 = 1–7]

89. Using the scale below, how likely would you have been to buy those additional items if they were not available on the I&M Online Marketplace?

[Scale: 0 = 0 (Not at all likely), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (Extremely likely)]

#### Program Satisfaction

90. Overall, how satisfied are you with the following products that you received a rebate or discount for?

[Scale: 1 = 1 (Very dissatisfied), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very satisfied)]

- a. [If Q4a = 1] Dehumidifier(s)
- b. [If Q4b = 1] LED light bulb(s)
- c. [If Q4c = 1] Advanced power strip(s)
- d. [If Q4d = 1] High efficiency showerhead(s)
- e. [If Q4e = 1] High efficiency bathroom faucet aerator(s)
- f. [If Q4f = 1] High efficiency kitchen faucet aerator(s)
- g. [If Q4g = 1] Wi-Fi / smart thermostat(s)
- h. [If Q4h = 1] Air purifier(s)
- i. [If Q4i = 1] LED light bulbs with battery backup
- j. [If Q4j = 1] WiFi plus Bluetooth smart socket(s)
- k. [If Q4k = 1] Television(s)
- l. [If Q4l = 1] Central air conditioner(s)
- m. [If Q4m = 1] Central heat pump(s)

[Display if Q58 = 1 (Purchased product through I&M Online Marketplace)]

91. How clear was the information on the receipt for your Online Marketplace program purchase?

- 1. Very clear
- 2. Somewhat clear
- 3. Somewhat unclear
- 4. Not at all unclear

[Display if Q91 = 3 or 4]

92. What information was unclear? Please select all that apply.

- 1. My final purchase price
- 2. The amount of the rebate from I&M that I received
- 3. The amount of sales tax/or how the tax was calculated
- 4. Something else (Please describe)



[Display if Fast-Track application (applied for rebate)]

93. How easy was it to submit for the rebate, including the account verification process?

1. Very easy
2. Easy
3. Difficult
4. Very difficult

[Display if Q93 = 3 or 4]

94. What could make the rebate submission process easier?

95. Overall, how satisfied are you with your I&M Online Marketplace experience?

[Scale: 1 = 1 (Very dissatisfied), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very satisfied)]

[Display if Q95 < 3]

96. What would have made your purchase experience better?

97. Given your experience using the online marketplace, how likely are you to recommend the I&M Marketplace to friends or colleague?

[Scale: 0 = 0 (Not at all likely), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (Extremely likely)]

98. Why do you give it that rating?

### Demographics/Home Characteristics

99. The next few questions are about your household. This information will be kept confidential and you do not need to answer any question you do not want to answer.

100. Do you own the home where the rebated equipment was installed, rent it, or own it and rent it to someone else?

1. Own
2. Rent
3. Own and rent to someone else
98. Don't know
99. Prefer not to state

101. Which of the following best describes your home? Is it a...

1. Manufactured home
2. Single-family house detached from any other house

3. Single family house attached to one or more other houses, for example, duplex, row house, or townhome
4. Apartment in a building with 2 to 3 units
5. Apartment in a building with 4 or more units
6. Other (Specify)
98. Don't know
99. Prefer not to state
102. What fuel does your main water heater use?
1. Electricity
2. Natural Gas
3. Propane
4. Something else (Specify)
5. Don't heat home
98. Don't know
99. Prefer not to state
103. Including yourself, how many people currently live in your home year-round?
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8 or more
98. Don't know
99. Prefer not to state
104. Which of the following best describes your annual household income?
1. Less than \$10,000
2. \$10,000 to less than \$20,000
3. \$20,000 to less than \$30,000
4. \$30,000 to less than \$40,000
5. \$40,000 to less than \$50,000
6. \$50,000 to less than \$75,000
7. \$75,000 to less than \$100,000
8. \$100,000 to less than \$150,000
9. \$150,000 to less than \$200,000
10. \$200,000 or more
98. Don't know
99. Prefer not to state

## 6. Home Online Energy Checkup Participant Survey Results

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**QID1 - Our records indicate that your household participated in I&M's Online Energy Checkup program and received a kit that contained [Field-KIT%20DESCRIPTION] in the mail. Is that correct?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 1  | Yes        | 87.86% | 304   |
| 2  | No         | 5.78%  | 20    |
| 98 | Don't know | 6.36%  | 22    |
|    | Total      | 100%   | 346   |

**QID2 - The Online Energy Checkup includes a survey that asked you questions about your home to help identify ways to save energy. Were you the person that completed the online energy checkup survey?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 1  | Yes        | 95.07% | 289   |
| 2  | No         | 2.63%  | 8     |
| 98 | Don't know | 2.30%  | 7     |
|    | Total      | 100%   | 304   |

**QID3 - How did you first learn about I&M's Online Energy Checkup program?**

| #  | Answer  | %      | Count |
|----|---|--------|-------|
| 1  | Mailer from I&M   | 7.46%  | 25    |
| 2  | I&M Website (www.electricideas.com or indianamichiganpower.com) | 11.94% | 40    |
| 3  | Friend or Relative (word-of-mouth)                              | 1.49%  | 5     |
| 4  | I&M Representative  | 0.60%  | 2     |
| 5  | I&M Newsletter  | 7.46%  | 25    |
| 6  | I&M email   | 50.15% | 168   |
| 7  | Community event   | 0.30%  | 1     |
| 8  | Social media (Facebook, Instagram or Twitter)                   | 1.49%  | 5     |
| 9  | My I&M account web portal                                       | 16.12% | 54    |
| 10 | Other (Please Specify)  | 0.90%  | 3     |
| 98 | Don't know  | 2.09%  | 7     |
|    | Total   | 100%   | 335   |

**QID4 - Why did you decide to complete the online energy checkup survey and receive the energy efficiency kit? (Please select all that apply.)**

| #  | Answer  | %      | Count |
|----|---|--------|-------|
| 1  | To learn about ways to save money on energy bill(s) | 45.71% | 213   |
| 2  | Environmental reasons                               | 15.45% | 72    |
| 3  | The items were provided free of charge              | 36.48% | 170   |
| 4  | Other (Please Specify)                              | 2.15%  | 10    |
| 98 | Don't know  | 0.21%  | 1     |
|    | Total   | 100%   | 466   |

**QID10 - Is the showerhead currently installed?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 1  | Yes        | 50.76% | 67    |
| 2  | No         | 49.24% | 65    |
| 98 | Don't know | 0.00%  | 0     |
|    | Total      | 100%   | 132   |

**QID11 - Do you plan to install the showerhead in the next 6 months?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 1  | Yes        | 38.46% | 25    |
| 2  | No         | 41.54% | 27    |
| 98 | Don't know | 20.00% | 13    |
|    | Total      | 100%   | 65    |

**QID12 - Why have you not installed the showerhead? (Select all that apply)**

| #  | Answer  | %      | Count |
|----|---|--------|-------|
| 1  | I did not receive the showerhead                      | 2.70%  | 2     |
| 2  | I have not had the time to install it                 | 14.86% | 11    |
| 3  | I am not interested in installing it                  | 8.11%  | 6     |
| 4  | I did not need the showerhead                         | 16.22% | 12    |
| 5  | I did not know how to install the showerhead          | 5.41%  | 4     |
| 6  | I need physical assistance or tools to install it     | 9.46%  | 7     |
| 7  | I do not like low-flow devices                        | 2.70%  | 2     |
| 8  | I gave it away  | 1.35%  | 1     |
| 9  | I plan on moving or installing it in another location | 4.05%  | 3     |
| 10 | I don't like it                                       | 6.76%  | 5     |
| 11 | Other (Please specify)                                | 27.03% | 20    |
| 98 | Don't know  | 1.35%  | 1     |
|    | Total   | 100%   | 74    |

**QID13 - Is the kitchen faucet aerator currently installed?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 1  | Yes        | 57.58% | 76    |
| 2  | No         | 41.67% | 55    |
| 98 | Don't know | 0.76%  | 1     |
|    | Total      | 100%   | 132   |

**QID14 - Do you plan to install the kitchen faucet aerator in the next 6 months?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 1  | Yes        | 21.82% | 12    |
| 2  | No         | 52.73% | 29    |
| 98 | Don't know | 25.45% | 14    |
|    | Total      | 100%   | 55    |

**QID15 - Why have you not installed the kitchen faucet aerator? (Select all that apply)**

| #  | Answer  | %      | Count |
|----|---|--------|-------|
| 1  | I did not receive it                                  | 5.08%  | 3     |
| 2  | I have not had the time to install it                 | 10.17% | 6     |
| 3  | I am not interested in installing it                  | 10.17% | 6     |
| 4  | I did not know how to install it                      | 6.78%  | 4     |
| 5  | I need physical assistance or tools to install it     | 3.39%  | 2     |
| 6  | I don't like low flow devices                         | 5.08%  | 3     |
| 7  | I gave it away  | 1.69%  | 1     |
| 8  | I plan on moving or installing it in another location | 5.08%  | 3     |
| 9  | Other (Please specify)                                | 49.15% | 29    |
| 98 | Don't know  | 3.39%  | 2     |
|    | Total   | 100%   | 59    |



**QID16 - How many of the two bathroom faucet aerators are currently installed?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 0  | 0          | 31.06% | 41    |
| 1  | 1          | 40.91% | 54    |
| 2  | 2          | 25.00% | 33    |
| 98 | Don't know | 3.03%  | 4     |
|    | Total      | 100%   | 132   |

**QID17 - You said that you have not installed {2 - [QID16-ChoiceGroup-SelectedChoices]} bathroom faucet aerator(s). How many of those do you think you will install in the next 6 months?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 0  | 0          | 31.58% | 30    |
| 1  | 1          | 35.79% | 34    |
| 2  | 2          | 5.26%  | 5     |
| 98 | Don't know | 27.37% | 26    |
|    | Total      | 100%   | 95    |

**QID18 - Why have you not installed both of the bathroom faucet aerators?  
(Select all that apply)**

| #  | Answer  | %      | Count |
|----|---|--------|-------|
| 1  | I did not receive them                                  | 1.98%  | 2     |
| 2  | I have not had the time to install them                 | 16.83% | 17    |
| 3  | I am not interested in installing them                  | 5.94%  | 6     |
| 4  | I don't like them                                       | 1.98%  | 2     |
| 5  | I did not know how to install them                      | 8.91%  | 9     |
| 6  | I need physical assistance or tools to install them     | 1.98%  | 2     |
| 7  | I don't like low flow devices                           | 3.96%  | 4     |
| 8  | I gave one or both away                                 | 2.97%  | 3     |
| 9  | I plan on moving or installing them in another location | 4.95%  | 5     |
| 10 | Other (Please specify)                                  | 46.53% | 47    |
| 98 | Don't know  | 3.96%  | 4     |
|    | Total   | 100%   | 101   |

**QID19 - Is the LED night light currently installed?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 1  | Yes        | 87.88% | 116   |
| 2  | No         | 12.12% | 16    |
| 98 | Don't know | 0.00%  | 0     |
|    | Total      | 100%   | 132   |

**QID20 - Do you plan to install the LED night light in the next 6 months?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 1  | Yes        | 12.50% | 2     |
| 2  | No         | 43.75% | 7     |
| 98 | Don't know | 43.75% | 7     |
|    | Total      | 100%   | 16    |

**QID21 - Why have you not installed the LED night light? (Select all that apply)**

| #  | Answer                                | %      | Count |
|----|---------------------------------------|--------|-------|
| 0  | I did not receive it                  | 11.11% | 2     |
| 1  | I have not had the time to install it | 11.11% | 2     |
| 2  | I am not interested in installing it  | 5.56%  | 1     |
| 5  | I didn't need it                      | 44.44% | 8     |
| 6  | Other (Please specify)                | 27.78% | 5     |
| 7  | Don't know                            | 0.00%  | 0     |
| 98 | I don't like it                       | 0.00%  | 0     |
| 99 | I gave it away                        | 0.00%  | 0     |
|    | Total                                 | 100%   | 18    |

**QID24 - Thinking back to before you completed the Online Energy Checkup, had you purchased any of the following items in the last three years?**

| # | Question                    | Yes    |    | No     |     | Don't know |   | Total |
|---|-----------------------------|--------|----|--------|-----|------------|---|-------|
| 1 | Bathroom faucet aerators    | 13.64% | 18 | 85.61% | 113 | 0.76%      | 1 | 132   |
| 2 | Kitchen faucet aerator      | 13.64% | 18 | 84.09% | 111 | 2.27%      | 3 | 132   |
| 3 | High efficiency showerheads | 38.64% | 51 | 58.33% | 77  | 3.03%      | 4 | 132   |
| 4 | LED night lights            | 42.42% | 56 | 56.06% | 74  | 1.52%      | 2 | 132   |
| 5 | Advanced power strips       | 16.56% | 26 | 80.89% | 127 | 2.55%      | 4 | 157   |

**QID25 - Before you heard of the Online Energy Checkup Program, did you have specific plans to buy any of the kit items([Field-KIT\_DESC]) that were sent to you?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 1  | Yes        | 30.30% | 40    |
| 2  | No         | 63.64% | 84    |
| 98 | Don't know | 6.06%  | 8     |
|    | Total      | 100%   | 132   |

**QID28 - How many of the two bathroom faucet aerators that you received did you plan to buy?**

| #  | Answer     | %      | Count |
|----|------------|--------|-------|
| 0  | 0          | 10.00% | 1     |
| 1  | 1          | 40.00% | 4     |
| 2  | 2          | 40.00% | 4     |
| 98 | Don't know | 10.00% | 1     |
|    | Total      | 100%   | 10    |

**QID31 - Using a scale where 0 means “not at all likely” and 10 means “very likely”, if you had not completed the Online Energy Checkup or received the energy conservation kit, how likely would you have been to buy any of the following items on your own within 12 months of when you received them?**

| # | Question                    | 0(Not at all likely) | 1  | 2      | 3  | 4      | 5  | 6     | 7  | 8     | 9 | 10(Ver y likely) | Total |
|---|-----------------------------|----------------------|----|--------|----|--------|----|-------|----|-------|---|------------------|-------|
| 1 | Bathroom faucet aerators    | 50.00%               | 66 | 6.82%  | 9  | 6.82%  | 9  | 6.82% | 9  | 4.55% | 6 | 9.85%            | 132   |
| 2 | Kitchen faucet aerator      | 49.24%               | 65 | 6.82%  | 9  | 5.30%  | 7  | 5.30% | 7  | 6.06% | 8 | 8.33%            | 132   |
| 3 | High efficiency showerheads | 33.33%               | 44 | 4.55%  | 6  | 4.55%  | 6  | 0.76% | 1  | 5.30% | 7 | 15.91%           | 132   |
| 4 | LED night lights            | 28.03%               | 37 | 4.55%  | 6  | 2.27%  | 3  | 0.76% | 1  | 3.03% | 4 | 13.64%           | 132   |
| 5 | Advanced power strips       | 28.03%               | 44 | 10.83% | 17 | 10.83% | 17 | 6.37% | 10 | 5.10% | 8 | 12.10%           | 157   |

**QID32 - Based on your response, there is some likelihood that you would have bought some of the kit items in the next 12 months. Given that, we would like to know why you had not already bought the items on your own. Had you not already bought the kit items because: (Please select all that apply)**

| # | Answer  | %      | Count |
|---|---|--------|-------|
| 1 | You didn't want to spend the money            | 22.81% | 60    |
| 2 | You had not gotten around to buying the items | 27.76% | 73    |
| 3 | You didn't know where to buy the items        | 4.56%  | 12    |
| 4 | You didn't know enough about the items        | 23.95% | 63    |
| 5 | For other reasons                             | 15.97% | 42    |
| 6 | Don't know                                    | 4.94%  | 13    |
|   | Total   | 100%   | 263   |

**QID35 - The next few questions are about your experience with the online energy checkup survey. Using a scale where 1 means "very difficult" and 5 means "very easy", how easy or difficult was it to complete the online checkup?**

| # | Answer            | %      | Count |
|---|-------------------|--------|-------|
| 1 | 1(Very difficult) | 0.70%  | 2     |
| 2 | 2                 | 1.05%  | 3     |
| 3 | 3                 | 9.06%  | 26    |
| 4 | 4                 | 16.38% | 47    |
| 5 | 5(Very easy)      | 72.82% | 209   |
|   | Total             | 100%   | 287   |

**QID36 - What difficulty did you have completing the online checkup? (Select all that apply)**

| #  | Answer  | %      | Count |
|----|---|--------|-------|
| 1  | Signing on  | 0.00%  | 0     |
| 2  | Not familiar with computers/technology                                      | 0.00%  | 0     |
| 3  | The survey would not load   | 0.00%  | 0     |
| 4  | The screen froze up   | 20.00% | 1     |
| 5  | Received some type of error message that prevented completion of the survey | 20.00% | 1     |
| 6  | Couldn't answer some questions  | 0.00%  | 0     |
| 7  | Other (Please specify)  | 40.00% | 2     |
| 98 | Don't know  | 20.00% | 1     |
|    | Total   | 100%   | 5     |

**QID47 - Have you bought any additional energy efficient items on your own without a financial incentive or rebate because of a recommendation or information provided by the Online Energy Checkup?**

| # | Answer     | %      | Count |
|---|------------|--------|-------|
| 1 | Yes        | 35.79% | 102   |
| 2 | No         | 58.25% | 166   |
| 3 | Don't know | 5.96%  | 17    |
|   | Total      | 100%   | 285   |



**QID48 - Since completing the online checkup in [Field-YEAR] have you bought any of the following? Please do not include items provided in the kit. Select all that apply.**

| #  | Answer  | %      | Count |
|----|---|--------|-------|
| 1  | A smart thermostat  | 13.02% | 28    |
| 2  | An ENERGY STAR appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer | 21.40% | 46    |
| 3  | Water heater pipe insulation  | 7.44%  | 16    |
| 4  | Water heater jacket, blanket, or insulation   | 6.05%  | 13    |
| 5  | Additional low flow faucet aerators   | 5.12%  | 11    |
| 6  | Additional low flow showerheads   | 6.51%  | 14    |
| 7  | An ENERGY STAR window or room air conditioner   | 6.05%  | 13    |
| 8  | An energy efficient water heater  | 7.44%  | 16    |
| 9  | Something else that saves energy in your home   | 25.58% | 55    |
| 98 | Don't know  | 1.40%  | 3     |
|    | Total   | 100%   | 215   |

**QID49 - Why did you not get an I&M incentive, rebate, or discount for that energy saving equipment?**

| # | Answer   | %      | Count |
|---|--|--------|-------|
| 1 | Was not aware there was a rebate available           | 61.86% | 60    |
| 2 | Did not have the time to complete rebate application | 0.00%  | 0     |
| 3 | Found out about rebate too late                      | 5.15%  | 5     |
| 4 | Did not think my equipment was eligible              | 18.56% | 18    |
| 5 | Submitted a rebate application that was rejected     | 0.00%  | 0     |
| 6 | You did get a rebate or discount from I&M            | 2.06%  | 2     |
| 7 | For some other reason (Please describe)              | 5.15%  | 5     |
| 8 | Don't know   | 7.22%  | 7     |
|   | Total  | 100%   | 97    |

**QID61 - What type of water heater did you install? Was it a...**

| #  | Answer   | %      | Count |
|----|--|--------|-------|
| 1  | Natural gas storage tank water heater            | 43.75% | 7     |
| 2  | Electric storage tank water heater               | 50.00% | 8     |
| 3  | Heat pump water heater                           | 6.25%  | 1     |
| 4  | A natural gas tank less water heater             | 0.00%  | 0     |
| 5  | Some other type of water heater (Please Specify) | 0.00%  | 0     |
| 98 | Don't know                                       | 0.00%  | 0     |
|    | Total  | 100%   | 16    |

**QID64 - Using the scale below, how important was the experience with the Online Energy Checkup Survey and PDF with energy saving recommendations in your decision to purchase the items you just mentioned?**

| #  | Answer                  | %      | Count |
|----|-------------------------|--------|-------|
| 0  | 0(Not at all important) | 9.18%  | 9     |
| 1  | 1                       | 4.08%  | 4     |
| 2  | 2                       | 5.10%  | 5     |
| 3  | 3                       | 3.06%  | 3     |
| 4  | 4                       | 5.10%  | 5     |
| 5  | 5                       | 5.10%  | 5     |
| 6  | 6                       | 7.14%  | 7     |
| 7  | 7                       | 19.39% | 19    |
| 8  | 8                       | 15.31% | 15    |
| 9  | 9                       | 7.14%  | 7     |
| 10 | 10(Extremely important) | 19.39% | 19    |
|    | Total                   | 100%   | 98    |

**QID65 - Using the scale below, how likely would you have been to purchase those additional items if you had not participated in the Online Energy Checkup Program and received the PDF with energy saving recommendations?**

| #  | Answer               | %      | Count |
|----|----------------------|--------|-------|
| 0  | 0(Not at all likely) | 7.22%  | 7     |
| 1  | 1                    | 2.06%  | 2     |
| 2  | 2                    | 5.15%  | 5     |
| 3  | 3                    | 7.22%  | 7     |
| 4  | 4                    | 4.12%  | 4     |
| 5  | 5                    | 16.49% | 16    |
| 6  | 6                    | 4.12%  | 4     |
| 7  | 7                    | 15.46% | 15    |
| 8  | 8                    | 13.40% | 13    |
| 9  | 9                    | 6.19%  | 6     |
| 10 | 10(Extremely likely) | 18.56% | 18    |
|    | Total                | 100%   | 97    |

**QID66 - Using the scale below, please rate how dissatisfied or satisfied you are with each of the following:**

| # | Question  | 1(Very<br>dissatisfied<br>) |   | 2      |   | 3      |   | 4      |   | 5(Very<br>satisfied<br>) |    | Total |
|---|---|-----------------------------|---|--------|---|--------|---|--------|---|--------------------------|----|-------|
| 1 | The online energy checkup service, overall            | 0.35%                       | 1 | 3.81%  | 1 | 14.53% | 4 | 29.07% | 8 | 52.25%                   | 15 | 289   |
| 2 | The information provided by the online energy checkup | 0.35%                       | 1 | 3.14%  | 9 | 13.94% | 4 | 31.71% | 9 | 50.87%                   | 14 | 287   |
| 3 | The advanced powerstrip                               | 1.97%                       | 3 | 7.89%  | 1 | 15.13% | 2 | 28.29% | 4 | 46.71%                   | 71 | 152   |
| 4 | The kitchen aerator                                   | 11.11%                      | 1 | 11.11% | 1 | 22.22% | 2 | 17.46% | 2 | 38.10%                   | 48 | 126   |
| 5 | The bathroom aerators                                 | 10.16%                      | 1 | 10.16% | 1 | 25.00% | 3 | 20.31% | 2 | 34.38%                   | 44 | 128   |
| 6 | The showerhead  | 9.68%                       | 1 | 11.29% | 1 | 22.58% | 2 | 17.74% | 2 | 38.71%                   | 48 | 124   |
| 7 | The night light                                       | 3.08%                       | 4 | 4.62%  | 6 | 13.08% | 1 | 12.31% | 1 | 66.92%                   | 87 | 130   |

**QID90 - Given your experience with the Online Checkup program, how likely are you to recommend it to your friends or family?**

| # | Group     | %      | Count |
|---|-----------|--------|-------|
| 1 | Detractor | 23.18% | 67    |
| 2 | Passive   | 22.84% | 66    |
| 3 | Promoter  | 53.98% | 156   |
|   | Total     | 100%   | 289   |

| # | Given your experience with the Online Checkup program, how likely are you to recommend it to your friends or family? | Net Promoter Score® |
|---|--|---------------------|
| 1 | Given your experience with the Online Checkup program, how likely are you to recommend it to your friends or family? | 30.80               |

**QID68 - Using the scale below, how dissatisfied or satisfied are you with I&M as your electricity service provider?**

| # | Answer               | %      | Count |
|---|----------------------|--------|-------|
| 1 | 1(Very dissatisfied) | 1.73%  | 5     |
| 2 | 2                    | 4.84%  | 14    |
| 3 | 3                    | 16.61% | 48    |
| 4 | 4                    | 27.68% | 80    |
| 5 | 5(Very satisfied)    | 49.13% | 142   |
|   | Total                | 100%   | 289   |

**QID70 - Do you own the home that you completed the online energy checkup for, rent it, or own it and rent it to someone else?**

| #  | Answer                       | %      | Count |
|----|------------------------------|--------|-------|
| 1  | Own                          | 76.31% | 219   |
| 2  | Rent                         | 21.95% | 63    |
| 3  | Own and rent to someone else | 0.00%  | 0     |
| 99 | Prefer not to answer         | 1.74%  | 5     |
|    | Total                        | 100%   | 287   |

**QID71 - Which of the following best describes this property? Is it a...**

| #  | Answer  | %      | Count |
|----|---|--------|-------|
| 1  | Manufactured home   | 5.21%  | 15    |
| 2  | Single-family house detached from any other house   | 76.39% | 220   |
| 3  | Single family house attached to one or more other houses, for example, duplex, row house, or townhome | 2.78%  | 8     |
| 5  | Apartment in a building with 2 to 3 units   | 1.39%  | 4     |
| 6  | Apartment in a building with 4 or more units  | 11.81% | 34    |
| 7  | Other (Please Specify)  | 1.74%  | 5     |
| 99 | Prefer not to answer  | 0.69%  | 2     |
|    | Total   | 100%   | 288   |

**QID74 - When was your home built?**

| #  | Answer               | %      | Count |
|----|----------------------|--------|-------|
| 1  | Before 1950          | 19.72% | 57    |
| 2  | 1950 to 1959         | 12.80% | 37    |
| 3  | 1960 to 1969         | 12.46% | 36    |
| 4  | 1970 to 1979         | 10.73% | 31    |
| 5  | 1980 to 1989         | 9.34%  | 27    |
| 6  | 1990 to 1999         | 13.84% | 40    |
| 7  | 2000 to 2009         | 9.34%  | 27    |
| 8  | 2010 or later        | 4.84%  | 14    |
| 99 | Prefer not to answer | 6.92%  | 20    |
|    | Total                | 100%   | 289   |

**QID72 - What is the main fuel used to heat this property?**

| #  | Answer                          | %      | Count |
|----|---------------------------------|--------|-------|
| 1  | Electricity                     | 28.03% | 81    |
| 2  | Natural gas                     | 62.63% | 181   |
| 3  | Propane                         | 5.19%  | 15    |
| 4  | Something else (Please specify) | 3.46%  | 10    |
| 5  | Don't heat home                 | 0.00%  | 0     |
| 99 | Prefer not to answer            | 0.69%  | 2     |
|    | Total                           | 100%   | 289   |

**QID73 - What fuel does the main water heater use?**

| #  | Answer                          | %      | Count |
|----|---------------------------------|--------|-------|
| 1  | Natural gas                     | 50.18% | 143   |
| 2  | Electricity                     | 44.91% | 128   |
| 3  | Propane                         | 2.81%  | 8     |
| 4  | Something else (Please specify) | 1.05%  | 3     |
| 5  | Do not have hot water           | 0.00%  | 0     |
| 99 | Prefer not to answer            | 1.05%  | 3     |
|    | Total                           | 100%   | 285   |

**QID75 - Including yourself, how many people live in your home year-round?**

| #  | Answer               | %      | Count |
|----|----------------------|--------|-------|
| 1  | 1 person             | 30.45% | 88    |
| 2  | 2 people             | 41.52% | 120   |
| 3  | 3 people             | 12.11% | 35    |
| 4  | 4 people             | 7.96%  | 23    |
| 5  | 5 people             | 2.42%  | 7     |
| 6  | 6 people             | 2.08%  | 6     |
| 7  | 7 people             | 0.35%  | 1     |
| 8  | 8 people or more     | 0.35%  | 1     |
| 99 | Prefer not to answer | 2.77%  | 8     |
|    | Total                | 100%   | 289   |



**QID80 - How many bathroom faucets do you have in your home?**

| #  | Answer               | %      | Count |
|----|----------------------|--------|-------|
| 1  | 1                    | 28.82% | 83    |
| 2  | 2                    | 37.15% | 107   |
| 3  | 3                    | 20.83% | 60    |
| 4  | 4                    | 7.29%  | 21    |
| 5  | 5                    | 2.78%  | 8     |
| 6  | 6                    | 0.69%  | 2     |
| 7  | 7                    | 1.04%  | 3     |
| 8  | 8 or more            | 0.35%  | 1     |
| 99 | Prefer not to answer | 1.04%  | 3     |
|    | Total                | 100%   | 288   |

**QID81 - How many showers do you have in your home?**

| #  | Answer               | %      | Count |
|----|----------------------|--------|-------|
| 1  | 1                    | 50.17% | 144   |
| 2  | 2                    | 42.86% | 123   |
| 3  | 3                    | 5.57%  | 16    |
| 4  | 4                    | 0.35%  | 1     |
| 5  | 5                    | 0.35%  | 1     |
| 6  | 6                    | 0.00%  | 0     |
| 7  | 7                    | 0.00%  | 0     |
| 8  | 8 or more            | 0.00%  | 0     |
| 99 | Prefer not to answer | 0.70%  | 2     |
|    | Total                | 100%   | 287   |

**QID78 - Which of the following best describes your annual household income?**

| #  | Answer                           | %      | Count |
|----|----------------------------------|--------|-------|
| 1  | Less than \$10,000               | 2.80%  | 8     |
| 2  | \$10,000 to less than \$20,000   | 11.89% | 34    |
| 3  | \$20,000 to less than \$30,000   | 9.44%  | 27    |
| 4  | \$30,000 to less than \$40,000   | 10.14% | 29    |
| 5  | \$40,000 to less than \$50,000   | 10.14% | 29    |
| 6  | \$50,000 to less than \$75,000   | 13.99% | 40    |
| 7  | \$75,000 to less than \$100,000  | 10.84% | 31    |
| 8  | \$100,000 to less than \$150,000 | 5.24%  | 15    |
| 10 | \$200,000 or more                | 1.40%  | 4     |
| 99 | Prefer not to answer             | 24.13% | 69    |
|    | Total                            | 100%   | 286   |

## 7. Residential Income Qualified Weatherproofing Survey Results

### 7.1. Virtual Kit Participant Survey Instrument

**Q3 - Our records indicate that your household participated in I&M's Income Qualified Home Energy Checkup program and received a kit in the mail that contained energy efficient items for installation in your home. Is that correct?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 93.1% | 27    |
| 2  | No         | 6.9%  | 2     |
| 98 | Don't know | 0.0%  | 0     |
|    | Total      | 100%  | 29    |

**Q4 - How did you first learn about I&M's Income Qualified Home Energy Checkup program?**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | Email from I&M  | 34.5% | 10    |
| 2  | Mailer from I&M or message on your utility bill                 | 20.7% | 6     |
| 3  | I&M Website (www.electricideas.com or indianamichiganpower.com) | 34.5% | 10    |
| 4  | Friend or relative (word-of-mouth)                              | 3.4%  | 1     |
| 5  | Program representative  | 0.0%  | 0     |
| 6  | Community or public event with program representatives          | 0.0%  | 0     |
| 7  | Social media (Facebook, Instagram or Twitter)                   | 3.4%  | 1     |
| 8  | Other (Please Specify)  | 3.4%  | 1     |
| 98 | Don't know  | 0.0%  | 0     |
|    | Total   | 100%  | 29    |

**Q5 - How did you sign up for the program?**

| # | Answer                                   | %     | Count |
|---|--|-------|-------|
| 1 | Using the online form on the I&M website | 75.9% | 22    |
| 2 | By telephone                             | 20.7% | 6     |
| 3 | Some other way (please describe)         | 3.4%  | 1     |
|   | Total                                    | 100%  | 29    |

**Q6 - How easy or difficult was it to sign up for the program?**

| # | Answer             | %     | Count |
|---|--------------------|-------|-------|
| 1 | Very easy          | 60.7% | 17    |
| 2 | Somewhat easy      | 32.1% | 9     |
| 3 | Somewhat difficult | 0.0%  | 0     |
| 4 | Very difficult     | 7.1%  | 2     |
|   | Total              | 100%  | 28    |

**Q8 - We would like to know if you have had a chance to install any of the kit items and how many of the items are currently installed. How many of the 8 LED lightbulbs are currently installed?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 0  | 0          | 27.6% | 8     |
| 1  | 1          | 0.0%  | 0     |
| 2  | 2          | 3.4%  | 1     |
| 3  | 3          | 6.9%  | 2     |
| 4  | 4          | 20.7% | 6     |
| 5  | 5          | 6.9%  | 2     |
| 6  | 6          | 10.3% | 3     |
| 7  | 7          | 0.0%  | 0     |
| 8  | 8          | 20.7% | 6     |
| 98 | Don't know | 3.4%  | 1     |
|    | Total      | 100%  | 29    |

**Q9 - What types of bulbs did you replace with the new LED light bulbs? (Please select all that apply)**

| #  | Answer               | %     | Count |
|----|----------------------|-------|-------|
| 1  | CFLs                 | 30.0% | 6     |
| 2  | Incandescent/halogen | 40.0% | 8     |
| 3  | LEDs                 | 25.0% | 5     |
| 98 | Don't know           | 30.0% | 6     |
|    | Total                | 100%  | 20    |

**Q13 - You indicated that you have not installed \$e{8 - [QID4-ChoiceGroup-SelectedChoices]} LED bulb(s). How many of those do you think you will install in the next 6 months?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 0  | 0          | 22.7% | 5     |
| 1  | 1          | 0.0%  | 0     |
| 2  | 2          | 22.7% | 5     |
| 3  | 3          | 4.5%  | 1     |
| 4  | 4          | 18.2% | 4     |
| 5  | 5          | 0.0%  | 0     |
| 6  | 6          | 4.5%  | 1     |
| 7  | 7          | 0.0%  | 0     |
| 8  | 8          | 0.0%  | 0     |
| 98 | Don't know | 27.3% | 6     |
|    | Total      | 100%  | 22    |

**Q14 - Why have you not installed all of the LED bulbs yet? (Select all that apply)**

| #  | Answer   | %     | Count |
|----|--|-------|-------|
| 1  | I did not receive 8 bulbs                                      | 4.5%  | 1     |
| 2  | I have not had the time to install them                        | 13.6% | 3     |
| 3  | I am not interested in installing them                         | 4.5%  | 1     |
| 4  | I am waiting for light bulbs to burn out before replacing them | 40.9% | 9     |
| 5  | I don't like them  | 0.0%  | 0     |
| 6  | Some of the bulbs were broken/did not work                     | 9.1%  | 2     |
| 7  | Other (Please specify)   | 36.4% | 8     |
| 98 | Don't know   | 4.5%  | 1     |
|    | Total  | 100%  | 22    |

**Q15 - Before you received the energy efficiency kit, what share of the light bulbs in your home were LED? Your best guess is fine.**

| #  | Answer                 | %     | Count |
|----|------------------------|-------|-------|
| 1  | None                   | 6.9%  | 2     |
| 2  | Some but less than 25% | 37.9% | 11    |
| 3  | Between 25% and 75%    | 20.7% | 6     |
| 4  | More than 75%          | 20.7% | 6     |
| 98 | Don't know             | 13.8% | 4     |
|    | Total                  | 100%  | 29    |

**Q16 - Have you started using the advanced power strip that you received in the kit?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 72.4% | 21    |
| 2  | No         | 27.6% | 8     |
| 98 | Don't know | 0.0%  | 0     |
|    | Total      | 100%  | 29    |

**Q17 - Why are you not using the Advanced Power Strip? (Select all that apply)**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | The power turned off while I was using equipment that was plugged into it | 0.0%  | 0     |
| 2  | I'm not sure how to use it  | 50.0% | 4     |
| 3  | I'm not interested in using it  | 12.5% | 1     |
| 4  | I didn't have a need for it   | 12.5% | 1     |
| 5  | Other (Please specify)  | 37.5% | 3     |
| 98 | Don't know  | 0.0%  | 0     |
|    | Total   | 100%  | 8     |



**Q18 - Do you plan to start using the advanced power strip in the next six months?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 71.4% | 5     |
| 2 | No     | 28.6% | 2     |
|   | Total  | 100%  | 7     |

**Q19 - What kind of equipment [Field-APS%20USE] the advanced power strip?**

| # | Answer                               | %     | Count |
|---|--------------------------------------|-------|-------|
| 1 | Audio/visual/entertainment equipment | 76.9% | 20    |
| 2 | Computer/office equipment            | 23.1% | 6     |
| 3 | Other types of equipment             | 23.1% | 6     |
|   | Total                                | 100%  | 26    |

**Q21 - What equipment [Field-APS%20USE] the outlets labeled ‘Switched’?  
(Select all that apply)**

| #  | Answer  | %    | Count |
|----|---|------|-------|
| 1  | Audio/visual/entertainment equipment                | 0.0% | 0     |
| 2  | Computer/office equipment                           | 0.0% | 0     |
| 3  | Other types of equipment                            | 0.0% | 0     |
| 4  | No equipment is plugged into the ‘Switched’ outlets | 0.0% | 0     |
| 98 | Don’t know  | 0.0% | 0     |
|    | Total   |      | 0     |

**Q22 - How many of the two showerheads are currently installed?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 0  | 0          | 66.7% | 8     |
| 1  | 1          | 25.0% | 3     |
| 2  | 2          | 8.3%  | 1     |
| 98 | Don’t know | 0.0%  | 0     |
|    | Total      | 100%  | 12    |

**Q23 - You indicated that you have not installed \$e{2 - [QID15-ChoiceGroup-SelectedChoices]} showerheads. How many of those do you think you will install in the next 6 months?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 0 | 0      | 81.8% | 9     |
| 1 | 1      | 18.2% | 2     |
| 2 | 2      | 0.0%  | 0     |
|   | Total  | 100%  | 11    |

**Q24 - Why have you not installed both of the showerheads? (Select all that apply)**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | I did not receive both showerheads                  | 45.5% | 5     |
| 2  | I have not had the time to install them             | 0.0%  | 0     |
| 3  | I am not interested in installing them              | 9.1%  | 1     |
| 4  | I do not have enough showers to use them            | 27.3% | 3     |
| 5  | I did not know how to install the showerheads       | 0.0%  | 0     |
| 6  | I need physical assistance or tools to install them | 18.2% | 2     |
| 7  | I don't like them                                   | 0.0%  | 0     |
| 8  | Other (Please specify)                              | 18.2% | 2     |
| 98 | Don't know  | 0.0%  | 0     |
|    | Total   | 100%  | 11    |

**Q25 - Is the kitchen faucet aerator currently installed?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 41.7% | 5     |
| 2  | No         | 58.3% | 7     |
| 98 | Don't know | 0.0%  | 0     |
|    | Total      | 100%  | 12    |

**Q26 - Do you plan to install the kitchen faucet aerator in the next 6 months?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 33.3% | 2     |
| 2 | No     | 66.7% | 4     |
|   | Total  | 100%  | 6     |

**Q27 - Why have you not installed the kitchen faucet aerator? (Select all that apply)**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | I did not receive it                              | 42.9% | 3     |
| 2  | I have not had the time to install it             | 0.0%  | 0     |
| 3  | I am not interested in installing it              | 14.3% | 1     |
| 4  | I did not know how to install it                  | 0.0%  | 0     |
| 5  | I need physical assistance or tools to install it | 14.3% | 1     |
| 6  | I don't like it                                   | 14.3% | 1     |
| 7  | Other (Please specify)                            | 14.3% | 1     |
| 98 | Don't know  | 0.0%  | 0     |
|    | Total   | 100%  | 7     |

**Q28 - How many of the two bathroom faucet aerators you received are currently installed?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 0  | 0          | 66.7% | 8     |
| 1  | 1          | 8.3%  | 1     |
| 2  | 2          | 25.0% | 3     |
| 98 | Don't know | 0.0%  | 0     |
|    | Total      | 100%  | 12    |

**Q29 - You indicated that you have not installed {2 - [QID21-ChoiceGroup-SelectedChoices]} bathroom faucet aerator(s). How many of those do you think you will install in the next 6 months?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 0 | 0      | 77.8% | 7     |
| 1 | 1      | 22.2% | 2     |
| 2 | 2      | 0.0%  | 0     |
|   | Total  | 100%  | 9     |

**Q30 - Why have you not installed both of the bathroom faucet aerators? (Select all that apply)**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | I did not receive them                              | 55.6% | 5     |
| 2  | I have not had the time to install them             | 0.0%  | 0     |
| 3  | I am not interested in installing them              | 11.1% | 1     |
| 4  | I don't like them                                   | 0.0%  | 0     |
| 5  | I did not know how to install them                  | 0.0%  | 0     |
| 6  | I need physical assistance or tools to install them | 11.1% | 1     |
| 7  | Other (Please specify)                              | 22.2% | 2     |
| 98 | Don't know  | 0.0%  | 0     |
|    | Total   | 100%  | 9     |

**Q31 - How many of the two LED night lights are currently installed?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 0  | 0          | 14.3% | 4     |
| 1  | 1          | 17.9% | 5     |
| 2  | 2          | 64.3% | 18    |
| 98 | Don't know | 3.6%  | 1     |
|    | Total      | 100%  | 28    |

**Q32 - You indicated that you have not installed \$e{2 - [QID24-ChoiceGroup-SelectedChoices]} LED night light(s). How many of those do you think you will install in the next 6 months?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 0 | 0      | 44.4% | 4     |
| 1 | 1      | 33.3% | 3     |
| 2 | 2      | 22.2% | 2     |
|   | Total  | 100%  | 9     |

**Q33 - Why have you not installed both of the LED night lights? (Select all that apply)**

| #  | Answer                                  | %     | Count |
|----|---|-------|-------|
| 1  | I did not receive them                  | 11.1% | 1     |
| 2  | I have not had the time to install them | 0.0%  | 0     |
| 3  | I am not interested in installing them  | 11.1% | 1     |
| 4  | I don't like them                       | 0.0%  | 0     |
| 5  | I didn't need them                      | 55.6% | 5     |
| 6  | Other (Please specify)                  | 22.2% | 2     |
| 98 | Don't know                              | 0.0%  | 0     |
|    | Total                                   | 100%  | 9     |

**Q34 - When you installed the LED night light(s), did you replace a night light(s) that you already had, or did you plug it into an empty outlet?**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | Replaced a night light  | 30.4% | 7     |
| 2  | Installed the night light in an empty socket                        | 52.2% | 12    |
| 3  | Replaced one night light and installed the other in an empty socket | 13.0% | 3     |
| 98 | Don't know  | 4.3%  | 1     |
|    | Total   | 100%  | 23    |

**Q35 - When you install the nightlight(s) you haven't already installed, will you...**

| #  | Answer   | %     | Count |
|----|--|-------|-------|
| 1  | Replace another nightlight                                       | 20.0% | 1     |
| 2  | Install in an empty socket                                       | 60.0% | 3     |
| 3  | Replace one night light and install the other in an empty socket | 20.0% | 1     |
| 98 | Don't know   | 0.0%  | 0     |
|    | Total  | 100%  | 5     |

**Q36 - The next few questions are about the virtual audit of your home. Were you the person in your household who participate in the virtual audit?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 82.8% | 24    |
| 2  | No         | 13.8% | 4     |
| 98 | Don't know | 3.4%  | 1     |
|    | Total      | 100%  | 29    |



**Q37 - About how long did the virtual audit take?**

| #  | Answer               | %     | Count |
|----|----------------------|-------|-------|
| 1  | 15 minutes or less   | 45.8% | 11    |
| 2  | 15 to 30 minutes     | 37.5% | 9     |
| 3  | 30 to 45 minutes     | 8.3%  | 2     |
| 4  | 45 to 60 minutes     | 4.2%  | 1     |
| 5  | More than 60 minutes | 0.0%  | 0     |
| 98 | Don't know           | 4.2%  | 1     |
|    | Total                | 100%  | 24    |

**Q38 - Did the person you spoke with provide any energy saving tips?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 70.8% | 17    |
| 2 | No     | 29.2% | 7     |
|   | Total  | 100%  | 24    |

**Q40 - Overall, how useful was the virtual audit for helping you understand ways you can save energy?**

| # | Answer                | %     | Count |
|---|-----------------------|-------|-------|
| 1 | 1 (Not at all useful) | 25.0% | 6     |
| 2 | 2                     | 8.3%  | 2     |
| 3 | 3                     | 20.8% | 5     |
| 4 | 4                     | 25.0% | 6     |
| 5 | 5 (Very useful)       | 20.8% | 5     |
|   | Total                 | 100%  | 24    |

**Q42 - Using the scale below, please rate how dissatisfied or satisfied you are with each of the following:**

| # | Question   | 1 (Very dissatisfied) |   | 2     |   | 3     |   | 4     |   | 5 (Very satisfied) |    | Total |
|---|--|-----------------------|---|-------|---|-------|---|-------|---|--------------------|----|-------|
| 1 | The energy checkup service, overall                | 32.1%                 | 9 | 3.6%  | 1 | 17.9% | 5 | 10.7% | 3 | 35.7%              | 10 | 28    |
| 2 | The information provided through the virtual audit | 32.1%                 | 9 | 7.1%  | 2 | 17.9% | 5 | 10.7% | 3 | 32.1%              | 9  | 28    |
| 3 | The kit items that you received                    | 17.9%                 | 5 | 10.7% | 3 | 7.1%  | 2 | 21.4% | 6 | 42.9%              | 12 | 28    |

**Q44 - Using the scale below, how dissatisfied or satisfied are you with I&M as your electricity service provider?**

| # | Answer                | %     | Count |
|---|-----------------------|-------|-------|
| 1 | 1 (Very dissatisfied) | 7.1%  | 2     |
| 2 | 2                     | 7.1%  | 2     |
| 3 | 3                     | 21.4% | 6     |
| 4 | 4                     | 42.9% | 12    |
| 5 | 5 (Very satisfied)    | 21.4% | 6     |
|   | Total                 | 100%  | 28    |

**Q48 - Do you own the home that you completed the virtual assessment for, rent it, or own it and rent it to someone else?**

| #  | Answer                       | %     | Count |
|----|------------------------------|-------|-------|
| 1  | Own                          | 77.8% | 21    |
| 2  | Rent                         | 14.8% | 4     |
| 3  | Own and rent to someone else | 3.7%  | 1     |
| 99 | Prefer not to answer         | 3.7%  | 1     |
|    | Total                        | 100%  | 27    |

**Q49 - Which of the following best describes your home? Is it a...**

| #  | Answer   | %     | Count |
|----|--|-------|-------|
| 1  | Manufactured home  | 3.7%  | 1     |
| 2  | Single-family house detached from any other house                              | 74.1% | 20    |
| 3  | Single family house attached to one or more other houses, for example, duplex, | 7.4%  | 2     |
| 4  | row house, or townhome   | 7.4%  | 2     |
| 5  | Apartment in a building with 2 to 3 units                                      | 0.0%  | 0     |
| 6  | Apartment in a building with 4 or more units                                   | 0.0%  | 0     |
| 7  | Other (Please Specify)   | 7.4%  | 2     |
| 99 | Prefer not to answer   | 0.0%  | 0     |
|    | Total  | 100%  | 27    |

**Q50 - When was your home built?**

| #  | Answer               | %     | Count |
|----|----------------------|-------|-------|
| 1  | Before 1950          | 34.6% | 9     |
| 2  | 1950 to 1959         | 19.2% | 5     |
| 3  | 1960 to 1969         | 15.4% | 4     |
| 4  | 1970 to 1979         | 0.0%  | 0     |
| 5  | 1980 to 1989         | 7.7%  | 2     |
| 6  | 1990 to 1999         | 11.5% | 3     |
| 7  | 2000 to 2009         | 3.8%  | 1     |
| 8  | 2010 or later        | 7.7%  | 2     |
| 99 | Prefer not to answer | 0.0%  | 0     |
|    | Total                | 100%  | 26    |

**Q51 - What is the main fuel used for heating your home?**

| #  | Answer               | %     | Count |
|----|----------------------|-------|-------|
| 1  | Electricity          | 19.2% | 5     |
| 2  | Natural Gas          | 73.1% | 19    |
| 3  | Propane              | 0.0%  | 0     |
| 4  | Something else       | 3.8%  | 1     |
| 5  | Don't heat home      | 0.0%  | 0     |
| 99 | Prefer not to answer | 3.8%  | 1     |
|    | Total                | 100%  | 26    |

**Q52 - What fuel does your main water heater use?**

| #  | Answer               | %     | Count |
|----|----------------------|-------|-------|
| 1  | Electricity          | 52.0% | 13    |
| 2  | Natural Gas          | 48.0% | 12    |
| 3  | Propane              | 0.0%  | 0     |
| 4  | Something else       | 0.0%  | 0     |
| 5  | Don't heat home      | 0.0%  | 0     |
| 99 | Prefer not to answer | 0.0%  | 0     |
|    | Total                | 100%  | 25    |

**Q53 - Including yourself, how many people currently live in your home year-round?**

| # | Answer               | %     | Count |
|---|----------------------|-------|-------|
| 1 | 1                    | 46.2% | 12    |
| 2 | 2                    | 23.1% | 6     |
| 3 | 3                    | 11.5% | 3     |
| 4 | 4                    | 7.7%  | 2     |
| 5 | 5                    | 7.7%  | 2     |
| 6 | 6                    | 0.0%  | 0     |
| 7 | 7                    | 0.0%  | 0     |
| 8 | 8 or more            | 0.0%  | 0     |
| 9 | Prefer not to answer | 3.8%  | 1     |
|   | Total                | 100%  | 26    |

**Q54 - How many bathroom faucets do you have in your home?**

| #  | Answer               | %     | Count |
|----|----------------------|-------|-------|
| 1  | 0                    | 0.0%  | 0     |
| 2  | 1                    | 36.0% | 9     |
| 3  | 2                    | 40.0% | 10    |
| 4  | 3                    | 20.0% | 5     |
| 5  | 4                    | 4.0%  | 1     |
| 6  | 5                    | 0.0%  | 0     |
| 7  | 6                    | 0.0%  | 0     |
| 8  | 7                    | 0.0%  | 0     |
| 9  | 8 or more            | 0.0%  | 0     |
| 99 | Prefer not to answer | 0.0%  | 0     |
|    | Total                | 100%  | 25    |

**Q55 - How many showers do you have in your home?**

| #  | Answer               | %     | Count |
|----|----------------------|-------|-------|
| 1  | 0                    | 0.0%  | 0     |
| 2  | 1                    | 70.8% | 17    |
| 3  | 2                    | 29.2% | 7     |
| 4  | 3                    | 0.0%  | 0     |
| 5  | 4                    | 0.0%  | 0     |
| 6  | 5                    | 0.0%  | 0     |
| 7  | 6                    | 0.0%  | 0     |
| 8  | 7                    | 0.0%  | 0     |
| 9  | 8 or more            | 0.0%  | 0     |
| 99 | Prefer not to answer | 0.0%  | 0     |
|    | Total                | 100%  | 24    |



**Q56 - Which of the following best describes your annual household income?**

| #  | Answer                           | %     | Count |
|----|----------------------------------|-------|-------|
| 1  | Less than \$10,000               | 0.0%  | 0     |
| 2  | \$10,000 to less than \$20,000   | 25.0% | 6     |
| 3  | \$20,000 to less than \$30,000   | 16.7% | 4     |
| 4  | \$30,000 to less than \$40,000   | 25.0% | 6     |
| 5  | \$40,000 to less than \$50,000   | 8.3%  | 2     |
| 6  | \$50,000 to less than \$75,000   | 4.2%  | 1     |
| 7  | \$75,000 to less than \$100,000  | 0.0%  | 0     |
| 8  | \$100,000 to less than \$150,000 | 0.0%  | 0     |
| 9  | \$150,000 to less than \$200,000 | 4.2%  | 1     |
| 10 | \$200,000 or more                | 0.0%  | 0     |
| 99 | Prefer not to answer             | 16.7% | 4     |
|    | Total                            | 100%  | 24    |

**7.2. In-Home Participant Survey Instrument**

**Q2 - We are conducting a study to evaluate the I&M Home Energy Checkup Program. I&M will use the results of this evaluation to determine the effectiveness of the program and to make improvements. This is not a sales call, and I am not going to ask you to buy anything. If you are interested, you can view our privacy policy statement at [admenergy.com/privacy](https://admenergy.com/privacy). May I ask you a few questions?**

| # | Answer  | %      | Count |
|---|---|--------|-------|
| 1 | Yes   | 100.0% | 14    |
| 2 | No (Thank respondent and terminate the interview) | 0.0%   | 0     |
|   | Total   | 100%   | 14    |

**Q6 - Our records indicate that your household participated in I&M's Energy Checkup Program by receiving an in-home energy assessment and some energy saving home improvements. Is that correct?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 86.7% | 13    |
| 2  | No         | 13.3% | 2     |
| 98 | Don't know | 0.0%  | 0     |
|    | Total      | 100%  | 15    |

**Q7 - How did you first learn about I&M's Home Energy Checkup Program?**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | Email from I&M  | 23.1% | 3     |
| 2  | I&M postal mailing  | 15.4% | 2     |
| 3  | I&M Website (www.electricideas.com or indianamichiganpower.com) | 30.8% | 4     |
| 4  | Friend or Relative (word-of-mouth)                              | 7.7%  | 1     |
| 5  | I&M Representative  | 7.7%  | 1     |
| 6  | Community event   | 0.0%  | 0     |
| 7  | Social media (Facebook, Instagram or Twitter)                   | 0.0%  | 0     |
| 8  | Other (Specify)   | 0.0%  | 0     |
| 98 | Don't know  | 15.4% | 2     |
|    | Total   | 100%  | 13    |

**Q8 - Your home received a home energy checkup as part of your participation in in the program. Did you schedule the home energy checkup you received through the program?**

| # | Answer   | %     | Count |
|---|--|-------|-------|
| 1 | Yes  | 69.2% | 9     |
| 2 | No, another person in my household scheduled it            | 0.0%  | 0     |
| 3 | I am not aware that a home energy assessment was performed | 30.8% | 4     |
|   | Total  | 100%  | 13    |

**Q9 - What were the main reasons you wanted to have the checkup done in your home? Select all that apply.**

| # | Answer  | %     | Count |
|---|---|-------|-------|
| 1 | Required to in order to receive the home improvements | 66.7% | 6     |
| 2 | Recommended by contractor                             | 33.3% | 3     |
| 3 | Recommended by friend or family                       | 33.3% | 3     |
| 4 | Wanted to better understand the condition of my home  | 44.4% | 4     |
| 5 | Concerned about a specific issue(s) in my home        | 0.0%  | 0     |
| 6 | Save energy to save money                             | 77.8% | 7     |
| 7 | Save energy to protect the environment                | 44.4% | 4     |
| 8 | Wanted to make my home more comfortable               | 66.7% | 6     |
|   | Total   | 100%  | 9     |

**Q10 - Did the energy expert that did the home checkup ask you about any concerns you had about your home?**

| #  | Answer   | %     | Count |
|----|----------|-------|-------|
| 1  | Yes      | 77.8% | 7     |
| 2  | No       | 22.2% | 2     |
| 98 | Not sure | 0.0%  | 0     |
|    | Total    | 100%  | 9     |

**Q11 - At the end of your checkup, did you receive a report or list of recommendations for making your home more energy efficient?**

| #  | Answer   | %     | Count |
|----|----------|-------|-------|
| 1  | Yes      | 44.4% | 4     |
| 2  | No       | 55.6% | 5     |
| 98 | Not sure | 0.0%  | 0     |
|    | Total    | 100%  | 9     |

**Q12 - On a scale of 1 to 5, where 1 means “Very dissatisfied” and 5 means “Very satisfied”, how satisfied were you with each of the following?**

| # | Question  | Very<br>dissatisfie<br>d |   | Somewha<br>t<br>dissatisfie<br>d |   | Neither<br>satisfied<br>nor<br>dissatisfie<br>d |   | Somewh<br>at<br>satisfied |   | Very<br>satisfie<br>d |   | Tota<br>l |
|---|---|--------------------------|---|----------------------------------|---|---|---|---------------------------|---|-----------------------|---|-----------|
| 1 | The amount of time between scheduling and when the checkup took place | 0.0%                     | 0 | 0.0%                             | 0 | 33.3%   | 3 | 22.2%                     | 2 | 44.4%                 | 4 | 9         |
| 2 | The time it took to complete the checkup                              | 0.0%                     | 0 | 0.0%                             | 0 | 22.2%   | 2 | 33.3%                     | 3 | 44.4%                 | 4 | 9         |
| 3 | The professionalism of the energy expert                              | 0.0%                     | 0 | 0.0%                             | 0 | 22.2%   | 2 | 22.2%                     | 2 | 55.6%                 | 5 | 9         |
| 4 | The quality of the work performed during the checkup                  | 0.0%                     | 0 | 0.0%                             | 0 | 22.2%   | 2 | 22.2%                     | 2 | 55.6%                 | 5 | 9         |
| 5 | The energy checkup overall  | 0.0%                     | 0 | 0.0%                             | 0 | 33.3%   | 3 | 11.1%                     | 1 | 55.6%                 | 5 | 9         |

**Q14 - Not including the energy efficiency improvements that were made to your home, did you learn about any tips for reducing energy use in your home during the checkup?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 55.6% | 5     |
| 2  | No         | 22.2% | 2     |
| 98 | Don't know | 22.2% | 2     |
|    | Total      | 100%  | 9     |

**Q16 - Have you implemented any of the energy saving tips that you learned about from the home energy checkup?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 40.0% | 2     |
| 2  | No         | 60.0% | 3     |
| 98 | Don't know | 0.0%  | 0     |
|    | Total      | 100%  | 5     |

**Q18 - Overall, how useful was the information provided in the home energy checkup? Would you say it was...**

| # | Answer            | %     | Count |
|---|-------------------|-------|-------|
| 1 | Not at all useful | 0.0%  | 0     |
| 2 | Not very useful   | 0.0%  | 0     |
| 3 | Somewhat useful   | 55.6% | 5     |
| 4 | Very useful       | 44.4% | 4     |
|   | Total             | 100%  | 9     |

**Q19 - According to our records you made the following home improvements through I&M's Home Energy Checkup Program. Is this information correct?**

| # | Question                                     | Correct |   | Incorrect |   | Don't know |   | Total     |
|---|--|---------|---|-----------|---|------------|---|-----------|
| 1 | Ductless heat pump                           | 0.0%    | 0 | 0.0%      | 0 | 0.0%       | 0 | undefined |
| 2 | Refrigerator                                 | 100.0%  | 2 | 0.0%      | 0 | 0.0%       | 0 | 2         |
| 3 | Air sealing to reduce air leakage and drafts | 0.0%    | 0 | 0.0%      | 0 | 0.0%       | 0 | undefined |
| 4 | Insulation                                   | 0.0%    | 0 | 0.0%      | 0 | 0.0%       | 0 | undefined |
| 5 | Heat pump water heater                       | 0.0%    | 0 | 0.0%      | 0 | 0.0%       | 0 | undefined |
| 6 | Heat pump                                    | 0.0%    | 0 | 0.0%      | 0 | 0.0%       | 0 | undefined |

**Q20 - The next question is about the [QID19-ChoiceGroup-SelectedChoicesForAnswer-1] installed through the program. How long did it take for a contractor to contact you to have those improvements made after the checkup was completed?**

| #  | Answer            | %     | Count |
|----|-------------------|-------|-------|
| 1  | Less than 2 weeks | 50.0% | 1     |
| 2  | 2 – 4 weeks       | 0.0%  | 0     |
| 3  | 5- 6 weeks        | 0.0%  | 0     |
| 4  | 7- 8 weeks        | 0.0%  | 0     |
| 5  | More than 8 weeks | 0.0%  | 0     |
| 98 | Don't know        | 50.0% | 1     |
|    | Total             | 100%  | 2     |

**Q21 - You said it took [QID20-ChoiceGroup-SelectedChoices] for a contractor to contact you about making the improvements. About how long did it take to have the work done from when you first had the energy checkup completed?**

| #  | Answer            | %      | Count |
|----|-------------------|--------|-------|
| 1  | Less than 2 weeks | 100.0% | 1     |
| 2  | 2 – 4 weeks       | 0.0%   | 0     |
| 3  | 5- 6 weeks        | 0.0%   | 0     |
| 4  | 7- 8 weeks        | 0.0%   | 0     |
| 5  | More than 8 weeks | 0.0%   | 0     |
| 98 | Don't know        | 0.0%   | 0     |
|    | Total             | 100%   | 1     |

**Q22 - According to our records you received the following energy saving items through I&M's Home Energy Checkup Program. Is this information correct?**

| # | Question   | Correct |    | Incorrect |   | Don't know |   | Total |
|---|--|---------|----|-----------|---|------------|---|-------|
| 1 | [Field-LED%20QUANT] LED light bulbs  | 100.0%  | 6  | 0.0%      | 0 | 0.0%       | 0 | 6     |
| 2 | [Field-BATH%20AERATOR%20QUANT] energy and water efficient bathroom faucet aerators(s)  | 55.6%   | 5  | 44.4%     | 4 | 0.0%       | 0 | 9     |
| 3 | [Field-KITCHEN%20AERATOR%20QUANT] energy and water efficient kitchen faucet aerator(s) | 50.0%   | 4  | 50.0%     | 4 | 0.0%       | 0 | 8     |
| 4 | [Field-SHOWER%20QUANT] energy and water efficient showerheads                          | 66.7%   | 6  | 33.3%     | 3 | 0.0%       | 0 | 9     |
| 6 | [Field-APS%20QUANT] advanced power strip(s)  | 90.9%   | 10 | 9.1%      | 1 | 0.0%       | 0 | 11    |
| 7 | [Field-NIGHTLIGHT%20QUANT] night light(s)  | 81.8%   | 9  | 18.2%     | 2 | 0.0%       | 0 | 11    |



**Q49 - Using a scale where 1 means “very dissatisfied” and 5 means “very satisfied,” please rate how satisfied you are with each of the following:**

| # | Question   | Very<br>dissatisfied1 |   | 2     |   | 3     |   | 4     |   | Very<br>satisfied5 |   | Total |
|---|--|-----------------------|---|-------|---|-------|---|-------|---|--------------------|---|-------|
| 1 | Performance of the items or improvements installed           | 0.0%                  | 0 | 0.0%  | 0 | 7.7%  | 1 | 46.2% | 6 | 46.2%              | 6 | 13    |
| 2 | The effort required to sign up to participate in the program | 0.0%                  | 0 | 15.4% | 2 | 15.4% | 2 | 38.5% | 5 | 30.8%              | 4 | 13    |
| 3 | The quality of the installation work                         | 0.0%                  | 0 | 16.7% | 2 | 8.3%  | 1 | 33.3% | 4 | 41.7%              | 5 | 12    |
| 4 | The program overall  | 0.0%                  | 0 | 0.0%  | 0 | 30.8% | 4 | 38.5% | 5 | 30.8%              | 4 | 13    |

**Q51 - Using the same scale where 1 means “very dissatisfied” and 5 means “very satisfied,” how satisfied are you with I&M as your electricity service provider?**

| # | Answer              | %     | Count |
|---|---------------------|-------|-------|
| 1 | Very dissatisfied 1 | 0.0%  | 0     |
| 2 | 2                   | 0.0%  | 0     |
| 3 | 3                   | 7.7%  | 1     |
| 4 | 4                   | 53.8% | 7     |
| 5 | Very satisfied 5    | 38.5% | 5     |
|   | Total               | 100%  | 13    |

**Q52 - How likely are you to recommend the Home Energy Checkup Program to a friend or colleague?**

| # | Group     | %     | Count |
|---|-----------|-------|-------|
| 1 | Detractor | 15.4% | 2     |
| 2 | Passive   | 23.1% | 3     |
| 3 | Promoter  | 61.5% | 8     |
|   | Total     | 100%  | 13    |

**Q55 - Do you own the home that participated in the Home Energy Checkup Program, rent it, or own it and rent it to someone else?**

| #  | Answer                       | %     | Count |
|----|------------------------------|-------|-------|
| 1  | Own                          | 92.3% | 12    |
| 2  | Rent                         | 7.7%  | 1     |
| 3  | Own and rent to someone else | 0.0%  | 0     |
| 99 | Prefer not to answer         | 0.0%  | 0     |
|    | Total                        | 100%  | 13    |

**Q56 - Which of the following best describes your home? Is it a...**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | Manufactured home   | 0.0%  | 0     |
| 2  | Single-family house detached from any other house   | 92.3% | 12    |
| 3  | Single family house attached to one or more other houses, for example, duplex, row house, or townhome | 0.0%  | 0     |
| 4  | Apartment in a building with 2 to 3 units   | 7.7%  | 1     |
| 5  | Apartment in a building with 4 or more units  | 0.0%  | 0     |
| 6  | Other (Please describe)   | 0.0%  | 0     |
| 99 | Prefer not to answer  | 0.0%  | 0     |
|    | Total   | 100%  | 13    |

**Q57 - How many bathroom faucets do you have in your home?**

| #  | Answer               | %     | Count |
|----|----------------------|-------|-------|
| 0  | 0                    | 0.0%  | 0     |
| 1  | 1                    | 30.8% | 4     |
| 2  | 2                    | 53.8% | 7     |
| 3  | 3                    | 7.7%  | 1     |
| 4  | 4                    | 7.7%  | 1     |
| 5  | 5                    | 0.0%  | 0     |
| 6  | 6                    | 0.0%  | 0     |
| 7  | 7                    | 0.0%  | 0     |
| 8  | 8 or more            | 0.0%  | 0     |
| 99 | Prefer not to answer | 0.0%  | 0     |
|    | Total                | 100%  | 13    |

**Q58 - How many showers do you have in your home?**

| #  | Answer               | %     | Count |
|----|----------------------|-------|-------|
| 0  | 0                    | 0.0%  | 0     |
| 1  | 1                    | 53.8% | 7     |
| 2  | 2                    | 46.2% | 6     |
| 3  | 3                    | 0.0%  | 0     |
| 4  | 4                    | 0.0%  | 0     |
| 5  | 5                    | 0.0%  | 0     |
| 6  | 6                    | 0.0%  | 0     |
| 7  | 7                    | 0.0%  | 0     |
| 8  | 8 or more            | 0.0%  | 0     |
| 99 | Prefer not to answer | 0.0%  | 0     |
|    | Total                | 100%  | 13    |

**Q59 - When was your home built?**

| #  | Answer               | %     | Count |
|----|----------------------|-------|-------|
| 1  | Before 1950          | 25.0% | 3     |
| 2  | 1950 to 1959         | 25.0% | 3     |
| 3  | 1960 to 1969         | 16.7% | 2     |
| 4  | 1970 to 1979         | 8.3%  | 1     |
| 5  | 1980 to 1989         | 0.0%  | 0     |
| 6  | 1990 to 1999         | 0.0%  | 0     |
| 7  | 2000 to 2009         | 0.0%  | 0     |
| 8  | 2010 or later        | 8.3%  | 1     |
| 99 | Prefer not to answer | 16.7% | 2     |
|    | Total                | 100%  | 12    |

**Q60 - Including yourself, how many people currently live in your home year-round?**

| # | Answer               | %     | Count |
|---|----------------------|-------|-------|
| 1 | 1                    | 30.8% | 4     |
| 2 | 2                    | 61.5% | 8     |
| 3 | 3                    | 0.0%  | 0     |
| 4 | 4                    | 0.0%  | 0     |
| 5 | 5                    | 7.7%  | 1     |
| 6 | 6                    | 0.0%  | 0     |
| 7 | 7                    | 0.0%  | 0     |
| 8 | 8 or more            | 0.0%  | 0     |
| 9 | Prefer not to answer | 0.0%  | 0     |
|   | Total                | 100%  | 13    |

**Q61 - Which of the following best describes your annual household income?**

| #  | Answer                           | %     | Count |
|----|----------------------------------|-------|-------|
| 1  | Less than \$10,000               | 0.0%  | 0     |
| 2  | \$10,000 to less than \$20,000   | 23.1% | 3     |
| 3  | \$20,000 to less than \$30,000   | 7.7%  | 1     |
| 4  | \$30,000 to less than \$40,000   | 7.7%  | 1     |
| 5  | \$40,000 to less than \$50,000   | 0.0%  | 0     |
| 6  | \$50,000 to less than \$75,000   | 7.7%  | 1     |
| 7  | \$75,000 to less than \$100,000  | 0.0%  | 0     |
| 8  | \$100,000 to less than \$150,000 | 0.0%  | 0     |
| 9  | \$150,000 to less than \$200,000 | 0.0%  | 0     |
| 10 | \$200,000 or more                | 0.0%  | 0     |
| 99 | Prefer not to answer             | 53.8% | 7     |
|    | Total                            | 100%  | 13    |

**Q62 - Did your home receive any assistance in paying your electricity bill in the past year?**

| #  | Answer                          | %     | Count |
|----|---------------------------------|-------|-------|
| 1  | Yes                             | 7.7%  | 1     |
| 2  | No                              | 84.6% | 11    |
| 99 | Don't know/Prefer not to answer | 7.7%  | 1     |
|    | Total                           | 100%  | 13    |

## 8. Home HVAC Midstream Customer Survey Results

**Q4 - Just to confirm, did you install a new [Field-EQUIPMENT\_TYPE] in 2023 at your home located at?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 96.0% | 24    |
| 2 | No     | 4.0%  | 1     |
|   | Total  | 100%  | 25    |

**Q5 - What is incorrect about the information we have?**

| # | Answer   | %      | Count |
|---|--|--------|-------|
| 1 | You installed new heating equipment but it was not a<br>\${e://Field/EQUIPMENT_TYPE} | 100.0% | 1     |
| 2 | You installed \${e://Field/EQUIPMENT_TYPE} but not at that location                  | 0.0%   | 0     |
| 3 | You did not install any new heating or cooling equipment in 2023                     | 0.0%   | 0     |
|   | Total  | 100%   | 1     |

**Q7 - Is the location where the equipment is installed a home or a business?**

| # | Answer                 | %    | Count |
|---|------------------------|------|-------|
| 1 | Home                   | 0.0% | 0     |
| 2 | Business               | 0.0% | 0     |
| 3 | Other (Please explain) | 0.0% | 0     |
|   | Total                  |      | 0     |



**Q8 - Does the location receive electricity service from Indiana-Michigan Power (I&M)?**

| #  | Answer   | %    | Count |
|----|----------|------|-------|
| 1  | Yes      | 0.0% | 0     |
| 2  | No       | 0.0% | 0     |
| 98 | Not sure | 0.0% | 0     |
|    | Total    |      | 0     |

**Q9 - Did you know that the [Field-EQUIPMENT\_TYPE] included a discount provided by I&M?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 80.0% | 20    |
| 2 | No     | 20.0% | 5     |
|   | Total  | 100%  | 25    |

**Q10 - Were you planning to install an energy efficient [Field-EQUIPMENT\_TYPE] before you learned about the discount provided by I&M?**

| #  | Answer   | %     | Count |
|----|----------|-------|-------|
| 1  | Yes      | 60.0% | 12    |
| 2  | No       | 30.0% | 6     |
| 98 | Not sure | 10.0% | 2     |
|    | Total    | 100%  | 20    |

**Q11 - Just to be clear, did you have plans to specifically install an energy efficient [Field-EQUIPMENT\_TYPE] instead of installing a standard efficiency [Field-EQUIPMENT\_TYPE]?**

| #  | Answer   | %     | Count |
|----|----------|-------|-------|
| 1  | Yes      | 75.0% | 9     |
| 2  | No       | 0.0%  | 0     |
| 98 | Not sure | 25.0% | 3     |
|    | Total    | 100%  | 12    |

**Q12 - Would you have been able to afford the high efficiency [Field-EQUIPMENT\_TYPE] if the discount was not available?**

| #  | Answer   | %     | Count |
|----|----------|-------|-------|
| 1  | Yes      | 60.0% | 12    |
| 2  | No       | 35.0% | 7     |
| 98 | Not sure | 5.0%  | 1     |
|    | Total    | 100%  | 20    |

**Q13 - If the discount was not provided by I&M, which of the following best describes what you would have done?**

| # | Answer  | %     | Count |
|---|---|-------|-------|
| 1 | You would have bought the exact same \${e://Field/EQUIPMENT_TYPE} or one that was more energy efficient | 40.0% | 8     |
| 2 | You would have bought a less efficient or lower cost \${e://Field/EQUIPMENT_TYPE}                       | 45.0% | 9     |
| 3 | You would not have bought a new \${e://Field/EQUIPMENT_TYPE}  | 15.0% | 3     |
|   | Total   | 100%  | 20    |

**Q14 - Using a scale where 0 is “not at all likely” and 10 is “very likely”, how likely is it that you would have installed the same [Field-EQUIPMENT\_TYPE] at about the same time if you had not received the discount?**

| #  | Answer                | %     | Count |
|----|-----------------------|-------|-------|
| 0  | 0 (Not at all likely) | 25.0% | 5     |
| 1  | 1                     | 0.0%  | 0     |
| 2  | 2                     | 0.0%  | 0     |
| 3  | 3                     | 5.0%  | 1     |
| 4  | 4                     | 10.0% | 2     |
| 5  | 5                     | 0.0%  | 0     |
| 6  | 6                     | 5.0%  | 1     |
| 7  | 7                     | 5.0%  | 1     |
| 8  | 8                     | 5.0%  | 1     |
| 9  | 9                     | 10.0% | 2     |
| 10 | 10 (Very likely)      | 35.0% | 7     |
|    | Total                 | 100%  | 20    |

**Q15 - When might you have installed the same [Field-EQUIPMENT\_TYPE] if the discount was not available?**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | At the same time as when you installed it   | 60.0% | 12    |
| 2  | Within 6 months of when you installed it  | 5.0%  | 1     |
| 3  | Between 6 months and 1 year   | 5.0%  | 1     |
| 4  | In more than 1 year to 2 years  | 10.0% | 2     |
| 5  | In two years or more  | 0.0%  | 0     |
| 6  | Never, would not have installed an energy efficient<br>\${c://Field/EQUIPMENT_TYPE} | 10.0% | 2     |
| 98 | Don't know  | 10.0% | 2     |
|    | Total   | 100%  | 20    |

**Q16 - Did the contractor you worked with recommend that you install the energy efficient [Field-EQUIPMENT\_TYPE]?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 80.0% | 20    |
| 2 | No     | 20.0% | 5     |
|   | Total  | 100%  | 25    |

### Q17 - Did the [Field-EQUIPMENT\_TYPE] replace some old heating and cooling equipment?

| # | Answer   | %     | Count |
|---|--|-------|-------|
| 1 | Yes, it replaced both cooling and heating equipment              | 66.7% | 6     |
| 2 | Yes, it replaced cooling equipment                               | 0.0%  | 0     |
| 3 | Yes, it replaced heating equipment                               | 0.0%  | 0     |
| 4 | No, it was a new installation that did not replace any equipment | 33.3% | 3     |
|   | Total  | 100%  | 9     |

### Q18 - Did the [Field-EQUIPMENT\_TYPE] replace a heat pump?

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 33.3% | 2     |
| 2  | No         | 66.7% | 4     |
| 98 | Don't know | 0.0%  | 0     |
|    | Total      | 100%  | 6     |

### Q19 - Was the old heat pump working at the time it was replaced?

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 50.0% | 1     |
| 2 | No     | 50.0% | 1     |
|   | Total  | 100%  | 2     |

**Q20 - Thinking about the old heat pump you replaced, which of the following best describes when and how it was originally installed.**

| # | Answer   | %      | Count |
|---|--|--------|-------|
| 1 | You bought the house new and the unit was original equipment when you bought it.         | 0.0%   | 0     |
| 2 | It was original equipment in a newly constructed home when the previous owner bought it. | 0.0%   | 0     |
| 3 | It was there when you bought the house from a previous owner.                            | 0.0%   | 0     |
| 4 | You or your family installed the old unit.   | 100.0% | 2     |
| 5 | Other (Please specify)   | 0.0%   | 0     |
|   | Total  | 100%   | 2     |

**Q21 - Do you know the approximate age of the old heat pump that was replaced?**

| # | Answer                | %      | Count |
|---|-----------------------|--------|-------|
| 1 | Yes (How old was it?) | 100.0% | 2     |
| 2 | No                    | 0.0%   | 0     |
|   | Total                 | 100%   | 2     |

**Q22 - Which of the following do you think is the most likely age of the old heat pump:**

| # | Answer                 | %    | Count |
|---|------------------------|------|-------|
| 1 | More than 20 years old | 0.0% | 0     |
| 2 | 15 – 20 years old      | 0.0% | 0     |
| 3 | 10 – 15 years old      | 0.0% | 0     |
| 4 | Less than 10 years old | 0.0% | 0     |
|   | Total                  |      | 0     |

**Q23 - Was the old heating equipment working at the time it was replaced?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 75.0% | 3     |
| 2 | No     | 25.0% | 1     |
|   | Total  | 100%  | 4     |

**Q24 - What type of heating system did you have before you installed the [Field-EQUIPMENT\_TYPE]?**

| #  | Answer                            | %     | Count |
|----|-----------------------------------|-------|-------|
| 1  | Electric resistance heating       | 50.0% | 2     |
| 2  | An air source heat pump           | 0.0%  | 0     |
| 3  | Some other kind of heating system | 50.0% | 2     |
| 4  | No heating equipment              | 0.0%  | 0     |
| 98 | Don't know                        | 0.0%  | 0     |
|    | Total                             | 100%  | 4     |

**Q25 - Was your electric resistance heating system an electric furnace or baseboard heating?**

| #  | Answer                     | %     | Count |
|----|----------------------------|-------|-------|
| 1  | Electric furnace           | 0.0%  | 0     |
| 2  | Electric baseboard heating | 50.0% | 1     |
| 98 | Don't know                 | 50.0% | 1     |
|    | Total                      | 100%  | 2     |

**Q26 - Thinking about the old heating equipment you replaced, which of the following best describes when and how it was originally installed.**

| # | Answer   | %     | Count |
|---|--|-------|-------|
| 1 | You bought the house new and the unit was original equipment when you bought it.         | 0.0%  | 0     |
| 2 | It was original equipment in a newly constructed home when the previous owner bought it. | 0.0%  | 0     |
| 3 | It was there when you bought the house from a previous owner.                            | 50.0% | 2     |
| 4 | You or your family installed the old unit.   | 25.0% | 1     |
| 5 | Other (Please specify)   | 25.0% | 1     |
|   | Total  | 100%  | 4     |



**Q27 - Do you know the approximate age of the old heating equipment that was replaced?**

| # | Answer                | %      | Count |
|---|-----------------------|--------|-------|
| 1 | Yes (How old was it?) | 100.0% | 4     |
| 2 | No                    | 0.0%   | 0     |
|   | Total                 | 100%   | 4     |

**Q28 - Which of the following do you think is the most likely age of the old heating equipment:**

| # | Answer                 | %    | Count |
|---|------------------------|------|-------|
| 1 | More than 20 years old | 0.0% | 0     |
| 2 | 15 – 20 years old      | 0.0% | 0     |
| 3 | 10 – 15 years old      | 0.0% | 0     |
| 4 | Less than 10 years old | 0.0% | 0     |
|   | Total                  |      | 0     |

**Q29 - Was the cooling equipment that you replaced a central air conditioner?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 25.0% | 1     |
| 2  | No         | 75.0% | 3     |
| 98 | Don't know | 0.0%  | 0     |
|    | Total      | 100%  | 4     |

**Q30 - Thinking about the central air conditioner you replaced, which of the following best describes when and how it was originally installed in.**

| # | Answer   | %      | Count |
|---|--|--------|-------|
| 1 | You bought the house new and the unit was original equipment when you bought it.         | 0.0%   | 0     |
| 2 | It was original equipment in a newly constructed home when the previous owner bought it. | 0.0%   | 0     |
| 3 | It was there when you bought the house from a previous owner.                            | 0.0%   | 0     |
| 4 | You or your family installed the old unit.   | 0.0%   | 0     |
| 5 | Other (Please specify)   | 100.0% | 1     |
|   | Total  | 100%   | 1     |

**Q31 - Was the old central air conditioner working at the time it was replaced?**

| # | Answer | %      | Count |
|---|--------|--------|-------|
| 1 | Yes    | 100.0% | 1     |
| 2 | No     | 0.0%   | 0     |
|   | Total  | 100%   | 1     |

**Q32 - Do you know the approximate age of the old central air conditioner that was replaced?**

| # | Answer                | %      | Count |
|---|-----------------------|--------|-------|
| 1 | Yes (How old was it?) | 100.0% | 1     |
| 2 | No                    | 0.0%   | 0     |
|   | Total                 | 100%   | 1     |

**Q33 - Which of the following do you think is the most likely age of the old central air conditioner:**

| # | Answer                 | %    | Count |
|---|------------------------|------|-------|
| 1 | More than 20 years old | 0.0% | 0     |
| 2 | 15 – 20 years old      | 0.0% | 0     |
| 3 | 10 – 15 years old      | 0.0% | 0     |
| 4 | Less than 10 years old | 0.0% | 0     |
|   | Total                  |      | 0     |

**Q34 - Did the central air conditioner that you installed replace a different central air conditioner?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 75.0% | 3     |
| 2  | No         | 25.0% | 1     |
| 98 | Don't know | 0.0%  | 0     |
|    | Total      | 100%  | 4     |

**Q35 - Thinking about the central air conditioner that you replaced, which of the following best describes when and how it was originally installed in.**

| # | Answer   | %     | Count |
|---|--|-------|-------|
| 1 | You bought the house new and the unit was original equipment when you bought it.         | 0.0%  | 0     |
| 2 | It was original equipment in a newly constructed home when the previous owner bought it. | 33.3% | 1     |
| 3 | It was there when you bought the house from a previous owner.                            | 66.7% | 2     |
| 4 | You or your family installed the old unit.   | 0.0%  | 0     |
| 5 | Other (Please specify)   | 0.0%  | 0     |
|   | Total  | 100%  | 3     |

**Q36 - Was the old air conditioner working at the time it was replaced?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 66.7% | 2     |
| 2 | No     | 33.3% | 1     |
|   | Total  | 100%  | 3     |

**Q37 - Do you know the approximate age of the old air conditioner that was replaced?**

| # | Answer                | %     | Count |
|---|-----------------------|-------|-------|
| 1 | Yes (How old was it?) | 66.7% | 2     |
| 2 | No                    | 33.3% | 1     |
|   | Total                 | 100%  | 3     |

**Q38 - Which of the following do you think is the most likely age of the old air conditioner:**

| # | Answer                 | %      | Count |
|---|------------------------|--------|-------|
| 1 | More than 20 years old | 0.0%   | 0     |
| 2 | 15 – 20 years old      | 0.0%   | 0     |
| 3 | 10 – 15 years old      | 0.0%   | 0     |
| 4 | Less than 10 years old | 100.0% | 1     |
|   | Total                  | 100%   | 1     |

**Q39 - Which of the following best describes your home? Is it a...**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | Manufactured home   | 0.0%  | 0     |
| 2  | Single-family house detached from any other house   | 96.0% | 24    |
| 3  | Single-family house attached to one or more other houses, for example, duplex, row house, or townhome | 4.0%  | 1     |
| 4  | Apartment in a building with 2 to 3 units   | 0.0%  | 0     |
| 5  | Apartment in a building with 4 or more units  | 0.0%  | 0     |
| 6  | Other (Please describe)   | 0.0%  | 0     |
| 98 | Don't know  | 0.0%  | 0     |
|    | Total   | 100%  | 25    |

**Q40 - When was your home built?**

| #  | Answer        | %     | Count |
|----|---------------|-------|-------|
| 1  | Before 1950   | 16.0% | 4     |
| 2  | 1950 to 1959  | 4.0%  | 1     |
| 3  | 1960 to 1969  | 16.0% | 4     |
| 4  | 1970 to 1979  | 8.0%  | 2     |
| 5  | 1980 to 1989  | 12.0% | 3     |
| 6  | 1990 to 1999  | 20.0% | 5     |
| 7  | 2000 to 2009  | 20.0% | 5     |
| 8  | 2010 or later | 4.0%  | 1     |
| 98 | Don't know    | 0.0%  | 0     |
|    | Total         | 100%  | 25    |

**Q42 - We are offering a \$10 Visa gift card as a thank you for taking this survey. Would you like us to send you an electronic gift card or mail you one?**

| # | Answer  | %      | Count |
|---|---|--------|-------|
| 1 | Electronic  | 0.0%   | 0     |
| 2 | Mail the card   | 100.0% | 3     |
| 3 | I do not wish to receive a gift card - do not send me one | 0.0%   | 0     |
|   | Total   | 100%   | 3     |

## 9. Home Energy Products Online Marketplace Participant Survey Results

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**Q3 - Our records indicate that your household received a rebate or discount on [Field-ALL\_MEASURES] through I&M's Online Marketplace in 2023. Are you familiar with this purchase?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 98.4% | 61    |
| 2 | No     | 1.6%  | 1     |
|   | Total  | 100%  | 62    |



**Q4 - To begin with, we would like to verify the items that you received an I&M Online Marketplace discount or rebate on. Is this information correct?**

| #  | Question  | Yes    |    | No   |   | Don't know |   | Total     |
|----|---|--------|----|------|---|------------|---|-----------|
| 1  | [Field-LED_QUANT] LED light bulb(s)                             | 0.0%   | 0  | 0.0% | 0 | 0.0%       | 0 | undefined |
| 2  | [Field-DEHUMIDIFIER_QUANT] Dehumidifiers                        | 100.0% | 9  | 0.0% | 0 | 0.0%       | 0 | 9         |
| 3  | [Field-APS_QUANT] Advanced power strip(s)                       | 0.0%   | 0  | 0.0% | 0 | 0.0%       | 0 | undefined |
| 4  | [Field-SHOWER_QUANT] High efficiency showerhead(s)              | 0.0%   | 0  | 0.0% | 0 | 0.0%       | 0 | undefined |
| 5  | [Field-BATH_QUANT] High efficiency bathroom faucet aerator(s)   | 0.0%   | 0  | 0.0% | 0 | 0.0%       | 0 | undefined |
| 6  | [Field-KITCHEN_QUANT] High efficiency kitchen faucet aerator(s) | 0.0%   | 0  | 0.0% | 0 | 0.0%       | 0 | undefined |
| 7  | [Field-TSTAT_QUANT] Wi-Fi / smart thermostat(s)                 | 97.9%  | 46 | 0.0% | 0 | 2.1%       | 1 | 47        |
| 8  | [Field-AIR_QUANT] air purifier(s)                               | 100.0% | 6  | 0.0% | 0 | 0.0%       | 0 | 6         |
| 9  | [Field-LED_BATTERY_QUANT] LED light bulbs with a battery backup | 0.0%   | 0  | 0.0% | 0 | 0.0%       | 0 | undefined |
| 10 | [Field-SOCKET_QUANT] WiFi plus Bluetooth smart socket(s)        | 0.0%   | 0  | 0.0% | 0 | 0.0%       | 0 | undefined |
| 11 | [Field-TV_QUANT] Television(s)                                  | 0.0%   | 0  | 0.0% | 0 | 0.0%       | 0 | undefined |
| 12 | [Field-CENTRAL_AC_QUANT] Central air conditioner(s)             | 0.0%   | 0  | 0.0% | 0 | 0.0%       | 0 | undefined |
| 13 | [Field-CENTRAL_HP_QUANT] Central heat pump(s)                   | 0.0%   | 0  | 0.0% | 0 | 0.0%       | 0 | undefined |

**Q5 - What is incorrect about our information?**

| # | Answer   | %    | Count |
|---|--|------|-------|
| 1 | The number of products you got a rebate or discount for                      | 0.0% | 0     |
| 2 | The type of products you got a rebate or discount for                        | 0.0% | 0     |
| 3 | You did not get an I&M Online Marketplace discount or rebate for the product | 0.0% | 0     |
|   | Total  |      | 0     |

**Q8 - How did you first learn about I&M's Online Marketplace?**

| # | Answer                                     | %     | Count |
|---|--|-------|-------|
| 1 | From an email                              | 60.7% | 37    |
| 4 | From a friend, family member, or colleague | 6.6%  | 4     |
| 5 | Through an internet search                 | 6.6%  | 4     |
| 6 | When logging on the I&M website            | 18.0% | 11    |
| 7 | In some other way (Please describe)        | 8.2%  | 5     |
|   | Total                                      | 100%  | 61    |

**Q9 - What kind of I&M email did you learn about the marketplace from?**

| # | Answer  | %     | Count |
|---|---|-------|-------|
| 1 | An email promoting the Online Marketplace product you purchased                           | 29.7% | 11    |
| 4 | An I&M newsletter   | 27.0% | 10    |
| 5 | An email with information on my home energy use and information on the Online Marketplace | 27.0% | 10    |
| 6 | Some other kind of email (Please describe)  | 2.7%  | 1     |
| 7 | An email promoting the Online Marketplace product you purchased                           | 13.5% | 5     |
|   | Total   | 100%  | 37    |

**Q10 - Which of the following are reasons why you chose to shop on the Online Marketplace? (Please select all that apply)**

| # | Answer   | %     | Count |
|---|--|-------|-------|
| 1 | To save money on the product because an I&M discount was available   | 83.6% | 51    |
| 2 | The website provided information on products that save energy        | 23.0% | 14    |
| 3 | It was convenient  | 32.8% | 20    |
| 4 | The product selection was good                                       | 19.7% | 12    |
| 5 | The information about the product efficiency provided on the website | 14.8% | 9     |
| 6 | For some other reason (Please describe)                              | 3.3%  | 2     |
|   | Total  | 100%  | 61    |

**Q11 - How easy was it to find the product(s) you were looking for on the Online Marketplace?**

| # | Answer         | %     | Count |
|---|----------------|-------|-------|
| 1 | Very easy      | 57.4% | 35    |
| 2 | Easy           | 41.0% | 25    |
| 3 | Difficult      | 0.0%  | 0     |
| 4 | Very difficult | 1.6%  | 1     |
|   | Total          | 100%  | 61    |

**Q13 - How easy was it to identify products that are eligible for an I&M rebate or discount?**

| # | Answer         | %     | Count |
|---|----------------|-------|-------|
| 1 | Very easy      | 55.0% | 33    |
| 4 | Easy           | 45.0% | 27    |
| 5 | Difficult      | 0.0%  | 0     |
| 6 | Very difficult | 0.0%  | 0     |
|   | Total          | 100%  | 60    |

**Q58 - Are/is the Wi-Fi thermostat(s) that you ordered through the I&M Online Marketplace currently installed and working?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 76.1% | 35    |
| 2  | No         | 23.9% | 11    |
| 98 | Don't know | 0.0%  | 0     |
|    | Total      | 100%  | 46    |

**Q60 - What type of thermostat did the Wi-Fi thermostat replace?**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | A programmable thermostat that allows you to schedule the temperature settings for different times of the day | 53.3% | 24    |
| 2  | A standard thermostat that lets you set on/off temperatures   | 40.0% | 18    |
| 3  | A different Wi-Fi smart thermostat  | 4.4%  | 2     |
| 98 | Don't know  | 2.2%  | 1     |
|    | Total   | 100%  | 45    |

**Q61 - Was the programmable thermostat that was replaced programmed with scheduled times to adjust the temperature at the time you replaced it with the Wifi thermostat?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 66.7% | 16    |
| 2  | No         | 29.2% | 7     |
| 98 | Don't know | 4.2%  | 1     |
|    | Total      | 100%  | 24    |

### Q62 - Does the Wi-Fi thermostat control a central cooling system, a central heating system, or both?

| #  | Answer                           | %     | Count |
|----|----------------------------------|-------|-------|
| 1  | Central cooling system           | 2.2%  | 1     |
| 2  | Central heating system           | 0.0%  | 0     |
| 3  | Both cooling and heating systems | 93.3% | 42    |
| 98 | Don't know                       | 4.4%  | 2     |
|    | Total                            | 100%  | 45    |

### Q63 - What type of central heating system do you have?

| #  | Answer                 | %     | Count |
|----|------------------------|-------|-------|
| 1  | Central furnace        | 88.1% | 37    |
| 2  | Heat pump              | 7.1%  | 3     |
| 3  | Other (Please specify) | 4.8%  | 2     |
| 98 | Don't know             | 0.0%  | 0     |
|    | Total                  | 100%  | 42    |

**Q64 - What is the main fuel used by the central heating system?**

| #  | Answer                          | %     | Count |
|----|---------------------------------|-------|-------|
| 1  | Electricity                     | 22.0% | 9     |
| 2  | Natural Gas                     | 63.4% | 26    |
| 3  | Propane                         | 12.2% | 5     |
| 4  | Something else (Please specify) | 2.4%  | 1     |
| 98 | Don't know                      | 0.0%  | 0     |
|    | Total                           | 100%  | 41    |

**Q66 - Did you purchase the [Field-EFF\_MEASURE1] on the I&M Online Marketplace or did you buy it somewhere else and apply for a rebate using the Online Marketplace?**

| # | Answer   | %     | Count |
|---|--|-------|-------|
| 1 | Made the purchase using the I&M Online Marketplace | 86.4% | 51    |
| 4 | Bought it somewhere else                           | 13.6% | 8     |
|   | Total  | 100%  | 59    |

**Q67 - Did you decide to buy the [Field-EFF\_MEASURE1]....**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | Before you learned about I&M's Online Marketplace | 28.1% | 16    |
| 2  | After you learned about I&M's Online Marketplace  | 64.9% | 37    |
| 98 | Don't know  | 7.0%  | 4     |
|    | Total   | 100%  | 57    |

**Q68 - Did you shop for [Field-EFF\_MEASURE1] at any other retailers before buying it on I&M's Online Marketplace?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 44.0% | 22    |
| 2 | No     | 56.0% | 28    |
|   | Total  | 100%  | 50    |

**Q69 - What is the most important reason for why you decided to buy the [Field-EFF\_MEASURE1] on I&M's Online Marketplace?**

| # | Answer                                    | %     | Count |
|---|---|-------|-------|
| 1 | It was convenient                         | 4.8%  | 1     |
| 2 | Shipping was free                         | 0.0%  | 0     |
| 3 | The instant rebate / price of the product | 76.2% | 16    |
| 4 | You felt confident in the quality         | 9.5%  | 2     |
| 5 | For some other reason (Please explain)    | 9.5%  | 2     |
|   | Total                                     | 100%  | 21    |

**Q70 - The I&M's Online Marketplace website shows you an Enervee Score that tells you how energy efficient a product is compared to other products. Do you recall seeing the Enervee Score for the [Field-EFF\_MEASURE1] you bought?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 49.1% | 28    |
| 2 | No     | 50.9% | 29    |
|   | Total  | 100%  | 57    |



**Q71 - How important was the Enervee Score in your decision to buy the [[Field-EFF\_MEASURE1]]?**

| #  | Answer                   | %     | Count |
|----|--------------------------|-------|-------|
| 1  | 0 (Not at all important) | 14.3% | 4     |
| 2  | 1                        | 0.0%  | 0     |
| 3  | 2                        | 0.0%  | 0     |
| 4  | 3                        | 3.6%  | 1     |
| 5  | 4                        | 3.6%  | 1     |
| 6  | 5                        | 3.6%  | 1     |
| 7  | 6                        | 3.6%  | 1     |
| 8  | 7                        | 7.1%  | 2     |
| 9  | 8                        | 32.1% | 9     |
| 10 | 9                        | 7.1%  | 2     |
| 11 | 10 (Very important)      | 25.0% | 7     |
|    | Total                    | 100%  | 28    |

**Q72 - Were you planning to buy an [Field-EFF\_MEASURE1] before you learned that you could get a rebate or discount through I&M's Online Marketplace?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 61.4% | 35    |
| 2  | No         | 28.1% | 16    |
| 98 | Don't know | 10.5% | 6     |
|    | Total      | 100%  | 57    |

**Q73 - Would you have been able to buy the [Field-EFF\_MEASURE1] if the rebate or discount was not available through I&M's Online Marketplace?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 58.9% | 33    |
| 2  | No         | 26.8% | 15    |
| 98 | Don't know | 14.3% | 8     |
|    | Total      | 100%  | 56    |

**Q74 - Just to confirm, if the rebate or discount was not available through the program, would you still have paid the additional cost to buy an [Field-EFF\_MEASURE1]?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 39.6% | 19    |
| 2  | No         | 45.8% | 22    |
| 98 | Don't know | 14.6% | 7     |
|    | Total      | 100%  | 48    |

**Q75 - What kind of thermostat would you most likely have bought if the rebate or discount from I&M was not available?**

| # | Answer                                    | %     | Count |
|---|---|-------|-------|
| 1 | The same smart or learning thermostat     | 30.2% | 13    |
| 4 | A different smart or learning thermostat  | 20.9% | 9     |
| 5 | A programable or manual thermostat        | 7.0%  | 3     |
| 6 | Would not have purchased a new thermostat | 34.9% | 15    |
| 7 | Don't know                                | 7.0%  | 3     |
|   | Total                                     | 100%  | 43    |

**Q76 - What efficiency level of product would you most likely have bought if the rebate or discount from I&M was not available?**

| # | Answer                                      | %    | Count |
|---|---|------|-------|
| 1 | The same or higher efficiency               | 0.0% | 0     |
| 4 | A less efficient product                    | 0.0% | 0     |
| 5 | The lowest efficiency or lowest cost option | 0.0% | 0     |
| 6 | Would not have purchased the product        | 0.0% | 0     |
| 7 | Don't know                                  | 0.0% | 0     |
|   | Total                                       |      | 0     |

**Q77 - How likely is it that you would have bought the same [Field-EFF\_MEASURE1] at about the same time if you could not have received the rebate or discount through the I&M Online Marketplace?**

| #  | Answer              | %     | Count |
|----|---------------------|-------|-------|
| 0  | 0 Not at all likely | 29.1% | 16    |
| 1  | 1                   | 9.1%  | 5     |
| 2  | 2                   | 7.3%  | 4     |
| 3  | 3                   | 3.6%  | 2     |
| 4  | 4                   | 3.6%  | 2     |
| 5  | 5                   | 10.9% | 6     |
| 6  | 6                   | 9.1%  | 5     |
| 7  | 7                   | 9.1%  | 5     |
| 8  | 8                   | 3.6%  | 2     |
| 9  | 9                   | 1.8%  | 1     |
| 10 | 10 Very likely      | 12.7% | 7     |
|    | Total               | 100%  | 55    |

**Q78 - Did you buy the [Field-EFF\_MEASURE1] sooner than you would have if the information and financial assistance from the program had not been available?**

| #  | Answer     | %     | Count |
|----|------------|-------|-------|
| 1  | Yes        | 76.4% | 42    |
| 2  | No         | 14.5% | 8     |
| 98 | Don't know | 9.1%  | 5     |
|    | Total      | 100%  | 55    |

**Q79 - When might you have bought the same [Field-EFF\_MEASURE1] if you had not participated in the program?**

| #  | Answer                                   | %     | Count |
|----|--|-------|-------|
| 1  | Within 6 months of when you purchased it | 26.2% | 11    |
| 2  | Between 6 months and 1 year              | 33.3% | 14    |
| 3  | In more than 1 year to 2 years           | 11.9% | 5     |
| 4  | In two years or more                     | 7.1%  | 3     |
| 98 | Don't know                               | 21.4% | 9     |
|    | Total                                    | 100%  | 42    |

**Q80 - At the time you bought them, would you have bought the same number of [Field-EFF\_MEASURE1] if a rebate or discount was not available through I&M's Online Marketplace?**

| # | Answer   | %     | Count |
|---|--|-------|-------|
| 1 | Yes  | 43.6% | 24    |
| 2 | No would not have purchased any                            | 34.5% | 19    |
| 3 | No, would have purchased fewer \$ {e://Field/EFF_MEASURE1} | 5.5%  | 3     |
| 4 | Don't know   | 16.4% | 9     |
|   | Total  | 100%  | 55    |

**Q81 - About how many percent fewer [Field-EFF\_MEASURE1] do you think you would have bought?**

| #  | Answer          | %     | Count |
|----|-----------------|-------|-------|
| 1  | 1 - 10 % fewer  | 0.0%  | 0     |
| 2  | 11 - 20% fewer  | 0.0%  | 0     |
| 3  | 21 - 30% fewer  | 0.0%  | 0     |
| 4  | 31 - 40% fewer  | 0.0%  | 0     |
| 5  | 41 - 50% fewer  | 0.0%  | 0     |
| 6  | 51 -60% fewer   | 0.0%  | 0     |
| 7  | 61 - 70% fewer  | 0.0%  | 0     |
| 8  | 71 - 80% fewer  | 0.0%  | 0     |
| 9  | 81 - 90% fewer  | 33.3% | 1     |
| 10 | 91 - 100% fewer | 66.7% | 2     |
|    | Total           | 100%  | 3     |

**Q82 - Since buying the [Field-ALL\_MEASURES] from the I&M online marketplace, have you bought any additional energy saving products from the online marketplace?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 7.4%  | 2     |
| 2 | No     | 92.6% | 25    |
|   | Total  | 100%  | 27    |

**Q83 - Did you buy any of those products without getting an instant rebate from I&M?**

| # | Answer | %     | Count |
|---|--------|-------|-------|
| 1 | Yes    | 50.0% | 1     |
| 2 | No     | 50.0% | 1     |
|   | Total  | 100%  | 2     |

**Q84 - What products did you buy from the I&M online marketplace that you did not get an instant rebate for? Please select all that apply.**

| #  | Answer                                     | %      | Count |
|----|--|--------|-------|
| 1  | Smart Wifi-connected thermostat            | 0.0%   | 0     |
| 2  | Low-flow showerhead                        | 0.0%   | 0     |
| 3  | ENERGY STAR air purifier                   | 0.0%   | 0     |
| 4  | ENERGY STAR dehumidifier                   | 0.0%   | 0     |
| 5  | ENERGY STAR EV charger                     | 0.0%   | 0     |
| 6  | ENERGY STAR window or room air conditioner | 0.0%   | 0     |
| 7  | Something else that saves energy           | 100.0% | 1     |
| 98 | Do not recall                              | 0.0%   | 0     |
|    | Total                                      | 100%   | 1     |

**Q96 - Using the scale below, how important was the Enervee score in your decision to buy the additional items that you did not get a discount for?**

| #  | Answer                   | %      | Count |
|----|--------------------------|--------|-------|
| 0  | 0 (Not at all important) | 100.0% | 1     |
| 1  | 1                        | 0.0%   | 0     |
| 2  | 2                        | 0.0%   | 0     |
| 3  | 3                        | 0.0%   | 0     |
| 4  | 4                        | 0.0%   | 0     |
| 5  | 5                        | 0.0%   | 0     |
| 6  | 6                        | 0.0%   | 0     |
| 7  | 7                        | 0.0%   | 0     |
| 8  | 8                        | 0.0%   | 0     |
| 9  | 9                        | 0.0%   | 0     |
| 10 | 10 (Extremely important) | 0.0%   | 0     |
|    | Total                    | 100%   | 1     |



**Q97 - Using the scale below, how likely would you have been to buy those additional items if they were not available on the I&M Online Marketplace?**

| #  | Answer                | %      | Count |
|----|-----------------------|--------|-------|
| 0  | 0 (Not at all likely) | 0.0%   | 0     |
| 1  | 1                     | 0.0%   | 0     |
| 2  | 2                     | 0.0%   | 0     |
| 3  | 3                     | 0.0%   | 0     |
| 4  | 4                     | 0.0%   | 0     |
| 5  | 5                     | 0.0%   | 0     |
| 6  | 6                     | 0.0%   | 0     |
| 7  | 7                     | 0.0%   | 0     |
| 8  | 8                     | 100.0% | 1     |
| 9  | 9                     | 0.0%   | 0     |
| 10 | 10 (Extremely likely) | 0.0%   | 0     |
|    | Total                 | 100%   | 1     |

**Q98 - Overall, how satisfied are you with the following products that you received a rebate or discount for?**

| # | Question                       | 1Very<br>dissatisfied |   | 2    |   | 3     |   | 4     |   | 5Very<br>satisfied |    | Total |
|---|--------------------------------|-----------------------|---|------|---|-------|---|-------|---|--------------------|----|-------|
| 2 | Dehumidifier(s)                | 0.0%                  | 0 | 0.0% | 0 | 0.0%  | 0 | 33.3% | 3 | 66.7%              | 6  | 9     |
| 7 | Wi-Fi / smart<br>thermostat(s) | 12.5%                 | 5 | 0.0% | 0 | 5.0%  | 2 | 22.5% | 9 | 60.0%              | 24 | 40    |
| 8 | Air purifiers                  | 0.0%                  | 0 | 0.0% | 0 | 20.0% | 1 | 40.0% | 2 | 40.0%              | 2  | 5     |

**Q99 - How clear was the information on the receipt for your Online Marketplace program purchase?**

| # | Answer             | %     | Count |
|---|--------------------|-------|-------|
| 1 | Very clear         | 64.6% | 31    |
| 4 | Somewhat clear     | 31.3% | 15    |
| 5 | Somewhat unclear   | 2.1%  | 1     |
| 6 | Not at all unclear | 2.1%  | 1     |
|   | Total              | 100%  | 48    |

**Q100 - What information was unclear? Please select all that apply.**

| # | Answer  | %      | Count |
|---|---|--------|-------|
| 1 | My final purchase price                               | 0.0%   | 0     |
| 4 | The amount of the rebate from I&M that I received     | 0.0%   | 0     |
| 5 | The amount of sales tax/or how the tax was calculated | 0.0%   | 0     |
| 6 | Something else (Please describe)                      | 100.0% | 2     |
|   | Total   | 100%   | 2     |

**Q101 - Overall, how satisfied are you with your I&M Online Marketplace experience?**

| # | Answer              | %     | Count |
|---|---------------------|-------|-------|
| 1 | 1 Very dissatisfied | 3.6%  | 2     |
| 2 | 2                   | 3.6%  | 2     |
| 3 | 3                   | 1.8%  | 1     |
| 4 | 4                   | 29.1% | 16    |
| 5 | 5 Very satisfied    | 61.8% | 34    |
|   | Total               | 100%  | 55    |

**Q106 - Do you own the home where the rebated equipment was installed, rent it, or own it and rent it to someone else?**

| #  | Answer                       | %     | Count |
|----|------------------------------|-------|-------|
| 1  | Own                          | 96.3% | 52    |
| 2  | Rent                         | 3.7%  | 2     |
| 3  | Own and rent to someone else | 0.0%  | 0     |
| 98 | Don't know                   | 0.0%  | 0     |
| 99 | Prefer not to state          | 0.0%  | 0     |
|    | Total                        | 100%  | 54    |

**Q107 - Which of the following best describes your home? Is it a...**

| #  | Answer  | %     | Count |
|----|---|-------|-------|
| 1  | Manufactured home   | 3.7%  | 2     |
| 2  | Single-family house detached from any other house   | 88.9% | 48    |
| 3  | Single family house attached to one or more other houses, for example, duplex, row house, or townhome | 5.6%  | 3     |
| 4  | Apartment in a building with 2 to 3 units   | 0.0%  | 0     |
| 5  | Apartment in a building with 4 or more units  | 1.9%  | 1     |
| 6  | Other (Please specify)  | 0.0%  | 0     |
| 98 | Don't know  | 0.0%  | 0     |
| 99 | Prefer not to state   | 0.0%  | 0     |
|    | Total   | 100%  | 54    |

**Q108 - What fuel does your main water heater use?**

| #  | Answer                          | %     | Count |
|----|---------------------------------|-------|-------|
| 1  | Electricity                     | 30.8% | 16    |
| 2  | Natural Gas                     | 61.5% | 32    |
| 3  | Propane                         | 3.8%  | 2     |
| 4  | Something else (Please specify) | 0.0%  | 0     |
| 5  | Don't heat home                 | 0.0%  | 0     |
| 98 | Don't know                      | 1.9%  | 1     |
| 99 | Prefer not to state             | 1.9%  | 1     |
|    | Total                           | 100%  | 52    |

**Q109 - Including yourself, how many people currently live in your home year-round?**

| #  | Answer              | %     | Count |
|----|---------------------|-------|-------|
| 1  | 1                   | 9.3%  | 5     |
| 2  | 2                   | 40.7% | 22    |
| 3  | 3                   | 16.7% | 9     |
| 4  | 4                   | 13.0% | 7     |
| 5  | 5                   | 11.1% | 6     |
| 6  | 6                   | 3.7%  | 2     |
| 7  | 7                   | 0.0%  | 0     |
| 8  | 8 or more           | 0.0%  | 0     |
| 98 | Don't know          | 0.0%  | 0     |
| 99 | Prefer not to state | 5.6%  | 3     |
|    | Total               | 100%  | 54    |

**Q110 - Which of the following best describes your annual household income?**

| #  | Answer                           | %     | Count |
|----|----------------------------------|-------|-------|
| 1  | Less than \$10,000               | 0.0%  | 0     |
| 2  | \$10,000 to less than \$20,000   | 0.0%  | 0     |
| 3  | \$20,000 to less than \$30,000   | 0.0%  | 0     |
| 4  | \$30,000 to less than \$40,000   | 3.7%  | 2     |
| 5  | \$40,000 to less than \$50,000   | 5.6%  | 3     |
| 6  | \$50,000 to less than \$75,000   | 11.1% | 6     |
| 7  | \$75,000 to less than \$100,000  | 9.3%  | 5     |
| 8  | \$100,000 to less than \$150,000 | 20.4% | 11    |
| 9  | \$150,000 to less than \$200,000 | 9.3%  | 5     |
| 10 | \$200,000 or more                | 5.6%  | 3     |
| 98 | Don't know                       | 0.0%  | 0     |
| 99 | Prefer not to state              | 35.2% | 19    |
|    | Total                            | 100%  | 54    |