2021 Indiana Residential Portfolio EM&V Report

Volume I of II

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 during the January 2021 through December 2021 period (PY2021).

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 and Table 1-2 summarize data collection activities that supported the PY2021 evaluation of I&M's residential programs.

Table 1-1 Summary of Survey Data Collection

Survey	*Mode*	*Time Frame*	*Number of Contacts*	*Number of Completions*
Income Qualified Weatherproofing Participant Survey	Online	January 2022	16	1
Income Qualified Weatherproofing Participant Survey	Telephone	January 2022	11	7
Home Energy Products – Products Component Participant Survey	Online	November 2021	374	47
Home Energy Products – Products Component Participant Survey	Telephone	January 2022	89	24
Home Energy Products – Products Component Contractor Survey	Online	January 2022	40	3
Home Energy Products – Online Marketplace Purchaser Survey	Online	December 2021	491	117
Home Energy Management Participant Survey	Online	October 2021	1,049	84
Residential Nonparticipant Survey	Online	December 2021	9,993	107

Table 1-2 Summary of Staff Interviews

Program	*Organization*	*Number of Interviewed Staff*
Residential New Construction	I&M	1
Home Energy Management	I&M	1

1.2. Impact Evaluation Findings

The savings variables presented in this evaluation report are defined in Table 1-3.

Table 1-3 Savings-Related Terminology

Variable	*Definition*
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).
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[1]	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. The free ridership estimate are the savings attributable to free riders.
Spillover (Participant and Non-Participant)[2]	*Spillover effects* are reductions in energy consumption and/or demand caused by the presence of an energy efficiency program, beyond the program-related gross savings of the participants and without financial or technical assistance from the program. There can be participant and/or non-participant spillover. *Participant spillover* is the additional energy savings that occur when a program participant independently installs

1 Northeast Energy Efficiency Partnerships (NEEP) EMV Glossary version 2.1. https://neep.org/media/4330

2 Ibid.

Variable	*Definition*
	energy efficiency measures or applies energy saving practices after having participated in the efficiency program because of the program's influence. *Non-participant* spillover refers to energy savings that occur when a program non-participant installs energy efficiency measures or applies energy savings practices as a result because of a program's influence.

Based on the definitions presented in Table 1-3, Table 1-4 presents a summary of the components of the impact evaluation that are accounted for in savings variables presented in this report.

Table 1-4 Components of Impact Evaluation Accounted for in Savings Variables

Category	*Tracking Data Review*	*In-Service Rates*	*Ex Post Gross Analysis*	*Net-to-Gross Analysis*
Gross Audited	✓			
Gross Verified	✓	✓		
Ex Post Gross	✓	✓	✓	
Ex Post Net	✓	✓	✓	✓

ADM performed EM&V activities for 5 residential programs offered by I&M during PY2021. Total residential portfolio ex post gross energy savings are 1,944,574 kWh, while ex post net energy savings are 1,377,868 kWh, as shown in Table 1-5.

Table 1-5 Summary of Energy Savings – PY2021

Program Name	*Ex Ante Annual kWh Savings*	*Gross Audited kWh Savings*	*Gross Verified kWh Savings*	*Ex Post Annual Gross kWh Savings*	*Gross Realization Rate*	*Ex Post Annual Net kWh Savings*	*Net-to-Gross Ratio*	*Lifetime Net Ex Post kWh Savings*
Residential New Construction	307,462	307,462	307,462	159,812	52%	137,230	86%	3,430,755
Residential Income Qualified Weatherproofing	303,691	303,691	237,732	322,854	106%	322,854	100%	3,441,310
Home Energy Products - Appliances	1,759,561	1,759,561	1,607,349	1,429,935	81%	885,810	62%	9,495,527
Home Energy Management	-	-	-	31,974	N/A	31,974	100%	31,974
Mid-Stream Appliances Pilot [3]	-	-	-	-	N/A	-	N/A	-
Residential Portfolio Totals	2,370,715	2,370,715	2,152,543	1,944,574	82%	1,377,868	71%	16,399,566

Total residential portfolio ex post gross peak demand savings are 3,285.02 kW, while ex post net peak demand savings are 3,200.63 kW, as shown in Table 1-6.

[3] While no measures were incented through the Midstream Appliances Pilot during PY2021, this report presents pilot cost effectiveness evaluation results.

Table 1-6 Summary of Peak Demand Impacts – PY2021

Program	Ex Ante Gross kW Savings	Gross Audited kW Savings	Gross Verified kW Savings	Ex Post Gross kW Savings	Gross Realization Rate	Ex Post Net kW Savings	Net-to-Gross Ratio
Residential New Construction	175.58	175.58	175.58	112.61	64%	95.96	85%
Residential Income Qualified Weatherproofing	17.19	17.19	14.44	27.94	163%	27.94	100%
Home Energy Products - Appliances	190.43	190.43	175.39	176.84	93%	109.11	62%
Home Energy Management	2,327.29	2,327.29	2,327.29	2,967.63	128%	2,967.63	100%
Mid-Stream Appliances Pilot	-	-	-	-	N/A	-	N/A
Residential Portfolio Totals	2,710.49	2,710.49	2,692.70	3,285.02	121%	3,200.63	97%

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 1-7.

Table 1-7 Summary of PY2021 Benefit-Cost Ratios

Program	Program Administrator Cost Test (aka USCRT, or UCT)	Total Resource Cost Test	Ratepayer Impact Measure	Participant Cost Test
Residential New Construction	1.22	0.85	0.54	1.41
Residential Income Qualified Weatherproofing	0.24	0.24	0.14	N/A
Home Energy Products - Appliances	0.56	0.47	0.24	2.12
Mid-Stream Appliances Pilot	0.00	0.00	0.00	N/A
Home Energy Management	0.45	0.58	0.44	N/A
Residential Portfolio Total - without Low Income	0.57	0.53	0.31	2.11
Residential Portfolio Total - with Low Income	0.49	0.46	0.27	2.49

1.4. Evaluation Findings and Recommendations

1.4.1. Residential New Construction

A sharp decrease in program participation may have resulted from the transition to an all-electric program requirement. Between January and March, gas homes were still eligible to receive rebates, however, starting April 1st the program incented all-electric homes only. Since April 1st, the program has not received any applications in Indiana. This finding could suggest that

there may be barriers for builders to participate in the New Construction program. However, other factors may be involved. For example, the program restructured incentives based on measures installed instead of based on HER score. The I&M program coordinator has had limited opportunities for in-person networking with builders because of Covid-19 restrictions. This limitation may have restricted the program's ability to engage with builders and identify potential barriers to participation.

- **Recommendation 1:** As Covid-19 restrictions ease, consider holding feedback sessions with past builders to examine potential barriers and identify opportunities to increase participation. Because participation has decreased since the implementation of new program guidelines, focus groups may provide insight to program staff as to the challenges or barriers experienced by builders. By identifying challenges, mitigation strategies could be developed to encourage more participation among builders.

The market does not know about the potential energy savings and non-energy benefits of all-electric homes. I&M staff discussed the need for additional education about the benefits of electric heating to entice new home buyers to choose all-electric homes. The program coordinator stated that some consumers may not understand the improvements in electric heating technologies and results from the nonparticipant customer survey responses support this conclusion with more than three-quarters of respondents stating that all-electric homes are less energy efficient and have higher utility costs than other home types. Furthermore, the customer survey results from the HEM participant and nonparticipant surveys suggest that many residential customers, in general, may not be aware of the improved air quality benefits of an all-electric home.

- **Recommendation 2:** Develop additional education materials that builders can use with new home buyers that educate them about the benefits of all-electric homes. For example, create fact sheets that include comparisons for older technology with new technology with differences in home energy costs. Program staff should continue to collaborate with other utilities and program partners to develop educational materials for builders and home buyers.

1.4.2. Residential Income Qualified Weatherproofing

Analysis revealed that the income qualified program achieved greater energy savings than originally projected. With a realization rate of 105% and a NTGR of 100%, the program can book more energy savings than they originally calculated resulting in more energy savings for the portfolio. The realization rate resulted from a mix of measures that had realization rates around 100% (ceiling insulation, air sealing, wall insulation, shower heads, lighting (kits), showerhead(kits)), measures that had high realization rates (>150%, ductless heat pumps, duct sealing, bathroom faucet aerators), and low realization measures, and measures with relatively low realization rates (< 83%, direct install lighting), nightlights, advanced power strips, and kitchen aerators.

1.4.3. Home Energy Products

The participant survey found that all removable rebated measures available through the products component of the program were installed and still in operation at the time of the survey.

Customers purchased up to four advanced power strips, a quantity that may be too high for typical residential settings. Residential customers most commonly have two applications for power strips: controlling audio visual equipment and controlling home computing/office equipment. Additionally, on average, customers who had purchased four power strips were using two of them.

- **Recommendation 1:** Consider limiting customers to the purchase of no more than two advanced power strips.

Econometric analysis of the impacts of the measures corroborated the program ex post program savings. The energy savings estimate of 90 kWh associated with the mixed effects regression model is equal to 87% of the average monthly account-level ex post gross savings of 104 kWh for the 342 accounts included in the econometric analysis. The average monthly ex post gross kWh savings estimate is within the 90% confidence interval of the savings estimate associated with the model Post variable coefficient.

Most customers (77%) were satisfied with their online marketplace purchase experience, and more than half were considered net promoters. About one in five respondents were detractors[4] of the program suggesting there may still be some opportunity to improve customer's experience with the online marketplace. The survey did not ask a follow-up question that would inform the program how to improve satisfaction among detractors, therefore it is unclear what specific changes are needed.

1.4.4. Home Energy Management

The enrollment incentive, and the prospect of saving energy and receiving the bill credit, motivate customers to participate in the HEM program. Saving energy and receiving bill credits also encourages participation. Survey results indicated that 68% of customers were motivated to participate to save on energy costs and 62% were motived by bill credits and/or the enrollment incentive. According to I&M staff, some customers do not like their home temperature to vary and try to alert customers that home comfort could be an issue if they choose to participate in the program. However, most survey respondents (87%) did not have concerns about participating in the HEM program.

I&M newsletters, emails, and thermostat notifications drove program activity. Most survey respondents indicated that they learned about the program from an I&M newsletter or email, followed by the I&M website. Many customers learn about the HEM program from the smart

[4] The net promoter score is equal to the % of Promoters - % of Detractors. Promoters are respondents who rate the likelihood of recommending the service as 9 or higher on a 0-10 point scale. Detractors are those who rate it as 6 or lower on the same scale.

thermostat manufacturers (Honeywell and Ecobee) app alerts. I&M customers also learn about the program from their Electric Ideas website. The program is cross promoted through other residential programs.

Most HEM participants were satisfied with the program, reported it was easy to participate in, and few opted out of events. A majority of respondents (58%) indicated they were very likely to participate in the program next year and 60% of respondents were considered promoters, that is they would likely recommend the program to friends and family. Almost all participant survey respondents (94%) rated the process of enrolling their thermostat in the program as very or somewhat easy. And, just one in five respondents recalled opting out of a peak event in 2021 and of those who opted out, most did so because the home was getting too uncomfortable.

A larger share of HEM participants agreed there were benefits to lowering utility costs, reducing greenhouse gas emissions, and helping make the grid more reliable than I&M non-participants. This finding suggests that customers enrolling customers are more likely to perceive benefits aside from the program financial incentives.

- **Recommendation 1:** Include benefits aside from the enrollment incentive and bill credits to encourage customers to enroll.

The non-participant survey (section 6.4) found that there are many I&M customers that would be willing to participate in DR events. More than two-thirds of nonparticipant respondents indicated they would at least consider participating in DR events suggesting they would participate in the HEM program, especially if enticed by incentives. Relatively few of these customers (5%) were aware of the IM Rewards: Thermostat service and 56% did not own a smart thermostat.

- **Recommendation 2:** Continue to advertise and promote the incentives associated with participating in the HEM program and look for new opportunities to promote the program to those that may not have heard of the program. For example, because advertisements through manufacturer apps (Honeywell and EcoBee) was a common way participants learned about the program, look to partner with other manufacturers.

1.5. Organization of Report

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 2021 program year. Volume I is organized as follows:

- Chapter 2: Residential New Construction
- Chapter 3: Residential Income Qualified Weatherproofing
- Chapter 4: Home Energy Products
- Chapter 5: Home Energy Management
- Chapter 6: Non-Participant Survey
- Chapter 7: Cost Effectiveness Evaluation

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

2. Residential New Construction

This chapter presents the results of both the impact and process evaluations of the 2021 New Construction Programs that Indiana Michigan Power (I&M) offered during the period of January 2021 through December 2021.

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;
- Assess the new all-electric program design; and
- Provide recommendations for program improvement as appropriate.

2.1. Program Description

The Home New Construction Program is offered to home builders that construct their homes to be more energy efficient than the same home built to the current building energy code (the 2020 Indiana Residential Building Code, which is the 2018 IECC with amendments).

During January through March 2021, projects were completed under the legacy program that was offered during 2020 and prior years. In April 2021, the program transitioned to an all-electric homes design that assumes an all-electric baseline home built to the current energy code. To participate in the new program, newly constructed homes must be all-electric and obtain a HERS score of 75 or below.[5] Incentives are available for equipment and building construction that exceed the requirement of the building code for the following types of measures: HVAC equipment, heat pump water heaters, LED lighting, and shell weatherproofing. The incentives are payable on a per measure type basis, which allows builders to select which efficiency measures they want to incorporate in the building.

All program projects completed in PY2021 were completed under the legacy program. No program projects were completed under the new program in 2021.

2.2. Data Collection

2.2.1. Engineering Reviews

ADM used a stratified random sampling approach based on the measures implemented by the builders, whereby ADM first selected a sample of representative home builders in each tier and then selected a random sample of homes within each builder. Detailed engineering reviews were

[5] HERS stands for Home Energy Rating System. A score of 100 is a code-built reference home. A score of 75, for example, means the home is 25% more efficient than the code-built reference home.

completed on this sample of homes. The final sample was determined, in part, by the program participation level.

A stratified random sample was used to capture the expected savings for each of the different tiers of remodeled homes and for the program overall. Fuel summary reports from either Ekotrope, or REMRate[6] were collected for each home, which contain the savings for the efficient home relative to the user defined reference home (UDRH). In addition, the building simulation file for each sampled home was inspected to ensure that energy efficiency improvements were consistent with typical upgrades found in other residential new construction programs.

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

The first aspect of conducting measurements of program activity was to verify the number of homes participating in the program. ADM reviewed the tracking system data on reported homes to verify that all homes were eligible for the program. Additionally, the tracking system was reviewed to ensure that the proper data fields required to support this evaluation as well as future evaluations are included. The tracking system was reviewed for completeness, accuracy, and efficiency.

Home and energy saving data were verified using REMRate and ADM reviewed the data provided by each HERs contractor to ensure compatibility with the software.

2.3.1.2. Procedures for Estimating Measure-Level Gross Energy Savings

Ex ante savings for the New Construction Program were based on an assigned value for each of the four types of efficient homes present in the PY2021 program tracking data. The home types were Gold Star – Gas and Electric, Platinum Star - Gas and Electric, Silver Star – All Electric, and Gold Star – All Electric. The database savings for each home type are summarized below in Table 2-1.

[6] Ekotrope and REMRate are software packages used to determine HERS scores.

Table 2-1 New Construction Database Savings by Home Type

Home Tier	*Fuel Type*	*Average kWh Savings in Database*	*Average kW Reduction in Database*
Gold	Natural Gas & Electric	1,618	1.25
Platinum	Natural Gas & Electric	1,644	1.29
Silver	All-Electric	4,696	0.91
Gold	All-Electric	8,116	1.39

These savings estimates were developed using EnergyGauge home models. EnergyGauge incorporates models for each efficient home and compares them to the energy consumption of baseline homes. The savings in the database reflects the difference between the EnergyGauge home model outputs for the baseline home and the efficient home for each home tier and fuel type.

ADM determined verified kWh and kW savings using the previously described sample for each tier. Annual energy savings were calculated by determining the difference in energy usage between each home in the sample with a UDRH. According to the Indiana TRM, the UDRH is an exact replica of the rated home in size, structure, and climate zone, but the energy characteristics are defined by local code or building practices. The UDRH is the assumed baseline efficient home, which, for I&M in 2021, is a home that meets the minimum standards of the amended IRC 2018, which is shown in Table 2-2. The newly developed savings were then factored by the number of homes in the appropriate energy tier to determine program level energy savings. Peak demand reduction was calculated in the same manner.

Table 2-2 Amended 2018 IRC UDRH Specifications

Data Point	Value (Zone 5)	Unit	Source	Comment
Building Thermal Envelope				
Fenestration	0.35	U-factor	INRC2020 Table N1102.1.4	
Skylight	0.6	U-factor	INRC2020 Table N1102.1.4	
Glazed Fenestration SHGC	0.4	SHGC	INRC2020 Table N1105.5.2(1)	No prescriptive requirement.
Ceiling	0.03	U-factor	INRC2020 Table N1102.1.4	
Wood Frame Wall	0.067	U-factor	INRC2020 Table N1102.1.4	
Rim and Band Joists	0.067	U-factor		Code requirement for wood frame wall.
Mass Wall	0.082	U-factor	INRC2020 Table N1102.1.4	
Frame Floor	0.033	U-factor	INRC2020 Table N1102.1.4	
Basement Wall	0.059	U-factor	INRC2020 Table N1102.1.4	
Slab, Unheated	10, 2	R-value, feet	INRC2020 Table N1102.1.2	Feet from top of slab edge below grade.
Slab, Heated	15, 2	R-value, feet	INRC2020 Table N1102.1.2	Feet from top of slab edge below grade.
Crawlspace Wall	0.065	U-factor	INRC2020 Table N1102.1.4	
Air Infiltration Rate	5	ACH50	INRC2020 Table N1105.5.2(1)	Approximately 7 to 8 ACH50.
Mechanical Systems				
Furnace	80	AFUE	10 CFR Ch.2 (1-1-12) SubpartC Sec430.32(e)(1)(ii)	
Boiler	82	AFUE	10 CFR Ch.2 (1-1-12) SubpartC Sec430.32(e)(2)(ii)	
Heat Pump, Heating	8.2	HSPF	10 CFR Ch.2 (1-1-12) SubpartC	All heat pumps shall be characterized as an ASHP.
Central Air Conditioning	13	SEER	10 CFR Ch.2 (1-1-12) SubpartC	
Heat Pump, Cooling	14	SEER	10 CFR Ch.2 (1-1-12) SubpartC	
Water Heating, Natural Gas	0.6	EF	10 CFR Ch.2 (1-1-12) SubpartC Sec430.32(d)	Federal requirements vary based on tank size. The UDRH feature does not allow adjustments to efficiency values based on tank size, therefore the UDRH reference efficiency shall be based on minimum federal efficiency requirements for a 50 gallon tank.
Water Heating, Oil	0.585	EF	10 CFR Ch.2 (1-1-12) SubpartC	See Water Heating, Natural Gas.
Water Heating, Electric	0.945	EF	10 CFR Ch.2 (1-1-12) SubpartC	See Water Heating, Natural Gas.
Integrated Space/Water Heating, Heating	82	AFUE	10 CFR Ch.2 (1-1-12) SubpartC Sec430.32(e)(2)(ii)	Combination space and water heating units shall reference the minimum federal standard boiler efficiency for the heating portion of unit.
Integrated Space/Water Heating, Water	0.60 (gas) 0.585 (oil) 0.945 (electric)	EF	10 CFR Ch.2 (1-1-12) SubpartC Sec430.32(d)	Combination space and water heating units shall reference the minimum federal standard water heating efficiency for the water heating portion of unit.
Thermostat, Type	Manual		INRC2020 Table N1105.5.2(1)	
Thermostat, Cooling Set Point	75	°F	INRC2020 Table N1105.5.2(1)	
Thermostat, Heating Set Point	72	°F	INRC2020 Table N1105.5.2(1)	
Duct Insulation	8	R-Value	2009 IECC 403.2.1	
Duct Insulation, Floor Truss	6	R-Value	2009 IECC 403.2.1	
Duct Leakage	0.04	CFM25/CFA	2009 IECC Table 404.5.2(1)	
Mechanical Ventilation	no savings		TRM	Ventilation is not required by code. The UDRH shall not reference ventilation. The program home will see no energy savings or energy penalty from ventilation.
Lights and Appliances				
Efficient Lighting	90	%	IECC 2009 Section 404.1	
Refrigerator	691	kWh/yr	RESNET Standard	
Dishwasher	0.46	EF	RESNET Standard	
Ceiling Fan	None		RESNET Standard	

2.3.2. Results of Ex Post Gross Savings Estimation

The following tables present the kWh savings as a function of HERS rating for the all-electric homes and the gas and electric homes that were sampled for the evaluation effort. Table 2-3 summarizes the gross impact results of the Residential New Construction Program.

Table 2-3 Gross Impact Summary

Home Type	*Number of Homes*	*Number of Sampled Homes*	*Ex Ante kWh Savings per Home*	*Ex Ante Total kWh Savings*	*Ex Post kWh Savings per Home*	*Ex Post Total kWh Savings*	*Gross Realization Rate*
Gold - Gas & Electric	103	22	1,618	166,654	1,019	104,989	63%
Platinum- Gas & Electric	22	4	1,644	36,168	1,196	26,307	73%
Silver – All-Electric	5	3	4,696	23,480	1,280	6,399	27%
Gold – All-Electric	10	4	8,116	81,160	2,212	22,118	27%
Total	140	33		307,462		159,812	52%

2.3.2.1. Ex Post Gross kWh Savings

Table 2-4 below summarizes the annual energy savings by housing energy tier and fuel type. The largest contributor to savings was the gold-gas & electric tier housing, which represents approximately 54% of ex ante savings with a realization rate of 63%.

The annual energy savings for the Indiana New Construction Program totaled 159,812 kWh with a gross realization rate of 52%. ADM believes that the realization rates were low for all electric homes because the savings assumed an electric resistance heating baseline. The 2020 Indiana Residential Code requires a heat pump with an HSPF of 8.2 for electric heating.

Table 2-4 Annual Gross kWh Savings by House Tier

Home Type	*Ex Ante Total kWh Savings*	*Ex Post Total kWh Savings*	*Realization Rate*
Gold - Gas & Electric	166,654	104,989	63%
Platinum- Gas & Electric	36,168	26,307	73%
Silver - All Electric	23,480	6,399	27%
Gold - All Electric	81,160	22,118	27%
Total	307,462	159,812	52%

2.3.2.2. Ex Post Gross kW Reductions

The total gross peak demand reduction for the Indiana Residential New Construction Program was 112.61 kW with a gross realization rate of 64%.

Table 2-5 Gross kW Reduction by House Tier

Home Type	Ex Ante Total kW Reduction	Ex Post Total kW Reduction	Realization Rate
Gold - Gas & Electric	128.75	87.08	68%
Platinum - Gas & Electric	28.38	24.20	85%
Silver - All Electric	4.55	0.33	7%
Gold - All Electric	13.90	1.00	7%
Total	175.58	112.61	64%

2.4. Estimation of Ex Post Net Savings

2.4.1. Methodology for Estimating Ex Post Net Energy Savings

Because all the Residential New Construction Program activity is associated with projects completed under the legacy program, ADM applied the net-to-gross ratio developed from builder surveys in prior years.

ADM did not estimate non-participant spillover for the New Construction Program

2.4.2. Results of Ex Post Net Savings Estimation

Table 2-6 summarizes the ex post annual net kWh and kW savings of the Residential New Construction Program. The annual net savings totaled 137,230 kWh and 95.96 kW.

Table 2-6 Program-Level Annual Net kWh and kW Savings

Category	*kWh*	*kW*
Ex Ante Gross Savings	307,462	175.58
Gross Audited Savings	307,462	175.58
Gross Verified Savings	307,462	175.58
Ex Post Gross Savings	159,812	112.61
Gross Realization Rate	52%	64%
Ex Post Free Ridership	22,581	16.65
Ex Post Non-Participant Spillover	0	-
Ex Post Participant Spillover	0	-
Ex Post Net Savings	137,230	95.96
Net-to-Gross Ratio	86%	85%
Ex Post Net Lifetime Savings	3,430,755	n/a

2.5. Process Evaluation

ADM completed a process evaluation of the PY2021 program. The process evaluation activities included review of program documentation, a survey of nonparticipating I&M customers to collect data on attitudes toward all electric homes, and interviews and discussions with program staff to inform the understanding of the program design and operations. ADM did not complete a survey or interviews with participating builders because none completed a project through the all-electric program in 2021.

2.5.1. Process Evaluation Findings

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

2.5.1.1. Program Design and Operations

The I&M New Homes Construction Program is available to builders that construct all-electric homes that receive a HERS score of 75 or below. Rebates for HVAC, lighting, and water heaters are available to program-qualifying homes within the service territory. Builders must submit their rebate applications online. Additionally, I&M provides an estimator tool, accessible via the Electric Ideas website, for builders to estimate the rebate amount per home or per unit of equipment.

Between January and March 2021, gas homes were still eligible to receive rebates, however, starting April 1st the program incented all-electric homes only. No new home projects were completed under the newly designed program in PY2021.

2.5.1.1.1. Builder Participation and Outreach

Program participation decreased compared to previous program years. This decrease in participation suggests that there be barriers for builders to participate in the New Homes Construction program. The New Homes Construction program added one new builder in 2021. At the time of the interview, none of the builders who participated in previous years have submitted rebate applications since the program requirements changed.

The I&M program coordinator has had limited opportunities for in-person networking with builders because of Covid-19 restrictions. In PY2021, I&M held virtual meetings for builders and conducted outreach through phone, email, and newsletters. In the builder virtual meetings, the program coordinator highlighted the environmental benefits of building all-electric homes and the reduced costs of not installing gas lines in a subdivision.

2.5.1.1.2. Role of HERS Raters

HERS raters work directly with builders and do not have a formal role in the New Homes Construction Program. However, the program coordinator has built relationships with the raters to understand their job and to help communicate with builders about the program. The coordinator

stated that it is important to build relationships with the raters because they have more contact with builders, and they are a trusted source of information about the benefits of building all-electric.

2.5.1.1.3. Education and Marketing

The program coordinator expressed interest in increasing educational opportunities for builders to increase their understanding of the program and to increase their participation. The program coordinator has made attempts to gather feedback from builders about the new program design but reported limited success.

To increase awareness among builders and stakeholders (e.g., home builder associations) I&M sponsored golf events. To inform homebuyers about the benefits of owning an all-electric home, I&M ran radio ads, and purchased social media and digital ads (e.g., Google searches).

2.5.1.1.4. Strengths and Opportunities

The I&M program coordinator discussed potential strategies to motivate more builders to participate in the New Homes Construction Program. One strategy is to educate potential buyers on the benefits of electric equipment to increase demand for electric homes because some may not understand recent improvements in using electricity for water and space heating. To this end, I&M is collaborating with three other utilities in Michigan to educate customers and contractors about air source heat pumps.

2.5.1.2. Nonparticipant Survey Results: Beliefs About All-Electric Homes

ADM administered a survey to non-participating residential customers and part of that survey asked respondents their perspective on all-electric homes.[7]

Most respondents reported that all-electric homes, when compared to other homes, are not more energy efficient, expensive to purchase, ad expensive to operate. Seventy-eight percent of respondents indicated that all-electric homes are not more energy efficient. Less than half reported all-electric homes are expensive to buy and 76% stated all-electric homes would have high utility costs. (Table 2-7). These findings suggest there may be educational opportunities for I&M customers, including on the costs of all-electric homes and the impacts on air quality.

[7] The procedures for developing the survey sample and administration procedures are discussed in chapter 6.

Table 2-7 Nonparticipants' Beliefs about All-Electric Homes

Statement	*True*	*False*
All-electric homes are more energy efficient (n = 102)	22%	78%
All-electric homes are expensive to buy (n = 103)	42%	58%
All-electric homes improve indoor and outdoor air quality (n = 102)	51%	49%
All-electric homes have higher utility costs (n = 105)	76%	24%

2.6. Findings and Recommendations

Below is a summary of the key findings of the evaluation.

A sharp decrease in program participation may have resulted from the transition to an all-electric program requirement. Between January and March, gas homes were still eligible to receive rebates, however, starting April 1st the program incented all-electric homes only. Since April 1st, the program has not received any applications in Indiana. This finding could suggest that there may be barriers for builders to participate in the New Construction program. However, other factors may be involved. For example, the program restructured incentives based on measures installed instead of based on HER score. The I&M program coordinator has had limited opportunities for in-person networking with builders because of Covid-19 restrictions. This limitation may have restricted the program's ability to engage with builders and identify potential barriers to participation.

- **Recommendation 1:** As Covid-19 restrictions ease, consider holding feedback sessions with past builders to examine potential barriers and identify opportunities to increase participation. Because participation has decreased since the implementation of new program guidelines, focus groups may provide insight to program staff as to the challenges or barriers experienced by builders. By identifying challenges, mitigation strategies could be developed to encourage more participation among builders.

The market does not know about the potential energy savings and non-energy benefits of all-electric homes. I&M staff discussed the need for additional education about the benefits of electric heating to entice new home buyers to choose all-electric homes. The program coordinator stated that some consumers may not understand the improvements in electric heating technologies and results from the nonparticipant customer survey responses support this conclusion with more than three-quarters of respondents stating that all-electric homes are less energy efficient and have higher utility costs than other home types. Furthermore, the customer survey results from the HEM participant and nonparticipant surveys suggest that many residential customers, in general, may not be aware of the improved air quality benefits of an all-electric home.

- **Recommendation 2:** Develop additional education materials that builders can use with new home buyers that educate them about the benefits of all-electric homes. For example, create fact sheets that include comparisons for older technology with new technology with differences in home energy costs. Program staff should continue to collaborate with other utilities and program partners to develop educational materials for builders and home buyers.

3. Residential Income Qualified Weatherproofing

This chapter presents the results of both the impact and process evaluations of the 2021 Income Qualified Weatherproofing Program that Indiana Michigan Power (I&M) offered to its residential customers during the period of January 2021 through December 2021.

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 quality of program documentation and quality control procedures; and
- Provide recommendations for program improvement.

3.1. Program Description

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 staff implement the program and perform the energy assessments. The program works with a group of contractors to install recommended measures in customers' homes.

3.2. Data Collection

3.2.1. Participant Survey

ADM completed an online and telephone survey of program participants to collect data to verify that 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 in residential program evaluations. The sample size requirement was estimated using the following formula:

$$n_0 = \left(\frac{1.645 * CV}{TP}\right)^2$$

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.

Because there were few survey responses from 2021 participants (n = 8), ADM combined 2019 and 2020 participant survey responses with 2021 participant survey responses for a total sample size of 44.

3.3. Estimation of Ex Post Gross Savings

3.3.1. Methodology for Estimating Ex Post Gross Energy Savings

3.3.1.1. Sampling Plan

ADM contacted a census of participants in the Income Qualified Weatherproofing Program to complete a survey used to verify the installation of the equipment installed through the program.

3.3.1.2. Review of Documentation

I&M maintains program tracking information that includes a list of all participants, the measures that were installed in their home, 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 consists 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 performed a review of the savings estimates used to calculate ex ante energy impacts for installed measures. This evaluation activity is intended to verify that the ex ante calculations are consistent with algorithms and values specified in the 2015 Indiana Technical Reference Manual (TRM).

3.3.1.3. Procedures for Estimating Measure-Level Gross Energy Savings

Table 3-1 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 3-1 Income Qualified Weatherproofing Program Calculation Input Information

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
Measure Name: Ductless Heat Pump			
Savings - 1	*ΔkWh 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)*
Savings - 2	*ΔkW Baseline 1*		*(Capacity_cool * ((1 / EER_base) - (1 / EER_ee))) / 1000 * CF + (ER_factor * Early Replacement Incremental kW Savings)*
Savings - 2	*ΔkWh* (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	*ΔkW* (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*	14	Federal appliance standard.
Input	*SEER_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*EER_exist*	Varies	Indiana TRM V2.2, p. 105.
Input	*EER_base*	11.7	Federal appliance standard.
Input	*EER_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*Capacity_heat*	Varies	Tracking data.
Input	*EFLH_heat*	Varies	Indiana TRM V2.2, p. 104.
Input	*HSPF_exist*	3.412	Tracking data.
Input	*HSPF_base*	8.2	Federal appliance standard.
Input	*HSPF_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*CF*	Varies	Indiana TRM V2.2, p. 105.
Input	*CLAF*	Varies	Cooling load adjustment factor, based on analysis of baseline energy usage data. Value is less than or equal to 1.
Input	*HLAF*	Varies	Heating load adjustment factor, based on analysis of baseline energy usage data. Value is less than or equal to 1.
Input	*ER_factor*	1	Assumption. Low income program.
EUL - 1		5	Indiana TRM V2.2, p. 102-103.
EUL - 2		13	Indiana TRM V2.2, p. 102-103.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Air Sealing			
Savings	*ΔkWh*		*(CFM50_before - CFM50_after) / Nfactor * kWh_CFM*
Savings	*ΔkW*		*(CFM50_before - CFM50_after) / Nfactor * kW_CFM * CF*
Input	*CFM50_after*	Varies	Tracking data.
Input	*CFM50_before*	Varies	Tracking data.

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
Input	*Nfactor*	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	*CF*	0.88	Indiana TRM V2.2, p. 52.
Input	*Exposure Level*	Varies	Tracking data.
Input	*Heat Type*	Varies	Tracking data.
Input	*Area*	Varies	Based on zip code.
EUL		15	Indiana TRM V2.2, p. 51.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Ceiling Insulation			
Savings	*ΔkWh*		*ksf * kWh_ksf*
Savings	*ΔkW*		*ksf * kW_ksf * CF*
Input	*ksf*	Varies	Tracking data. Area insulated (1,000 sqft.).
Input	*kWh_ksf*	Varies	Indiana TRM V2.2, p. 43.
Input	*kW_ksf*	Varies	Indiana TRM V2.2, p. 43.
Input	*CF*	0.88	Indiana TRM V2.2, p. 43.
EUL		25	Indiana TRM V2.2, p. 40.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Wall Insulation			
Savings	*ΔkWh*		*ksf * kWh / ksf*
Savings	*ΔkW*		*ksf * kW / ksf * CF*
Input	*ksf*	Varies	Tracking data. Area insulated (1,000 sqft.).
Input	*kWh/ksf*	Varies	Indiana TRM V2.2, p. 43.
Input	*kW/ksf*	Varies	Indiana TRM V2.2, p. 43.
Input	*CF*	0.88	Indiana TRM V2.2, p. 43.
EUL		25	Indiana TRM V2.2, p. 40.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Duct Sealing			
Savings	*ΔkWh*		*((DE_cool_post - DE_cool_pre) / DE_cool_post * EFLH_cool * BTUh_cool / (SEER * 1000)) + ((DE_heat_post - DE_heat_pre) / DE_heat_post * EFLH_heat * BTUh_heat / (3412 * nHeat))*
Savings	*ΔkW*		*(DE_cool_pk_post - DE_cool_pk_pre) / DE_cool_pk_post * BTUh_cool / (EER * 1000) * CF*
Input	*DE_cool_pre*	Varies	Indiana TRM V2.2, p. 58-59. Based on measured leakage levels and location.
Input	*DE_cool_post*	Varies	Indiana TRM V2.2, p. 58-59. Based on measured leakage levels and location.
Input	*EFLH_cool*	Varies	Indiana TRM V2.2, p. 56.
Input	*BTUh_cool*	Varies	Tracking data.
Input	*SEER*	Varies	Tracking data.
Input	*DE_heat_pre*	Varies	Indiana TRM V2.2, p. 58-59. Based on measured leakage levels and location.

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
Input	*DE_heat_post*	Varies	Indiana TRM V2.2, p. 58-59. Based on measured leakage levels and location.
Input	*EFLH_heat*	Varies	Indiana TRM V2.2, p. 57.
Input	*BTUh_heat*	Varies	Tracking data.
Input	*nHeat*	Varies	Tracking data.
Input	*DE_cool_pk_pre*	Varies	Indiana TRM V2.2, p. 58-59. Based on measured leakage levels and location.
Input	*DE_cool_pk_post*	Varies	Indiana TRM V2.2, p. 58-59. Based on measured leakage levels and location.
Input	*EER*	Varies	Tracking data.
Input	*CF*	0.88	Indiana TRM V2.2, p. 58.
EUL		20	Indiana TRM V2.2, p. 55.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Bathroom Faucet Aerators			
Savings	*ΔkWh*		*((GPMbase - GPMlow) * MPD * (PH / FH) * DR * 8.3 * (Tmix - Tin) * 365) / (RE * 3412)*
Savings	*ΔkW*		*((GPMbase - GPMlow) * 60 * DR * 8.3 * (Tmix - Tin) * CF) / (RE * 3412)*
Input	*GPMbase*	1.9	Indiana TRM V2.2, p. 69.
Input	*GPMlow*	Varies	Characteristics of applicable equipment.
Input	*MPD*	1.6	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*	0.5	Indiana TRM V2.2
Input	*Tmix*	93	Indiana TRM V2.2
Input	*Tin*	Varies	Area-specific value, Indiana TRM V2.2
Input	*CF*	0.0033	Indiana TRM V2.2
Input	*RE*	0.98	Indiana TRM V2.2
EUL		10	Indiana TRM V2.2, p. 68.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Shower Head			
Savings	*ΔkWh*		*((GPMbase - GPMlow) * MS * SPD * (PH / SH) * 8.3 * (Tmix - Tin) * 365) / (RE * 3412)*
Savings	*ΔkW*		*((GPMbase - GPMlow) * 60 * 8.3 * (Tmix - Tin) * CF) / (RE * 3412)*
Input	*GPMbase*	2.63	Indiana TRM V2.2, p. 74.
Input	*GPMlow*	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	*Tmix*	101	Indiana TRM V2.2, p. 75.

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
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*	0.0023	Indiana TRM V2.2, p. 75. Varies based on climate zone.
EUL		10	Indiana TRM V2.2, p. 73.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Direct Install Lighting			
Savings	*ΔkWh*		*(WattsBase - WattsEE) * Hours * (1 + WHFe) / 1000*
Savings	*ΔkW*		*(WattsBase - WattsEE) * CF * (1 + WHFd) / 1000*
Input	*WattsBase*	Varies	Illinois TRM V9.0 Volume 3, p. 273.
Input	*WattsEE*	Varies	Program tracking data.
Input	*Hours*	902	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		4	Illinois TRM V9.0 Volume 3, p. 277.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Customer Education			
Savings	*ΔkWh*		*kWh_Savings_per_Customer*
Savings	*ΔkW*		*kW_Savings_per_Customer*
Input	*kWh_Savings_per_Customer*	115.14815	Analysis of customer survey response data, 2012 Energizing Indiana Programs EM&V Report.
Input	*kW_Savings_per_Customer*	0.0051852	Analysis of customer survey response data, 2012 Energizing Indiana Programs EM&V Report.
EUL		1	Behavioral Measure
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Lighting (Kit)			
Savings	*ΔkWh*		*(WattsBase - WattsEE) * Hours * (1 + WHFe) / 1000*
Savings	*ΔkW*		*(WattsBase - WattsEE) * CF * (1 + WHFd) / 1000*
Input	*WattsBase*	Varies	Illinois TRM V9.0 Volume 3, p. 273.
Input	*WattsEE*	Varies	Program tracking data.
Input	*Hours*	902	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		4	Illinois TRM V9.0 Volume 3, p. 277.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: LED Nightlight (Kit)			
Savings	*ΔkWh*		*(WattsBase - WattsEff) * Hours / 1000*
Savings	*ΔkW*		*0*
Input	*WattsBase*	5	Indiana TRM V2.2, p. 136.
Input	*WattsEff*	0.33	Indiana TRM V2.2, p. 136.

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
Input	*Hours*	2920	Indiana TRM V2.2, p. 136.
EUL		16	Indiana TRM V2.2, p. 135.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Showerhead (Kit)			
Savings	*ΔkWh*		*((GPMbase - GPMlow) * MS * SPD * (PH / SH) * 8.3 * (Tmix - Tin) * 365) / (RE * 3412)*
Savings	*ΔkW*		*((GPMbase - GPMlow) * 60 * 8.3 * (Tmix - Tin) * CF) / (RE * 3412)*
Input	*GPMbase*	2.63	Indiana TRM V2.2, p. 74.
Input	*GPMlow*	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	*Tmix*	101	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*	0.0023	Indiana TRM V2.2, p. 75. Varies based on climate zone.
EUL		10	Indiana TRM V2.2, p. 73.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Advanced Power Strip (Kit)			
Savings	*ΔkWh*		*kWh*
Savings	*ΔkW*		*kWh / Hours * CF*
Input	*kWh*	Varies	Illinois TRM 9.0 Vol. 3, p. 64. Varies based on number of plugs.
Input	*Number_of_Plugs*	Varies	Tracking data.
Input	*Hours*	7129	Illinois TRM 9.0 Vol. 3, p. 65. Varies based on number of plugs.
Input	*CF*	0.8	Illinois TRM 9.0 Vol. 3, p. 65. Varies based on number of plugs.
EUL		7	Illinois TRM 9.0 Vol. 3, p. 63. Varies based on number of plugs.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Bathroom Faucet Aerator (Kit)			
Savings	*ΔkWh*		*((GPMbase - GPMlow) * MPD * (PH / FH) * DR * 8.3 * (Tmix - Tin) * 365) / (RE * 3412)*
Savings	*ΔkW*		*((GPMbase - GPMlow) * 60 * DR * 8.3 * (Tmix - Tin) * CF) / (RE * 3412)*
Input	*GPMbase*	1.9	Indiana TRM V2.2, p. 69.
Input	*GPMlow*	Varies	Characteristics of applicable equipment.
Input	*MPD*	1.6	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.

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
Input	*DR*	0.5	Indiana TRM V2.2
Input	*Tmix*	93	Indiana TRM V2.2
Input	*Tin*	Varies	Area-specific value, Indiana TRM V2.2
Input	*CF*	0.0033	Indiana TRM V2.2
Input	*RE*	0.98	Indiana TRM V2.2
EUL		10	Indiana TRM V2.2, p. 68.
Inc Cost		$ -	Measure cost accounted for by program costs.
Measure Name: Kitchen Faucet Aerator (Kit)			
Savings	*ΔkWh*		*((GPMbase - GPMlow) * MPD * (PH / FH) * DR * 8.3 * (Tmix - Tin) * 365) / (RE * 3412)*
Savings	*ΔkW*		*((GPMbase - GPMlow) * 60 * DR * 8.3 * (Tmix - Tin) * CF) / (RE * 3412)*
Input	*GPMbase*	2.44	Indiana TRM V2.2, p. 69.
Input	*GPMlow*	Varies	Characteristics of applicable equipment.
Input	*MPD*	4.5	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*	0.5	Indiana TRM V2.2
Input	*Tmix*	93	Indiana TRM V2.2
Input	*Tin*	Varies	Area-specific value, Indiana TRM V2.2
Input	*CF*	0.0033	Indiana TRM V2.2
Input	*RE*	0.98	Indiana TRM V2.2
EUL		10	Indiana TRM V2.2, p. 68.
Inc Cost		$ -	Measure cost accounted for by program costs.

3.3.1.4. Verification and In-Service Rates

Table 3-2 shows the verification rates if program measures installed through the income qualified program.

Table 3-2 Verification Rates for Program Measures

Measure	*Number Installed (2019-2021)*	*Verification Rate (2019-2021)*
Air sealing	21	90%
Energy efficient refrigerator	15	100%
Ductless heat pump	3	100%
Insulation	18	100%
Attic baffles to improve attic ventilation	1	100%
Heating and cooling duct sealing and improvement	10	80%

I&M distributed kits with energy saving measures to program participants who completed a virtual assessment. Table 3-3 summarizes the kit contents.

Table 3-3 Virtual Assessment Efficiency Kits

Electric Water Heater Kit	*Gas Water Heater Kit*
Advanced Power Strip – 1	Advanced Power Strip – 1
9 W LED bulbs – 8	9 W LED bulbs – 8
High efficiency showerheads – 2	LED night lights – 2
Kitchen faucet aerator – 1	
Bathroom faucet aerators – 2	
LED night lights – 2	

ADM applied the in-service rates developed from surveys of participants in the PY2020 Online Energy Checkup program (see Table 3-4). Because advanced power strips were not included in the PY2020 kits, ADM applied the in-service rate for the advanced power strips sold through the online energy marketplace discussed in section 4.3.1.2.1.

Table 3-4 PY2020 OEC In-Service Rates

Measure	*ISR with Planned Install in Next 6 Months*
9W LED	91%
1.5 GPM Showerhead	56%
1.5 GPM Kitchen aerator	69%
1.0 GPM Bathroom aerator	64%
0.5W LED night light	42%

3.3.2. Results of Ex Post Gross Savings Estimation

Table 3-5 summarizes the gross kWh savings of the Income Qualified Weatherization Program by measure. The ex post annual energy savings for the program were 322,854 kWh with a realization rate of 106%.

Table 3-5 Measure-Level Annual Gross kWh Savings

Measure	*Quantity of Measures Incented*	*Ex Ante Gross kWh Savings*	*Gross Audited kWh Savings*	*Gross Verified kWh Savings*	*Ex Post Gross kWh Savings*	*Gross Realization Rate*
Ductless Heat Pump	6	17,101	17,101	17,101	45,421	266%
Air Sealing	23	45,561	45,561	41,222	40,967	90%
Ceiling Insulation	19	31,866	31,866	31,866	31,859	100%
Wall Insulation	5	1,550	1,550	1,550	1,550	100%
Duct Sealing	13	7,733	7,733	6,187	11,745	152%

Measure	*Quantity of Measures Incented*	*Ex Ante Gross kWh Savings*	*Gross Audited kWh Savings*	*Gross Verified kWh Savings*	*Ex Post Gross kWh Savings*	*Gross Realization Rate*
Bathroom Faucet Aerators	3	101	101	101	105	104%
Shower Head	3	1,062	1,062	1,062	1,057	100%
Direct Install Lighting	20	866	866	866	570	66%
Customer Education	31	3,729	3,729	3,729	3,570	96%
Lighting (Kit)	2,984	74,681	74,681	68,001	77,171	103%
LED Nightlight (Kit)	746	5,767	5,767	2,395	4,225	73%
Showerhead (Kit)	320	67,984	67,984	37,789	61,888	91%
Advanced Power Strip (Kit)	373	19,172	19,172	7,963	15,958	83%
Bathroom Faucet Aerator (Kit)	320	6,198	6,198	3,946	7,031	113%
Kitchen Faucet Aerator (Kit)	160	20,320	20,320	13,953	19,738	97%
Total		303,691	303,691	237,732	322,854	106%

Table 3-6 summarizes the gross peak demand reduction of the Income Qualified Weatherization Program. The gross peak demand reduction for the program was 27.94 kW, with a realization rate of 163%.

Table 3-6 Measure-level Gross kW Reduction

Measure	*Quantity of Measures Incented*	*Ex Ante Gross kW Savings*	*Gross Audited kW Savings*	*Gross Verified kW Savings*	*Ex Post Gross kW Savings*	*Gross Realization Rate*
Ductless Heat Pump	6	-	-	-	2.81	N/A
Air Sealing	23	2.75	2.75	2.49	1.74	63%
Ceiling Insulation	19	4.86	4.86	4.86	3.35	69%
Wall Insulation	5	0.24	0.24	0.24	0.16	68%
Duct Sealing	13	4.64	4.64	3.71	2.58	56%
Bathroom Faucet Aerators	3	0.02	0.02	0.02	0.01	66%
Shower Head	3	0.07	0.07	0.07	0.05	75%
Direct Install Lighting	20	0.05	0.05	0.05	0.08	145%
Customer Education	31	0.32	0.32	0.32	0.16	50%
Lighting (Kit)	2,984	1.56	1.56	1.42	10.58	676%
LED Nightlight (Kit)	746	-	-	-	-	N/A
Showerhead (Kit)	320	0.54	0.54	0.30	3.04	560%
Advanced Power Strip (Kit)	373	1.89	1.89	0.78	1.79	95%
Bathroom Faucet Aerator (Kit)	320	0.09	0.09	0.06	0.67	712%
Kitchen Faucet Aerator (Kit)	160	0.15	0.15	0.10	0.92	606%
Total		17.19	17.19	14.44	27.94	163%

3.4. Estimation of Ex Post Net Savings

3.4.1. Methodology for Estimating Ex Post Net Energy Savings

ADM applied a NTG ratio of 1.0 for the Income Qualified Weatherproofing Program in line with common practice for estimation of low-income program net savings.[8] An NTG ratio of 1.0 was also applied to the efficiency kits.

3.4.2. Results of Ex Post Net Savings Estimation

Table 3-7 summarizes the ex post annual net kWh and kW savings of the Residential Income Qualified Weatherproofing Program. The annual net savings totaled 322,854 kWh and 28.92 kW.

Table 3-7 Program-Level Annual Net kWh and kW Savings

Category	*kWh*	*kW*
Ex Ante Gross Savings	303,691	17.19
Gross Audited Savings	303,691	17.19
Gross Verified Savings	237,732	14.44
Ex Post Gross Savings	322,854	27.94
Gross Realization Rate	106%	163%
Ex Post Free Ridership	-	-
Ex Post Non-Participant Spillover	-	-
Ex Post Participant Spillover	-	-
Ex Post Net Savings	322,854	27.94
Net-to-Gross Ratio	100%	100%
Ex Post Net Lifetime Savings	3,441,310	na

Energy savings associated with virtual assessment efficiency kits are presented by kit type in Table 3-8.

Table 3-8 Virtual Assessment Efficiency Kit Ex Post kWh Savings Estimates

Kit Type	*Number of Kits*	*Ex Ante Gross kWh Savings*	*Gross Audited kWh Savings*	*Gross Verified kWh Savings*	*Ex Post Gross kWh Savings*	*Gross Realization Rate*	*Ex Post Net kWh Savings*	*Net-to-Gross Ratio*
Electric Water Heater	160	137,213	137,213	89,282	130,455	95%	130,455	100%
Gas Water Heater	213	56,909	56,909	44,767	55,556	98%	55,556	100%
Total	373	194,122	194,122	134,049	186,011	96%	186,011	100%

[8] See Violette and Rathbun, Chapter 21: Estimating Net Savings: Common Practices. The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures, available electronically at https://www.nrel.gov/docs/fy17osti/68578.pdf, p. 45

Peak demand impacts associated with virtual assessment efficiency kits are presented by kit type in Table 3-9.

Table 3-9 Virtual Assessment Efficiency Kit Ex Post Peak Demand Reduction Estimates

Kit Type	*Number of Kits*	*Ex Ante Gross kW Savings*	*Gross Audited kW Savings*	*Gross Verified kW Savings*	*Ex Post Gross kW Savings*	*Gross Realization Rate*	*Ex Post Net kW Savings*	*Net-to-Gross Ratio*
Electric Water Heater	160	2.36	2.36	1.47	9.95	422%	9.95	100%
Gas Water Heater	213	1.88	1.88	1.21	7.06	375%	7.06	100%
Total	373	4.24	4.24	2.67	17.01	401%	17.01	100%

3.5. Findings and Recommendations

Analysis revealed that the income qualified program achieved greater energy savings than originally projected. With a realization rate of 105% and a NTGR of 100%, the program can book more energy savings than they originally calculated resulting in more energy savings for the portfolio. The realization rate resulted from a mix of measures that had realization rates around 100% (ceiling insulation, air sealing, wall insulation, shower heads, lighting (kits), showerhead(kits)), measures that had high realization rates (>150%, ductless heat pumps, duct sealing, bathroom faucet aerators), and low realization measures, and measures with relatively low realization rates (< 83%, direct install lighting), nightlights, advanced power strips, and kitchen aerators.

4. Home Energy Products

This chapter presents the results of the impact and process evaluations of the 2021 Home Energy Products Program that Indiana Michigan Power (I&M) offered to its residential customers during the period of January 2021 through December 2021.

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 quality of program documentation and quality control procedures; and
- Provide recommendations for program improvement.

4.1. Program Description

The Home Energy Products Program aims to increase customer awareness and uptake for energy-efficient products through cash-back rebates designed to cover a portion of the incremental cost of upgrading to efficient technologies. In addition, the program educates customers about the energy saving and non-energy benefits associated with efficient HVAC and self-install products that reduce energy consumption.

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 or upstream incentive through the program, educating residential customers regarding the opportunities to decrease their overall energy consumption, and encouraging equipment vendors and contractors to actively market eligible energy efficient technologies to residential customers.

The Home Energy Products Program provides cash-back rebates to residential customers who upgrade to more efficient HVAC products such as air conditioners and heat pumps (central split systems or mini split ductless units), energy efficient appliances such as ENERGY STAR® dehumidifiers, or various other measures such as heat pump water heaters and pool pumps. There are seven eligible measures:

- Wi-Fi Programmable Thermostats;
- Heat Pump Water Heaters;
- Efficient Electric Resistance Water Heaters;
- Dehumidifiers;
- Electronically Commutated Furnace Fan Motors (ECMs);
- Variable Speed Pool Pumps.
- Ductless Heat Pumps;
- Heat Pumps; and

I&M's Marketplace is a second component of the Home Energy Products Program. Through the marketplace, I&M customers can purchase energy efficient products and receive an instant rebate on those items. I&M offers the following products through its marketplace

- Air Purifiers
- Advanced Power Strips
- Smart Thermostats
- Faucet Aerators
- Showerheads

4.2. Data Collection

4.2.1. Participant Survey

ADM completed two surveys of program participants to collect data to:

- Verify the rebated equipment was installed and estimate gross savings; and
- Estimate net savings.

The surveys were administered to customers that participated in the appliance/HVAC component of the program, and those that purchased energy saving items through I&M's online energy marketplace.

The sample size requirement was calculated to meet 90% confidence and 10% precision (90/10). To determine the minimum sample size needed to meet this precision requirement, ADM assumed a CV of .5, as is typically used in in residential program evaluations. The sample size requirement was estimated using the following formula:

$$n_0 = \left(\frac{1.645 * CV}{TP}\right)^2$$

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 also contacted forty contractors that participated in the program by installing HVAC equipment to complete a survey of how the program affected their marketing and sales of energy efficient HVAC equipment.

Table 4-1 summarizes data collection activities for the Home Energy Products Program evaluation.

Table 4-1 Summary of Data Collection Activities for the Home Energy Products Program

Survey	*Mode*	*Time Frame*	*Number of Contacts*	*Number of Completions*
Home Energy Products – Products Component Participant Survey	Online and Telephone	November 2021 and January 2022	463	71
Home Energy Products – Online Marketplace Purchaser Survey	Online	December 2021	491	117
Home Energy Products – Products Component Contractor Survey	Online	January 2022	40	3

4.3. Estimation of Ex Post Gross Savings

The following section presents the methodology used to estimate the PY2021 gross energy and demand impacts resulting from the Home Energy Products Program.

4.3.1. Methodology for Estimating Ex Post Gross Energy Savings – Efficient Products Component

The M&V approach for the Home Energy Products Program focused on determining the following:

- Number of appliances and products rebated and sold through the program;
- Average annual energy savings per purchased appliance; and
- Average kW reduction per purchased appliance.

4.3.1.1. Review of Documentation

ADM reviewed data tracking systems associated with the program to ensure that the data provided sufficient information to identify unique customers for surveying and to calculate energy and demand impacts in accordance with the savings calculation source defined in section 4.3.1.2 below. ADM further reviewed the program data to verify that the fields required for performing the evaluation were tracked and populated (i.e., the data was not missing) and that the values were reasonable. ADM took several steps in verifying the number of appliances rebated:

- Validating program tracking data by checking for duplicate or erroneous entries;
- Conducting verification surveys with a sample of program participants to verify that customers listed in the program tracking database did indeed participate, that the number of appliances claimed to be rebated was accurate, and that appliances were rebated according to the process I&M had in place;
- Conducting verification of purchase and installation of measures purchased through the online marketplace.

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 Home Energy Products Program.

Table 4-2 Home Energy Products Program Calculation Input Information

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
Measure Name: Ductless Heat Pump Displacement			
Savings - 1	*ΔkWh 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)*
Savings - 2	*ΔkW Baseline 1*		*(Capacity_cool * ((1 / EER_base) - (1 / EER_ee))) / 1000 * CF + (ER_factor * Early Replacement Incremental kW Savings)*
Savings - 2	*ΔkWh* (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	*ΔkW* (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*	14	Federal appliance standard.
Input	*SEER_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*EER_exist*	Varies	Indiana TRM V2.2, p. 105.
Input	*EER_base*	11.7	Federal appliance standard.
Input	*EER_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*Capacity_heat*	Varies	Tracking data.
Input	*EFLH_heat*	Varies	Indiana TRM V2.2, p. 104.
Input	*HSPF_exist*	3.412	Tracking data.
Input	*HSPF_base*	8.2	Federal appliance standard.
Input	*HSPF_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*CF*	Varies	Indiana TRM V2.2, p. 105.
Input	*CLAF*	Varies	Cooling load adjustment factor, based on analysis of baseline energy usage data. Value is less than or equal to 1.
Input	*HLAF*	Varies	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.
EUL - 1		5	Indiana TRM V2.2, p. 102-103.

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
EUL - 2		13	Indiana TRM V2.2, p. 102-103.
Inc Cost		Varies	Illinois TRM V9.0 Volume 3, p. 151-152.
Measure Name: Ductless Heat Pump Replacement			
Savings - 1	*ΔkWh 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)*
Savings - 2	*ΔkW Baseline 1*		*(Capacity_cool * ((1 / EER_base) - (1 / EER_ee))) / 1000 * CF + (ER_factor * Early Replacement Incremental kW Savings)*
Savings - 2	*ΔkWh* (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	*ΔkW* (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*	14	Federal appliance standard.
Input	*SEER_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*EER_exist*	Varies	Indiana TRM V2.2, p. 105.
Input	*EER_base*	11.7	Federal appliance standard.
Input	*EER_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*Capacity_heat*	Varies	Tracking data.
Input	*EFLH_heat*	Varies	Indiana TRM V2.2, p. 104.
Input	*HSPF_exist*	7.7	Indiana TRM V2.2, p. 104.
Input	*HSPF_base*	8.2	Federal appliance standard.
Input	*HSPF_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*CF*	Varies	Indiana TRM V2.2, p. 105.
Input	*CLAF*	Varies	Cooling load adjustment factor, based on analysis of baseline energy usage data. Value is less than or equal to 1.
Input	*HLAF*	Varies	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.
Measure Name: Air Source Heat Pump			
Savings - 1	*ΔkWh 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) -*

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
			*(Capacity_cool / SEER_base)) / 1000 * ER_factor * EFLH_cool * CLAF)*
Savings - 2	*ΔkW Baseline 1*		*(Capacity_cool * ((1 / EER_base) - (1 / EER_ee))) / 1000 * CF + (ER_factor * Early Replacement Incremental kW Savings)*
Savings - 2	*ΔkWh* (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	*ΔkW* (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*	14	Federal appliance standard.
Input	*SEER_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*EER_exist*	Varies	Indiana TRM V2.2, p. 105.
Input	*EER_base*	11.7	Federal appliance standard.
Input	*EER_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*Capacity_heat*	Varies	Tracking data.
Input	*EFLH_heat*	Varies	Indiana TRM V2.2, p. 104.
Input	*HSPF_exist*	7.7	Indiana TRM V2.2, p. 104.
Input	*HSPF_base*	8.2	Federal appliance standard.
Input	*HSPF_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*CF*	Varies	Indiana TRM V2.2, p. 105.
Input	*CLAF*	Varies	Cooling load adjustment factor, based on analysis of baseline energy usage data. Value is less than or equal to 1.
Input	*HLAF*	Varies	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.
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 V9.0 Volume 3, p. 73.
Measure Name: Heat Pump Water Heater			
Savings	*ΔkWh*		*(1 / UEF_base - 1 / UEF_new) * GPD * Household * 365.25 * γWater * ((Temp_out - Temp_in) / 3412) + kWh_cooling - kWh_heating*
Savings	*ΔkW*		*IFERROR(((1 / UEF_base - 1 / UEF_new) * GPD * Household * 365.25 * γWater * ((Temp_out - Temp_in) / 3412) + kWh_cooling - kWh_heating) / Hours * CF,0)*
Input	*UEF_base*	Varies	Federal appliance standard.

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
Input	*UEF_new*	Varies	Tracking data. Characteristics of applicable equipment.
Input	*GPD*	Varies	Illinois TRM 9.0 Vol. 3, p. 202.
Input	*γWater*	8.33	Illinois TRM 9.0 Vol. 3, p. 202.
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*	0.346	Indiana TRM V2.2, p. 66.
Input	*Heat Type*	Varies	Based on review of tracking data
Input	*Household*	Varies	Illinois TRM 9.0 Vol. 3, p. 202. Varies based on household type.
Input	*Temp_in*	Varies	Indiana TRM V2.2, p. 71. Varies by location.
Input	*Temp_out*	Varies	Illinois TRM 9.0 Vol. 3, p. 202.
EUL		10	Indiana TRM V2.2, p. 64.
Inc Cost		$ 700.00	Indiana TRM V2.2, p. 64.
Measure Name: Electric Resistance Water Heater			
Savings	*ΔkWh*		*IFERROR((1 / UEF_base - 1 / UEF_new) * GPD * Household * 365.25 * γWater * ((Temp_out - Temp_in) / 3412) + kWh_cooling - kWh_heating,0)*
Savings	*ΔkW*		*IFERROR(((1 / UEF_base - 1 / UEF_new) * GPD * Household * 365.25 * γWater * ((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*	Varies	Illinois TRM 9.0 Vol. 3, p. 202.
Input	*γWater*	8.33	Illinois TRM 9.0 Vol. 3, p. 202.
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*	0.346	Indiana TRM V2.2, p. 66.
Input	*Heat Type*	Varies	Based on review of tracking data
Input	*Household*	Varies	Illinois TRM 9.0 Vol. 3, p. 202. Varies based on household type.
Input	*Temp_in*	Varies	Indiana TRM V2.2, p. 71. Varies by location.
Input	*Temp_out*	Varies	Illinois TRM 9.0 Vol. 3, p. 202.
EUL		10	Indiana TRM V2.2, p. 64.
Inc Cost		$ 50.00	Incentive amount (assumption).
Measure Name: ECM Fan Motor			
Savings	*ΔkWh*		*kWh_savings*
Savings	*ΔkW*		*kW_savings*
Input	*kWh_savings*	415	Indiana TRM V2.2, p. 114.

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
Input	*kW_savings*	0	Indiana TRM V2.2, p. 115.
EUL		10	Indiana TRM V2.2, p. 114.
Inc Cost		$ 250.00	Indiana TRM V2.2, p. 114.
Measure Name: Wi-Fi Smart Thermostat			
Savings	*ΔkWh*		*(1 / SEER * EFLH_cool * Btuh_cool / 1000 * ESF_cool * Cooling_Savings_Adjustment_Factor) + IF(Electric_Heating=1,(EFLH_heat * Btuh_heat / COP / 3412 * ESF_heat * Heating_Savings_Adjustment_Factor),0)*
Savings	*ΔkW*		*0*
Input	*SEER*	Varies	Program tracking data.
Input	*EFLH_cool*	Varies	Indiana TRM V2.2, p. 121.
Input	*Btuh_cool*	Varies	Program tracking data.
Input	*ESF_cool*	Varies	Indiana TRM V2.2, p. 122 if replace manual thermostat. Illinois TRM 9.0 Vol. 3, p. 179 if replacing programmable thermostat.
Input	*Cooling_Savings_Adjustment_Factor*	Varies	Rate of cooling.
Input	*EFLH_heat*	Varies	Indiana TRM V2.2, p. 122.
Input	*Btuh_heat*	Varies	Program tracking data.
Input	*COP*	Varies	Program tracking data.
Input	*ESF_heat*	Varies	Indiana TRM V2.2, p. 123 if replace manual thermostat. Illinois TRM 9.0 Vol. 3, p. 177 if replacing programmable thermostat.
Input	*Heating_Savings_Adjustment_Factor*	Varies	Rate of electric heating.
Input	*Electric_Heating*	Varies	Tracking data review. Equals 1 if electrically heated, 0 if not.
EUL		15	Indiana TRM V2.2, p. 120.
Inc Cost		$ 250.00	Indiana TRM V2.2, p. 120.
Measure Name: Dehumidifier			
Savings	*ΔkWh*		*Pints_per_Day * 0.473 / 24 * HOU * ((1 / L_kWh_base) - (1 / L_kWh_EE))*
Savings	*ΔkW*		*(Pints_per_Day * 0.473 / 24 * HOU * ((1 / L_kWh_base) - (1 / L_kWh_EE))) / HOU * CF*
Input	*HOU*	1620	Indiana TRM V2.2, p. 23.
Input	*L_kWh_base*	Varies	Federal appliance standard. Based on unit capacity.
Input	*L_kWh_EE*	Varies	Characteristics of applicable equipment.
Input	*Pints_per_Day*	Varies	Characteristics of applicable equipment.
Input	*CF*	0.37	Indiana TRM V2.2, p. 24.
EUL		12	Indiana TRM V2.2, p. 23.
Inc Cost		$ 45.00	Indiana TRM V2.2, p. 23.
Measure Name: Variable Speed Pool Pump			

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
Savings	*ΔkWh*		*(hp * LF * 0.746) / ηPUMP * Hrs_day * Days_yr * ESF*
Savings	*ΔkW*		*(hp * LF * 0.746) / ηPUMP * CF * DSF*
Input	*hp*	Varies	Characteristics of applicable equipment.
Input	*LF*	0.66	Indiana TRM V2.2, p. 147.
Input	*ηPUMP*	0.325	Indiana TRM V2.2, p. 147.
Input	*Hrs_day*	6	Indiana TRM V2.2, p. 147.
Input	*Days_yr*	100	Indiana TRM V2.2, p. 147.
Input	*ESF*	Varies	Indiana TRM V2.2, p. 147. Based on pump type.
Input	*CF*	Varies	Indiana TRM V2.2, p. 148.
Input	*DSF*	Varies	Indiana TRM V2.2, p. 148. Based on pump type.
EUL		10	Indiana TRM V2.2, p. 146.
Inc Cost		Varies	Indiana TRM V2.2, p. 146. Based on pump type.
Measure Name: Ground Source Heat Pump			
Savings	*ΔkWh*		*(EFLH_cool * Capacity_cool * ((1 / SEER_base) - (1 / (EER_ee * 1.02))) / 1000) + (EFLH_heat * Capacity_heat * ((1 / HSPF_base) - (1 / (COP_ee * 3.412))) / 1000)*
Savings	*ΔkW*		*(Capacity_cool * CF * ((1 / EER_base) - (1 / (EER_ee * 1.02 * 0.37 + 6.43))) / 1000)*
Input	*Capacity_cool*	Varies	AHRI. Characteristics of applicable equipment.
Input	*EFLH_cool*	Varies	Indiana TRM V2.2, p. 111.
Input	*SEER_base*	14	Federal appliance standard.
Input	*EER_base*	11.7	Federal appliance standard.
Input	*EER_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*Capacity_heat*	Varies	AHRI. Characteristics of applicable equipment.
Input	*EFLH_heat*	Varies	Indiana TRM V2.2, p. 112.
Input	*HSPF_base*	8.2	Federal appliance standard.
Input	*COP_ee*	Varies	AHRI. Characteristics of applicable equipment.
Input	*CF*	0.88	Indiana TRM V2.2, p. 113.
EUL		18	Indiana TRM V2.2, p. 111.
Inc Cost		Varies	Illinois TRM V9.0 Volume 3, p. 127
Measure Name: Bathroom Aerator			
Savings	*ΔkWh*		*((GPMbase - GPMlow) * MPD * (PH / FH) * DR * 8.3 * (Tmix - Tin) * 365) / (RE * 3412)*
Savings	*ΔkW*		*((GPMbase - GPMlow) * 60 * DR * 8.3 * (Tmix - Tin) * CF) / (RE * 3412)*
Input	*GPMbase*	1.9	Indiana TRM V2.2, p. 69.
Input	*GPMlow*	Varies	Characteristics of applicable equipment.
Input	*MPD*	1.6	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.

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
Input	*DR*	0.5	Indiana TRM V2.2
Input	*Tmix*	93	Indiana TRM V2.2
Input	*Tin*	Varies	Area-specific value, Indiana TRM V2.2
Input	*CF*	0.0033	Indiana TRM V2.2
Input	*RE*	0.98	Indiana TRM V2.2
EUL		10	Indiana TRM V2.2, p. 68.
Inc Cost		$ -	Accounted for in program cost.
Measure Name: Kitchen Aerator			
Savings	*ΔkWh*		*((GPMbase - GPMlow) * MPD * (PH / FH) * DR * 8.3 * (Tmix - Tin) * 365) / (RE * 3412)*
Savings	*ΔkW*		*((GPMbase - GPMlow) * 60 * DR * 8.3 * (Tmix - Tin) * CF) / (RE * 3412)*
Input	*GPMbase*	2.44	Indiana TRM V2.2, p. 69.
Input	*GPMlow*	Varies	Characteristics of applicable equipment.
Input	*MPD*	4.5	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*	0.5	Indiana TRM V2.2
Input	*Tmix*	93	Indiana TRM V2.2
Input	*Tin*	Varies	Area-specific value, Indiana TRM V2.2
Input	*CF*	0.0033	Indiana TRM V2.2
Input	*RE*	0.98	Indiana TRM V2.2
EUL		10	Indiana TRM V2.2, p. 68.
Inc Cost		$ -	Accounted for in program cost.
Measure Name: Shower Head			
Savings	*ΔkWh*		*((GPMbase - GPMlow) * MS * SPD * (PH / SH) * 8.3 * (Tmix - Tin) * 365) / (RE * 3412)*
Savings	*ΔkW*		*((GPMbase - GPMlow) * 60 * 8.3 * (Tmix - Tin) * CF) / (RE * 3412)*
Input	*GPMbase*	2.63	Indiana TRM V2.2, p. 74.
Input	*GPMlow*	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	*Tmix*	101	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.

Variable Type	*Variable Name*	*Variable Value*	*Variable Value Source*
Input	*CF*	0.0023	Indiana TRM V2.2, p. 75. Varies based on climate zone.
EUL		10	Indiana TRM V2.2, p. 73.
Inc Cost		$ -	Accounted for in program cost.
Measure Name: Advanced Power Strip			
Savings	*ΔkWh*		*kWh*
Savings	*ΔkW*		*kWh / Hours * CF*
Input	*kWh*	Varies	Illinois TRM 9.0 Vol. 3, p. 64. Varies based on number of plugs.
Input	*Number_of_Plugs*	Varies	Tracking data.
Input	*Hours*	7129	Illinois TRM 9.0 Vol. 3, p. 65. Varies based on number of plugs.
Input	*CF*	0.8	Illinois TRM 9.0 Vol. 3, p. 65. Varies based on number of plugs.
EUL		7	Illinois TRM 9.0 Vol. 3, p. 63. Varies based on number of plugs.
Inc Cost		Varies	Cost of measure accounted for by program costs.

4.3.1.2.1. Verification and In-Service Rates

ADM applied verification rates developed from the participant survey responses to estimate the gross energy savings of the Home Energy Products Program. As shown in Table 4-3, all respondents verified that the rebated measure was installed.

Table 4-3 Summary of Measure Verification for Products Component

Measure	*Number of Responses*	*Verification Rate*
Air source heat pump	15	100%
Ductless heat pump	14	100%
Heat pump water heater	1	100%
Smart thermostat	26	100%
Dehumidifier	8	100%
Electric water heater	12	100%

Table 4-5 summarizes the in-service rates for the online energy marketplace measures, excluding the advanced power strips, for which in-service rates are shown in Table 4-5.

Table 4-4 In-Service Rates for Online Energy Marketplace Measures

Measure	*Number of Units in Sample*	*Currently Installed*	*ISR with Planned Install in Next 6 Months*
Showerhead	6	17%	83%
Kitchen Faucet Aerator	2	50%	50%
Bathroom Faucet Aerator	9	44%	67%
Smart Thermostat	3	33%	67%

Respondents who had not installed the purchased product provided the following reasons.

- The four customers and who had not installed all the showerheads they purchased indicated they did not have time (n = 2), needed help installing them (n = 1), or had not received their order (n = 1).
- Those who bought aerators without installing them (two bought bathroom aerators, one purchased a kitchen aerator) reported not having time to install and needing help to install the items.
- Three survey respondents had not installed their smart thermostats and it was because they had either not received them or had not had time to install it.

Table 4-5 summarizes the findings for the installation and use status of advanced power strips. For advanced power strips, ADM considered them in use if equipment was plugged into both the control and switch outlets.

Table 4-5 Advanced Power Strip In-Service Rates

Installation Status	*Installation Status Definitions*	*Percent of Advanced Power Strips (n = 370)**
In use		**42%**
Audio/visual/entertainment	Audio/visual/entertainment equipment is installed in the control and switched outlets.	13%
Computer	Computer equipment is plugged into the control and switched outlets.	8%
Other Equipment	Other equipment is plugged into the control and switched outlet.	21%
Not in use		**57%**
Not currently used	Reported that they were not currently using the power strip.	47%
Nothing in control outlet	Reported that nothing was installed in the control outlet.	4%
Nothing in switched outlet	Reported that nothing was installed in the switched outlet	6%

*n refers to the number of units purchased in the survey sample.

Table 4-6 summarizes the percentage of respondents who were using the advanced power strip by the number of power strips purchased. Although the ISR did not vary substantially, we note that on average, customers installed no more than two power strips. Given that finding and the limited

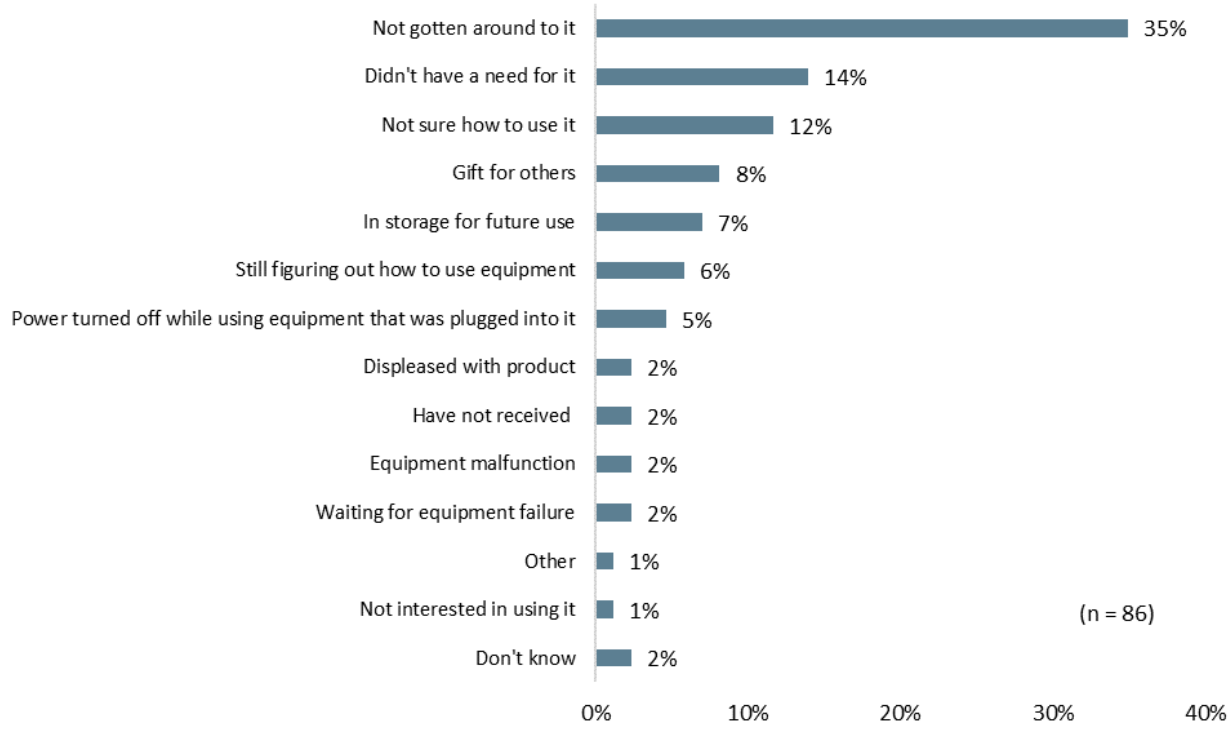
number of applications in a residence, I&M should consider limiting the number of power strips that a customer may purchase to two.

Table 4-6 APS ISR by Number Purchased

Number of APS Purchased	*Number of Respondents*	*Average Number of APS in Use*	*ISR*
1	1	0.00	0%
2	28	1.07	54%
3	23	1.78	59%
4	61	2.05	51%

Among those who had not installed all the advanced power strips (n = 86), not getting around to it was the most common reason (see Figure 4-1).

Figure 4-1 Why Customers Are Not Using the Advanced Power Strips



4.3.2. Results of Ex Post Gross Savings Estimation

ADM estimated ex post gross electric savings and peak demand reductions for the Home Energy Products Program through detailed analysis of program tracking data and participant survey data. This section presents the results of the gross savings calculation activities.

4.3.2.1. Ex Post Gross kWh Savings

Table 4-7 below shows the estimated measure-level and program-level annual gross energy savings. The gross kWh realization rate for the program is 81%.

Table 4-7 Measure-Level Annual Gross kWh Savings

Measure	*Quantity of Measures Reported*	*Ex Ante Gross kWh Savings*	*Gross Audited kWh Savings*	*Gross Verified kWh Savings*	*Ex Post Gross kWh Savings*	*Gross Realization Rate*	*Ex Post Net kWh Savings*
Ductless Heat Pump	122	612,519	612,519	612,519	639,165	104%	372,846
Air Source Heat Pump	139	132,822	132,822	132,822	248,418	187%	161,185
Ground Source Heat Pump	1	6,340	6,340	6,340	2,108	33%	1,306
ECM Fan Motor	4	1,660	1,660	1,660	1,660	100%	1,028
Heat Pump Water Heater	45	62,485	62,485	62,485	62,344	100%	38,619
Electric Resistance Water Heater	149	359,759	359,759	359,759	91,397	25%	39,621
Dehumidifier	88	15,685	15,685	15,685	16,041	102%	6,818
Variable Speed Pool Pump	5	14,860	14,860	14,860	6,037	41%	3,740
Wi-Fi Smart Thermostat	524	275,828	275,828	275,828	282,513	102%	183,351
Wi-Fi Smart Thermostat (Marketplace)	13	14,407	14,407	9,605	859	6%	716
Bathroom Aerator (Marketplace)	30	1,058	1,058	705	694	66%	694
Kitchen Aerator (Marketplace)	7	1,674	1,674	837	640	38%	640
Shower Head (Marketplace)	26	9,104	9,104	7,587	7,559	83%	7,559
Advanced Power Strips (Marketplace)	122	251,361	251,361	106,659	70,497	28%	67,684
Total	1,153	1,759,561	1,759,561	1,607,349	1,429,935	81%	885,810

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

- **Air source heat pumps (187%). F**or the large majority of air source heat pumps incented during PY2021, the criteria presented in Table 4-8 were applied in the estimation of ex ante kWh savings:

Table 4-8 Air Source Heat Pump Ex Ante kWh Savings Criteria

SEER Range of New ASHP		*Per Unit Ex Ante kWh Savings*
Minimum	*Maximum*	
N/A	<16	591
>=16	<17	650
>=17	<18	1,162
>=18	N/A	936

Explicitly accounting for unit capacity and incremental efficiency improvements in the estimated of air source heat pump savings may result in improved gross realization rates.

- **Ground source heat pumps (33%).** The ex ante energy savings calculation did not account for new unit efficiency; instead they were calculated as (*Btuh_cool* * *EFLH_heat* * (1/7.7) / 1,000), resulting in overestimation of unit energy savings.
- **Electric resistance water heater (25%).** In all cases, regardless of unit characteristics, per unit electric resistance water heater ex ante energy savings were 2,414 kWh. For reference, this estimate exceeds the ex ante energy savings for heat pump water heaters, which ranged from 823 kWh to 1,609 kWh. ADM is not clear on the source of the electric resistance water heater ex ante energy savings estimate.
- **Variable speed pool pumps (41%).** For pool pump *hp* of less than 2.0, ex ante kWh savings were set equal to *hp* * 1,185.6, and for *hp* of 2.0 or greater, ex ante kWh savings were set equal to *hp* * 2,345.15. More accurate estimates would be provided by calculating savings as equal to *hp* * 908.98 * *ESF*, where *ESF* equals 0.322 for multi-speed pumps and 0.86 for variable speed pumps.
- **Wi-fi smart thermostat (Marketplace) (6%).** Two factors affected the realization rate. First, based on survey results, ADM found an in-service rate of 67% for the marketplace thermostats. Second, of the 13 marketplace thermostats provided through the program, nine had an ex ante savings estimate of 1,523 kWh, which is a high value. As a point of comparison, the average ex ante savings for the rebated thermostats were about 1/3 of that amount at 526 kWh.
- **Bathroom aerator (66%).** The savings difference may be related to the application of the 67% in-service rate to calculation of ex post savings.
- **Kitchen aerator (38%).** While the savings difference may be related to the application of the 50% in-service rate to calculation of ex post savings, the ex ante savings per unit were too high even if the in-service rate had been 100%.
- **Advanced power strips (28%).** The ex ante savings estimate applied two values for the advanced power strips, 77 kWh per unit or 162 kWh per unit. The difference was related to the brand and model of the power strips, but the two models have the same specifications. Table 4-9 summarizes the power strip specifications. The ex post per unit savings was 103 kWh and is based on Illinois TRM 9.0 calculation. Additionally, an in-service rate of 42% was applied to the power strips.

Table 4-9 Advanced Powerstrip Model Specification

Specification	*Tricklestar TS1104*	*Simply Conserve SC73T1*
Master outlets	1	1
Always on outlets	2	2
Controlled outlets	4	4
Standby Consumption	<1W	<1W
Tier	1	1

4.3.2.2. Ex Post Gross kW Reductions

Table 4-10 below shows the estimated measure-level and program-level gross demand reduction resulting from the program. The gross kW realization rate for the program is 93%. The high kW gross realization rate for ductless heat pumps is because ex ante kW estimate was 0 in the large majority of cases for which there is a non-zero ex post kW savings estimate.

Table 4-10 Measure-Level Gross kW Reduction

Measure	*Quantity of Measures Reported*	*Ex Ante Gross kW Savings*	*Gross Audited kW Savings*	*Gross Verified kW Savings*	*Ex Post Gross kW Savings*	*Gross Realization Rate*
Ductless Heat Pump	122	1.39	1.39	1.39	63.46	4566%
Air Source Heat Pump	139	68.48	68.48	68.48	70.18	102%
Ground Source Heat Pump	1	0.97	0.97	0.97	0.38	39%
ECM Fan Motor	4	-	-	-	-	
Heat Pump Water Heater	45	7.94	7.94	7.94	8.52	107%
Electric Resistance Water Heater	149	64.79	64.79	64.79	12.48	19%
Dehumidifier	88	3.96	3.96	3.96	3.66	93%
Variable Speed Pool Pump	5	16.43	16.43	16.43	9.78	60%
Wi-Fi Smart Thermostat	524	-	-	-	-	
Wi-Fi Smart Thermostat (Marketplace)	13	-	-	-	-	
Bathroom Aerator (Marketplace)	30	0.10	0.10	0.07	0.07	65%
Kitchen Aerator (Marketplace)	7	0.19	0.19	0.10	0.03	15%
Shower Head (Marketplace)	26	0.40	0.40	0.34	0.37	92%
Advanced Power Strips (Marketplace)	122	25.77	25.77	10.93	7.91	31%
Total	1,153	190.43	190.43	175.39	176.84	93%

4.3.2.3. Supplementary Econometric Analysis

To supplement the impact evaluation, ADM utilized IPMVP Option C by performing regression analysis to assess the presence of energy savings during the period after implementation of program measures. ADM obtained monthly energy usage data of program participants from the I&M. The analysis was performed using data associated with customers with energy usage data

available for at least six months after implementation of program measures. For the Home Energy Products Program, such data was available for a total of 342 PY2021 program participants. The variables described in Table 4-11 were included in the analysis.

Table 4-11 Analysis Model Variables

Variable Name	*Variable Description*
kWh	Dependent variable; participant monthly energy use.
CDH	MAX (Outdoor Temperature - 75°F, 0) calculated hourly and averaged across month.
HDH	MAX (55°F - Outdoor Temperature, 0) calculated hourly and averaged across month.
Post	1 during post-implementation period; otherwise 0.

A mixed effects regression model was employed to estimate the incremental impact of the implementation of program measures on participant energy use (Equation 4-1).

Equation 4-1

$$kWh_{it} = \beta_0 + \beta_1 Post_{it} + \beta_2 CDH_{it} + \beta_3 HDH_{it} + e_{it}$$

Table 4-12 presents the results of the regression analysis.

Table 4-12 Parameter Estimates for Regression Model

Variable Name	*Estimate*	*Standard Error*	*Z score*	*p value*	*90% Confidence Interval*	
					Lower Bound	*Upper Bound*
CDH	0.154	0.008	20.08	0	0.141	0.167
HDH	0.017	0.001	16.23	0	0.016	0.019
Post	-90.369	18.525	-4.88	0	-120.84	-59.898
Intercept	937.103	36.456	25.71	0	877.139	997.067
Number of Observations						7,807
Number of Groups						342

Intuitively, the weather variables (*CDH* and *HDH*) have positive coefficients indicating the presence of weather-sensitive energy usage and the *Post* variable has a negative coefficient indicating lower energy use during the post-implementation period. The coefficient of *Post* indicates that average monthly energy use of Home Performance participants included in the analysis during the period after implementation of program measures is about 90 kWh lower, controlling for weather-related effects.

The energy savings estimate of 90 kWh associated with the mixed effects regression model is equal to 87% of the average monthly account-level ex post gross savings of 104 kWh for the 342

accounts included in the econometric analysis. The average monthly ex post gross kWh savings estimate is within the 90% confidence interval of the savings estimate associated with the model *Post* variable coefficient

4.4. Estimation of Ex Post Net Savings

The following section presents the methodology used to estimate the net energy impacts resulting from the Home Energy Products Program.

4.4.1. Methodology for Estimating Ex Post Net Energy 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 surveys of program participants.

The following sections discuss the approach taken to evaluate the net savings of the HVAC and appliance measures that I&M rebated through the program. ADM evaluated the net savings of the HVAC and appliance measures using data obtained through a survey of participating customers and a survey of participating HVAC contractors.

Also discussed is the approach taken to evaluate the net savings of the efficient products sold through the I&M marketplace website (online marketplace). Through the online marketplace, customers can purchase efficient measures and receive an instant discount. The measures are shipped to the customers home for free if the purchase is greater than $25, or for $8 if the order is less than $25. Table 4-13 summarizes the marketplace measures and incentives paid. As shown, the program provided incentives for most measures. Ten of the 13 purchased smart thermostats were purchased without an incentive.

ADM evaluated the net savings of the marketplace program using data collected from a survey of customers who purchased measures through the marketplace.

Table 4-13 Summary of Marketplace Measures and Incentives Paid

Measure	*Quantity Sold*	*Minimum per Unit Incentive*	*Average per Unit Incentive*	*Maximum per Unit Incentive*
Bathroom Aerator	30	$0.67	$0.67	$0.67
Kitchen Aerator	7	$1.35	$1.35	$1.35
Showerheads	26	$3.74	$6.67	$8.48
Advanced Power Strips	1,613	$10.00	$10.00	$10.00
Smart thermostat	13	$0.00	$50.30	$100.00

4.4.1.1. Methodology for Estimating Free Ridership for Rebated Appliances and HVAC Equipment

Survey respondents were asked a series of questions designed to elicit information regarding the following factors:

- Financial ability and plans and intentions to implement the efficiency measure;

- The program influence on the decision to implement the efficiency measure;
- The program's influence on the timing of the measure installation.

The calculation of a free ridership score was based on the responses to questions about the participants' prior plans and intentions, program influence on measure selection, and program influence on timing of measure implementation.

4.4.1.1.1. Financial Ability and Plans and Intentions

Two indicator variables were developed based on responses to the survey questions on plans and intentions. The first corresponds to financial ability. Respondents were considered to have not been financially able to install the efficient equipment if they answer "no" to either of the two questions below:

- FR1: Would you have been able to afford to purchase the efficient [MEASURE] if the rebate was not available from the program?
- FR2: [IF YES] Just to confirm, if the rebate was not available through the program, would you still have paid the additional cost to purchase an [EFF_MEASURE] instead of a [STAND_MEASURE]?

The second indicator variable is related to whether the customer had plans to implement the efficiency measure. Respondents were considered to have had plans if they answer "yes" to the following two questions:

- FR3: Were you planning to purchase an [EFF_MEASURE] before you learned of I&M's rebate program?
- FR4: [IF YES] Just to be clear, did you have plans to specifically purchase an [EFF_MEASURE] as opposed to a [STAND_MEASURE]?

Respondents who were found to not have plans or the financial ability to implement the measures were deemed to not be free riders.

4.4.1.1.2. Program Influence on Decision to Implement Energy Efficiency Measure

Participants were asked about the direct influence of the program on their decision to implement the energy efficiency measures. Specifically, participants were asked:

- FR5: Now we would like to know how likely you would have been to install the [MEASURE] if the program was not available. 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 [EFF_MEASURE] if you had not received the financial or information assistance through the program?

A program influence score was developed based on this response in the following manner:

$$\text{Program Influence} = FR5 / 10$$

An aspect of program influence is the indirect influence of trade allies on customer decisions. This indirect influence occurs when the program influences the recommendations made by trade allies, and the trade allies' recommendations were influenced by the program. To account for this type of

influence, customers that installed efficient HVAC equipment were asked to report on the extent to which their decisions were influenced by the recommendations provided by their contractor. Specifically, respondents were asked the following questions:

- FR7: Did the contractor that you worked with provide you with information, marketing material or a recommendation to purchase or install the [EFF_MEASURE]?
- FR8: Using a scale where 0 is "not at all influential" and 10 is "very influential, how influential was the information, marketing material, or recommendation provide by this contractor in your decision to purchase the [EFF_MEASURE]?

Participants' program influence scores were substituted with a trade ally influence score if they provide a response of 7 or greater to FR8 and that the indirect influence on the participant through the trade ally was greater than the direct influence on the participant.

The trade ally influence scores were based on the responses provided by trade allies to the following questions:

- TA1: How important is the I&M program and incentives to how much your company markets energy efficient HVAC equipment. (Rated on a 0 – 10 scale)
- TA2: How important how often your company recommends energy efficient HVAC equipment to customers. (Rated on a 0 – 10 scale)
- TA3: Thinking about the projects that you completed as part of I&M's program, if the program was not available, do you think you would have recommended the same energy efficient equipment most of the time, some of the time, or generally not at all?

The trade ally score was calculated as shown in Table 4-14.

Table 4-14 Calculation of Trade Ally Influence Score

Response to TA3	*Trade Ally Score*
Some of the time or generally not at all	1 - TA1/10
Most of the time	1 - (TA1/10)*.5

4.4.1.1.3. Program Influence on Project Timing

To account for deferred free ridership due to the program's effect on the timing of the implementation of the efficiency measure, respondents were asked the following two questions:

- Did you purchase and install the [EFF_MEASURE] sooner than you would have if the information and financial assistance from the program had not been available?
- When might you have purchased or installed the same [EFF_MEASURE] if you had not participated in the program?

Based on the responses to those questions a timing adjustment was calculated as shown in Table 4-15.

Table 4-15 Timing Adjustment Score

Likely Timing of Project in Absence of the Program	*Timing Score*
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

4.4.1.1.4. Free Ridership Scoring

For respondents that did not have plans or intentions, an overall free ridership score was developed based on the program influence score and timing score. ADM calculated an overall project free ridership score combining the scores described above (Equation 4-2).

Equation 4-2

$$Free\ Ridership = Program\ Influence * Timing\ Score$$

4.4.1.2. Methodology for Estimating Free Ridership for Online Marketplace Sales

4.4.1.2.1. Prior Plans

A score to reflect the presence of prior plans was 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 viewing products on I&M's Online Marketplace?
- Were you planning to purchase the measure before you learned that you could get an instant rebate through I&M's Online Marketplace?

Respondents who indicated 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 plans score of 0 and all other respondents were assigned a plans score of 1.

4.4.1.2.2. 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 purchased the same measure at about the same time if you could not have received the instant rebate through the I&M Online Marketplace? [Rated on a 0 – 10 Scale]

4.4.1.2.3. 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 4-15 shows how the score was developed.

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.

4.4.1.2.4. Free Ridership Scoring

ADM calculated an overall project free ridership by combining the scores described above (Equation 4-3).

Equation 4-3

$$\textit{Free Ridership} = \textit{Prior Plans Score} * \textit{Program Influence} * \textit{Timing Score} * \textit{Quantity Adjustment}$$

4.4.1.3. 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 for which they did not receive a program incentive. Respondents were also asked to provide information on the attributes of the measures implemented for use in estimating the associated energy savings.

Participants who reported implementing on one or more efficiency measures were 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 [PROGRAM] 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 participated in the [PROGRAM]?

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.

4.4.1.4. Methodology for Estimating Non-Participant Spillover

Section 6.3 describes the methodology used to estimate non-participant spillover.

4.4.2. Results of Ex Post Net Savings Estimation

The ex post annual net energy savings and ex post net demand reductions resulting from the PY2021 Home Energy Products Program are reported in the following sections.

4.4.2.1. Free Ridership Results

Table 4-16 and Table 4-17 summarize the number of survey responses and average free-ridership scores by measure for the Home Energy Products Program.

Table 4-16 Survey Response Count and Average Free Ridership Score by Measure – Appliance and HVAC

Measure	*Survey Response Count*	*Average Free Ridership*
High efficiency water heater	10	57%
Wi-fi smart thermostat	21	35%
High efficiency ductless heat pump	12	42%
Air source heat pump	13	35%
ENERGY STAR dehumidifier	8	58%

Table 4-17 Survey Response Count and Average Free Ridership Score by Measure – Online Energy Marketplace

Measure	*Survey Response Count*	*Average Free Ridership Score*
Advanced Power Strips	93	4%
Smart Thermostats	3	17%
High Efficiency Kitchen Faucet Aerators	1	0%
High Efficiency Showerheads	2	0%
High Efficiency Bathroom Faucet Aerators	1	0%

4.4.2.2. Participant Spillover Results

No participant spillover was identified for the Home Energy Products Program.

4.4.2.3. Non-Participant Spillover Results

No non-participant spillover was identified for the residential sector.

4.4.2.4. Ex Post Net Savings

Table 4-18 summarizes the ex post annual net kWh and kW savings of the Home Energy Products Program. Program-level annual net savings totaled 885,810 kWh, and the net-to-gross ratio is 62%.

Table 4-18 Program-Level Annual Net kWh and kW Savings

Category	*kWh*	*kW*
Ex Ante Gross Savings	1,759,561	190.43
Gross Audited Savings	1,759,561	190.43
Gross Verified Savings	1,607,349	175.39
Ex Post Gross Savings	1,429,935	176.84
Gross Realization Rate	81%	93%
Ex Post Free Ridership	544,125	67.73
Ex Post Non-Participant Spillover	0	-
Ex Post Participant Spillover	0	-
Ex Post Net Savings	885,810	109.11
Net-to-Gross Ratio	62%	62%
Ex Post Net Lifetime Savings	9,495,527	na

Table 4-19 presents the information on the subset of program savings associated with the Online Marketplace. The annual net savings totaled 77,294 kWh, and the net-to-gross ratio is 96%.

Table 4-19 Online Marketplace Annual Net kWh and kW Savings

Category	*kWh*	*kW*
Ex Ante Gross Savings	277,604	26.47
Gross Audited Savings	277,604	26.47
Gross Verified Savings	125,392	11.44
Ex Post Gross Savings	80,250	8.38
Gross Realization Rate	29%	32%
Ex Post Free Ridership	2,956	0.32
Ex Post Non-Participant Spillover	0	-
Ex Post Participant Spillover	0	-
Ex Post Net Savings	77,294	8.06
Net-to-Gross Ratio	96%	96%
Ex Post Net Lifetime Savings	573,469	na

4.5. Efficient Products Online Marketplace Customer Feedback

The following sections summarize customer feedback on their online marketplace purchase experience.

Products Purchased

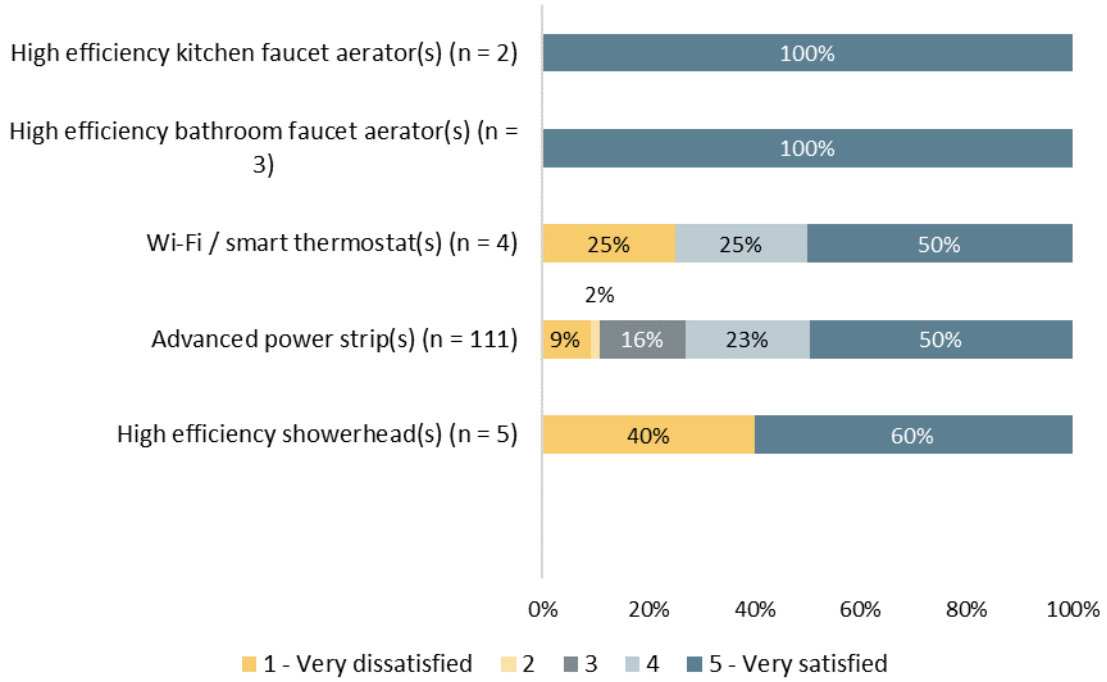
Among the customers surveyed, most who responded had purchased advanced power strips (97%), followed by showerheads and smart thermostats.

Customer Satisfaction

Customers who purchased efficient products from the marketplace were generally satisfied with their purchase experience, with 77% indicating they were very or somewhat satisfied. Among those that were dissatisfied with their experience, not receiving the item, quality of measure, slow shipment, product not functioning correctly, and lack of customer service were all cited as reasons for their dissatisfaction.

Figure 4-2 provides details about satisfaction with the measures purchased. All respondents were satisfied with the kitchen and bathroom aerators, 75% were satisfied with their smart thermostat purchase, 73% were satisfied with their advanced power strip purchase, and 60% were satisfied with their showerhead purchase. However, the one respondent who purchased LED light bulbs indicated they were very dissatisfied with their purchase.

Figure 4-2 Customer Satisfaction with Purchased Measures

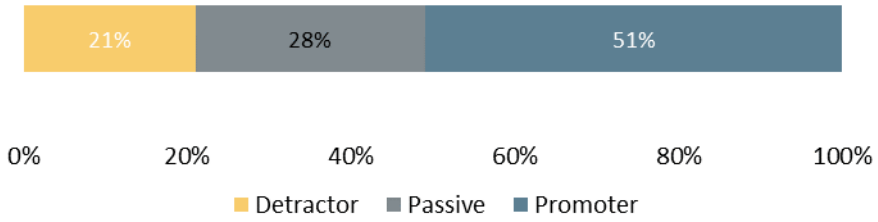


Net Promoter Score

The net promoter score for the efficient product online marketplace was 30%[9]. Over half of the survey respondents were considered promoters of the program (see Figure 4-3).

[9] [9] The net promoter score® is equal to the % of Promoters - % of Detractors. Promoters are respondents who rate the likelihood of recommending the service as 9 or higher on a 0-10 point scale. Detractors are those who rate it as 6 or lower on the same scale.

Figure 4-3 Net Promoter Score



4.6. Findings and Recommendations

The participant survey found that all removable rebated measures available through the products component of the program were installed and still in operation at the time of the survey.

Customers purchased up to four advanced power strips, a quantity that may be too high for typical residential settings. Residential customers most commonly have two applications for power strips: controlling audio visual equipment and controlling home computing/office equipment. Additionally, on average, customers who had purchased four power strips were using two of them.

- **Recommendation 1:** Consider limiting customers to the purchase of no more than two advanced power strips.

Econometric analysis of the impacts of the measures corroborated the program ex post program savings. The energy savings estimate of 90 kWh associated with the mixed effects regression model is equal to 87% of the average monthly account-level ex post gross savings of 104 kWh for the 342 accounts included in the econometric analysis. The average monthly ex post gross kWh savings estimate is within the 90% confidence interval of the savings estimate associated with the model Post variable coefficient.

Most customers (77%) were satisfied with their online marketplace purchase experience, and more than half were considered net promoters. About one in five respondents were detractors[10] of the program suggesting there may still be some opportunity to improve customer's experience with the online marketplace. The survey did not ask a follow-up question that would inform the program how to improve satisfaction among detractors, therefore it is unclear what specific changes are needed.

[10] The net promoter score is equal to the % of Promoters - % of Detractors. Promoters are respondents who rate the likelihood of recommending the service as 9 or higher on a 0-10 point scale. Detractors are those who rate it as 6 or lower on the same scale.

5. Home Energy Management

This chapter presents the results of both the impact and process evaluations of the 2021 Home Energy Management (HEM) program that Indiana Michigan Power (I&M) offered to its residential customers during the period of March 2021 through December 2021.

The objectives of the evaluation were to:

- Estimate the maximum achieved demand reduction (kW) in summer 2021;
- Estimate energy (kWh) impacts associated with demand response events, inclusive of shoulder periods;
- Complete a process evaluation of the program; and
- Provide recommendations for program improvement as appropriate.

5.1. Program Description

HEM is a demand response program that provides I&M residential customers the opportunity to enroll their smart thermostat to participate in demand response events. Enrolling customers receive a $25 enrollment incentive (up to two incentive payments per account may be received for multiple thermostats) and may earn a $2.40 bill credit for each event they participate in for at least 50% of the duration of the event.

Events may occur on weekdays during the months of May through September. Events typically last 2-3 hours but may last 6 hours. Up to 15 events may be called during the year. To qualify, would-be participants:

- Must be an I&M residential customer.
- Use an eligible internet-connected thermostat for cooling.
- Have continuous Wi-Fi/internet.
- Have central air conditioning.

Currently, select Ecobee and Honeywell thermostats qualify for the program.

5.2. Data Collection

5.2.1. Runtime Data, Location Specific Weather, and HVAC Specifications

To support estimation of program energy impacts, ADM analyzed HVAC unit runtime data, interval energy usage data, and location-specific weather for samples of program participants.

5.2.2. Customer Surveys

Customer surveys were conducted using a sample frame of participating customers. The sample size requirement was calculated to meet 90% confidence and 10% precision (90/10). To determine

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

$$n_0 = \left(\frac{1.645 * CV}{TP}\right)^2$$

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 exceeded this sampling target with a sample of 89 participants.

5.2.3. Staff Interviews

ADM interviewed the I&M Energy Efficiency Residential Accounts Manager. The purpose of the interview was to collect information on changes to program design or operating procedures, as well as to understand any challenges or key successes that occurred during the year.

5.3. Estimation of Ex Post Gross Savings

The following section presents the methodology that was used for estimating the gross energy and demand impacts resulting from the HEM program.

5.3.1. Methodology for Estimating Ex Post Gross Energy Savings

Participating customers had either Ecobee or Honeywell thermostats. For the first two program events, during June 29, 2021, and July 27, 2021, there were only event participants with Honeywell thermostats. Table 5-1 presents a summary of participation levels by event date and thermostat type.

Table 5-1 Event Participation Level by Event Date and Thermostat Type

Event Date	Count of Customers Receiving Event Incentive by Thermostat Type			Total
	Ecobee	Honeywell	Ecobee and Honeywell	
6/29/2021	-	301	-	301
7/27/2021	-	307	-	307
7/28/2021	2,356	331	1	2,688
8/10/2021	2,413	346	1	2,760
8/24/2021	2,287	350	1	2,638
8/25/2021	2,344	367	1	2,712
8/26/2021	2,363	359	1	2,723

For Ecobee thermostats, device-level HVAC run-time data was available for the entirety of the cooling season for the large majority of devices. This data was not available for Honeywell thermostats. Because only customers with Honeywell thermostats participated in the first two seasonal event days, it was necessary to rely on AMI interval usage data that was available for a minority of event participants. Table 5-2 presents counts of event participants for which run-time data, AMI energy usage data, or both run-time and AMI energy usage data were available, or for which neither type of data were available and complete.

Table 5-2 Data Availability by Event Date and Data Source

Event Date	*Count of Customers Receiving Event Incentive by Data Availability*				*Total*
	Run-Time Only	*AMI Interval Only*	*Both Run-Time and AMI Interval*	*No/ Incomplete Data Available*	
6/29/2021	-	7	-	294	301
7/27/2021	-	8	-	299	307
7/28/2021	1,936	9	50	693	2,688
8/10/2021	1,990	12	51	707	2,760
8/24/2021	1,858	20	49	711	2,638
8/25/2021	1,942	17	50	703	2,712
8/26/2021	1,956	18	48	701	2,723

Peak reduction and energy savings for each event were calculated using runtime or AMI energy usage data for a subsample of 2,107 of the participating devices for which seasonal data were available.

To support estimation of sampling precision, the coefficient of variation (CV) is calculated as the standard deviation of hourly unit operating run-time during event hours divided by average hourly unit operating run-time during event days – here, CV is calculated as 1.18. A sample size n supporting estimation of savings at the 90% confidence level may be calculated as:

$$n = (1.645 * cv / D)^2$$

where:

n = desired sample size
cv = coefficient of variation (1.18)
D = desired statistical precision (0.1)

Given the calculated coefficient of variation, estimation of savings with +/-10% statistical precision at a 90% confidence level calls for a sample of 334 devices:

$$(1.645 * 1.18 / 0.1)^2 = 377$$

The season-level sample of 2,107 devices exceeds this threshold.

5.3.1.1. Baseline Runtime Calculation

Depending on whether or energy usage or run-time data was referenced, either the baseline runtime or baseline energy usage was estimated for each participant by hour using a regression model of runtime vs a construct known as the weighted temperature humidity index (WTHI). This method, which was originally proposed by PJM, is often used in M&V efforts to estimate residential direct load control.

Temperature and humidity measurements from the closest regional weather station to each participant were used. WTHI is calculated as shown in Equation 5-1 from the temperature humidity index (THI) from the current and previous days. THI, as shown in Equation 5-2 is calculated from the temperature and humidity. The maximum daily WTHI was used in the analysis.

Equation 5-1

$$WTHI = \frac{4 * THI_{Current\,Day} + THI_{Previous\,Day}}{5}$$

Equation 5-2

$$THI = Temperature_{\circ F} - .55 * \left(1 - \frac{\%\ Relative\ Humidity}{100}\right) * (Temperature_{\circ F} - 58.0)$$

Regression models (Equation 5-3 and Equation 5-4) were generated for each hour using hourly ending runtime or energy usage data for non-event days from June through September and the WTHI data. The estimated runtime or energy usage could then be calculated using the slope, intercept, and WTHI for event days to generate baseline runtimes or energy usage on event days by day and hour for each participant. Regression models were only generated for participants that had greater than 20 days of non-event data, to increase the stability of the models.

Equation 5-3

$$Runtime = Slope * WTHI + Intercept$$

Equation 5-4

$$kWh = Slope * WTHI + Intercept$$

5.3.1.2. kW and kWh Savings Calculation

For savings associated with the June 29, 2021, and July 27, 2021 events, energy savings were directly estimated via the regression equation specified in Equation 5-4. For the other event days, because ADM used runtime data, average participant full load cooling kW was estimated to facilitate conversion of run-time to kW and kWh savings.

For the subset of event participants having both run-time and AMI energy usage specified in, Equation 5-5 was applied to model the relationship between cooling run-time and hourly energy usage:

Equation 5-5

$$kWh = Slope * Runtime + Intercept$$

Application of the model resulted in an estimated average cooling full load of 2.46 kW – that is, on average, 100% cooling run-time will result in incremental energy usage of 2.46 kWh every hour.

For events other than those that occurred on June 29, 2021, and July 27, 2021, the average baseline and actual runtimes by hour were calculated over all the participants with runtime data for each event day. A normalization constant, which is calculated as the ratio of the average actual and baseline runtimes two hours before the event, was applied to the baseline runtimes to account for any differences between the groups.

The runtime reduction for each event hour on event days was calculated by taking the difference between the normalized-baseline run time and actual run time (Equation 5-6).

Equation 5-6

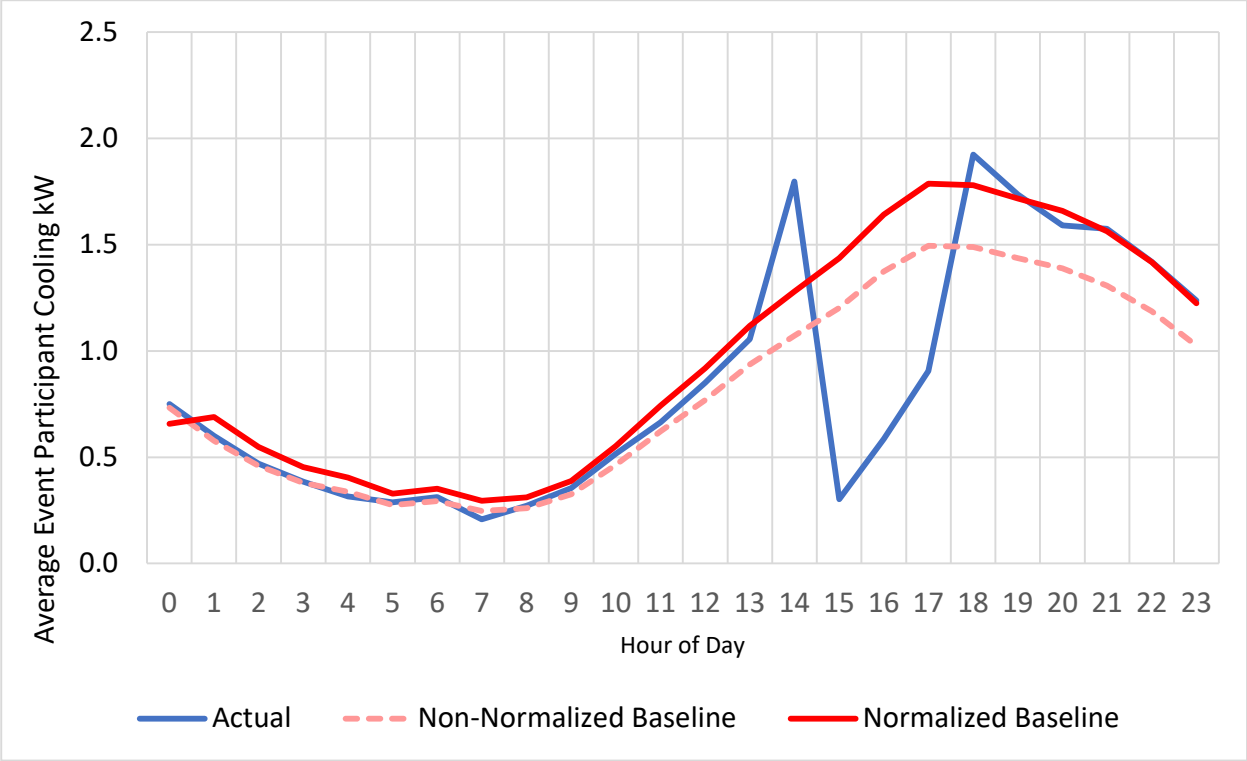
$$runtime\ reduction = \frac{(runtime_{baseline} - runtime_{actual})}{runtime_{baseline}}$$

Hourly kW reduction per unit was calculated for each unit by factoring the runtime reduction by the average unit kW per unit (2.46).

For the June 29, 2021, and July 27, 2021 events, the average baseline and actual hourly kWh were calculated over all the participants with AMI energy usage data for each event day. A normalization constant, which is calculated as the ratio of the average actual and baseline energy usage two hours before the event, was applied to the baseline energy usage to account for any differences between the groups.

For the 7/28/2021 event, an example of the plotted normalized baselines and actual runtime, multiplied by the applicable factor to show in terms of energy, is shown in Figure 5-1.

Figure 5-1 Event Plot Example: July 28, 2021



5.3.1.3. Effective Useful Life and Incremental Cost

Savings are applicable to the program year in which program events occur.

No incremental costs are incurred as a result of program participation.

5.3.2. Results of Ex Post Gross Savings Estimation

This section presents the ex post annual gross energy savings and ex post gross demand reductions resulting from the 2021 Home Energy Management Program.

I&M initiated seven load management events during the summer of 2021. As shown in Table 5-3 below, the Company was successful in initiating events that coincided with three of the five I&M coincident peak (CP) days.

Table 5-3 Demand Response Event Times

Date	*Event Start Time*	*Event Stop Time*	*Event Coincident with I&M 5CP*	*I&M Coincident Peak Occurred During Hour Ending*
6/29/2021	2:00 PM	5:00 PM	No	N/A
7/27/2021	2:00 PM	5:00 PM	No	N/A
7/28/2021	3:00 PM	6:00 PM	Yes	4:00 PM
8/10/2021	2:00 PM	5:00 PM	Yes	3:00 PM
8/24/2021	2:00 PM	5:00 PM	No	N/A
8/25/2021	2:00 PM	4:00 PM	No	N/A
8/26/2021	2:00 PM	4:00 PM	Yes	3:00 PM

The demand reductions were calculated for each event hour. Aggregate hourly results are provided below in Table 5-4 for both the demand response events, as well as the one-hour precooling and one-hour snapback period following the event. In the table below, non-event hours are represented with gray fill, and I&M 5CP hours corresponding with events are represented with red font.

Table 5-4 kW Reductions for Event Days by Hour

Hour	*1:00 PM - 2:00 PM*	*2:00 PM - 3:00 PM*	*3:00 PM - 4:00 PM*	*4:00 PM - 5:00 PM*	*5:00 PM - 6:00 PM*	*6:00 PM - 7:00 PM*	*Event-Level Mean Hourly kW Reduction*	*Maximum Event Hour kW Reduction*
6/29/2021	-255.13	399.27	358.43	456.05	10.47		404.58	456.05
7/27/2021	-175.11	391.90	405.06	426.88	94.66		407.95	426.88
7/28/2021		-1,390.02	3,046.55	2,839.03	2,366.04	-385.04	2,750.54	3,046.55
8/10/2021	-1,630.51	3,122.69	2,868.02	2,648.00	-310.39		2,879.57	3,122.69
8/24/2021	-1,311.17	3,673.47	3,327.48	2,937.82	23.77		3,312.92	3,673.47
8/25/2021	-1,489.58	3,450.27	3,135.96	35.53			3,293.11	3,450.27
8/26/2021	-2,028.03	2,733.63	2,605.10	-406.79			2,669.37	2,733.63

Table 5-5 presents average participant demand reductions for each event hour.

Table 5-5 Average Participant kW Reductions for Event Days by Hour

Hour	1:00 PM - 2:00 PM	2:00 PM - 3:00 PM	3:00 PM - 4:00 PM	4:00 PM - 5:00 PM	5:00 PM - 6:00 PM	6:00 PM - 7:00 PM	Event-Level Mean Hourly kW Reduction	Maximum Event Hour kW Reduction
6/29/2021	-0.85	1.33	1.19	1.52	0.03		1.34	1.52
7/27/2021	-0.57	1.28	1.32	1.39	0.31		1.33	1.39
7/28/2021		-0.52	1.13	1.06	0.88	-0.14	1.02	1.13
8/10/2021	-0.59	1.13	1.04	0.96	-0.11	1.15	1.04	1.13
8/24/2021	-0.50	1.39	1.26	1.11	0.01		1.26	1.39
8/25/2021	-0.55	1.27	1.16	0.01			1.21	1.27
8/26/2021	-0.74	1.00	0.96	-0.15			0.98	1.00

A summary of the aggregate demand reductions occurring during I&M 5CP hours is presented below in Table 5-6.

Table 5-6. Summary of kW Reductions during I&M 5CP Events

Date	Hour Start	Hour End	Ex Post Net kW Savings
7/28/2021	3:00 PM	4:00 PM	3,046.55
8/10/2021	2:00 PM	3:00 PM	3,122.69
8/23/2021	3:00 PM	4:00 PM	0.00
8/24/2021	1:00 PM	2:00 PM	0.00
8/26/2021	2:00 PM	3:00 PM	2,733.63
Maximum Peak kW Reduction			3,122.69
Average Peak kW Reduction			2,967.63

The energy savings associated with each event day are presented in Table 5-7. Summing the energy savings across all events during PY2021 results in energy savings of 31,974 kWh.

Table 5-7 kWh Savings During Event Days

Event	Event kWh Saving (a)	Shoulder Hour kWh (b)	kWh Savings (a + b)
6/29/2021	1,214	(245)	969
7/27/2021	1,224	(80)	1,143
7/28/2021	8,252	(1,775)	6,477
8/10/2021	8,639	(1,941)	6,698
8/24/2021	9,939	(1,287)	8,651
8/25/2021	6,586	(1,454)	5,132
8/26/2021	5,339	(2,435)	2,904
Total	41,192	(9,217)	31,974

5.3.2.1. Ex Post Gross kWh Savings

Table 5-8 below shows the estimated program-level annual gross energy savings resulting from the program.

Table 5-8 Program-Level Annual Gross kWh Savings

Ex Ante Gross kWh Savings	*Gross Audited kWh Savings*	*Gross Verified kWh Savings*	*Ex Post Gross kWh Savings*	*Gross Realization Rate*
-	-	-	31,974	N/A

5.3.2.2. Ex Post Gross kW Reductions

Table 5-9 below shows the estimated program-level ex post gross peak kW reduction resulting from the program. The overall gross kW realization rate for the program is 128%.

Table 5-9 Program-level Gross kW Reduction

Ex Ante Gross kW Savings	*Gross Audited kW Savings*	*Gross Verified kW Savings*	*Ex Post Gross kW Savings*	*Gross Realization Rate*
2,327.29	2,327.29	2,327.29	2,967.63	128%

5.4. Estimation of Ex Post Net Savings

5.4.1. Methodology for Estimating Ex Post Net Impacts

The kW and kWh savings estimated using the procedures outlined in section 5.3.1 are net savings estimates. The impacts could not occur without the I&M program infrastructure to adjust the participant cooling equipment use during the events. In addition to free ridership, ADM's net impact estimates include an adjustment for non-participant spillover.

5.4.2. Ex Post Net kWh and kW Savings

Table 5-10 summarizes the net ex post kWh and kW savings of the HEM Program. The annual net savings totaled 31,974 kWh and 2,967.63 kW. The net-to-gross ratio is 100%.

Table 5-10 Program-Level Net kWh and kW Savings

Category	*kWh*	*kW*
Ex Ante Gross Savings	0	2,327.29
Gross Audited Savings	0	2,327.29
Gross Verified Savings	0	2,327.29
Ex Post Gross Savings	31,974	2,967.63
Gross Realization Rate	N/A	128%
Ex Post Free Ridership	0	0.00
Ex Post Non-Participant Spillover	0	0
Ex Post Participant Spillover	0	0
Ex Post Net Savings	31,974	2,967.63
Net-to-Gross Ratio	100%	100%
Ex Post Net Lifetime Savings	31,974	n/a

5.5. Process Evaluation

The following sections summarize the findings of the process evaluation of the HEM Program.

5.5.1. Process Evaluation Findings

The following sections summarizes findings on program operations and design based on interviews and discussions with the I&M Energy Efficiency Residential Accounts Manager and the Program Coordinator and a review of program documents.

5.5.1.1.1. Program Design and Operations

The HEM program is known to I&M customers as the I&M Power Rewards: Smart Thermostat. The program enrolls customers with Ecobee or Honeywell smart thermostats to participate in demand reduction during peak events. Customers receive an initial $25 incentive for enrolling in the program and can earn $2.40 bill credit for each event they participate in throughout the summer months. I&M will call a peak event based on weather forecasts and high energy usage.

The HEM program provides a $25 enrollment incentive, bill credits, and the energy saving opportunity to motivate customer participation. Potential barriers to participation include hesitation about I&M controlling their smart thermostat and potential discomfort arising from the reduced air conditioning. Additionally, staff noted that some customers with health issues are not suited for the program and the website includes a warning about potential health impacts.

Participants can see on their device or app if an event is occurring and are typically alerted the morning of the event. Peak events are also posted on the I&M website. If a customer chooses, they can opt out of the peak event from their smart thermostat, mobile device, or web app. If a customer participates in more than half of the event, they will receive the $2.40 bill credit.

5.5.1.1.2. Program Awareness and Enrollment

Many customers learn about the HEM program from the smart thermostat manufacturers (Honeywell and Ecobee) app alerts. I&M customers can also learn about the program from their Electric Ideas website (electricideas.com/at-home/rebates/im-power-rewards-smart-thermostat/) and the program is cross promoted through other residential programs.

I&M staff indicated that the enrollment process for the smart thermostats program is easy and more streamlined compared to the legacy program. Customers can click the "Enroll Now" button on the Electric Ideas website that will redirect them to enrollmythermostat.com portal which is hosted by their vendor (EnergyHub). Customers can also enroll through their mobile device app. If customers sign up through an app, Honeywell or Ecobee will autofill most of the customer information leaving the customer to enter their name and address. Once a customer enrolls in the program, their information is sent to I&M to verify they are a customer. If a customer has a technical issue or trouble signing up, they can call the EnergyHub call center or email I&M.

The HEM program enrolled I&M Home legacy participants. The legacy program had approximately 3,000 customers, but there were some customers who could not be matched up to the vendor database because either they were no longer customers, their thermostat was offline or it could not connect to the vendor database for some other reason. Additionally, I&M enrolls between 20 and 60 new participants per week. I&M stated there has been an increased number of customers who enrolled in the program this year and they attributed it to the improvements in the enrollment process. Additionally, device manufacturers market the availability of the program.

5.5.1.1.3. Tracking Systems

I&M indicated they can track and monitor various indicators for the HEM program. These include:

- the demand response reduction overall for all the customers;
- the number of customers that can connect to an event;
- the number of customers that opt out and the timing for when they opted out;
- if precooling was employed prior to the event; and
- the unenrollment numbers.

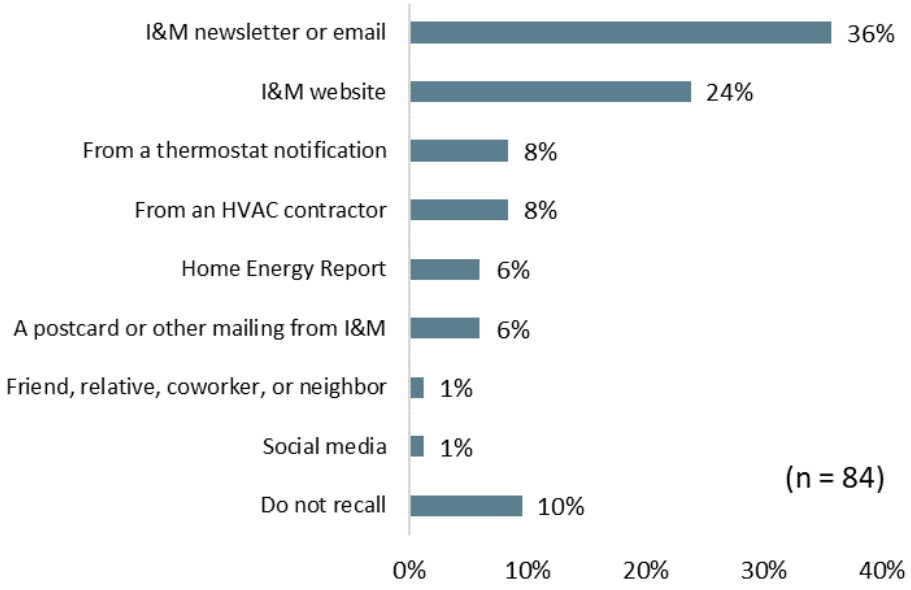
5.5.1.2. Participant Survey Findings

The following sections summarize insights regarding program awareness, peak events, participant satisfaction, and demographics.

Program Awareness and Participation

I&M newsletters, emails, and website drove program activity. Survey respondents provided feedback about how they learned about the HEM program. Most learned about the program through a newsletter or email from I&M (36%) or from the I&M website (24%). Figure 5-2 summarizes the channels that participants learned of the program.

Figure 5-2 Initial Source of Program Awareness



Program participants rated the enrollment process as easy. Sixty-five percent of respondents rated the process of enrolling their thermostat in the program as very easy, followed by 26% who found it somewhat easy and 8% who said neither easy nor difficult.

Customers were motivated to participate to save on energy costs and by the incentive. Sixty eight percent of participants indicated they participated to save on energy costs, followed by 62% who stated they liked receiving bill credits, and 45% who were interested in reducing energy usage for environmental reasons. Table 5-11 shows more details.

Table 5-11 Reasons for Participation

Response	*Percentage of Respondents (n = 84)*
To save on energy costs	68%
The bill credits/enrollment incentive	62%
To reduce energy use for environmental reasons	45%
The opportunity to participate in an energy savings program	43%
Program was recommended to me by I&M	8%
Other (e.g., past participation, subsidized smart thermostat)	4%

Most survey respondents (87%) did not have concerns about participating in the HEM program while 13% indicated they did have some. These concerns included being uncomfortable during events (55%), the utility having the ability to control or shut off the air conditioning (82%), not being able to control the temperature (64%), and issues around privacy and security (45%).

Participants who had questions about the program sought out information on the program website and information provided by I&M through an email or newsletter. Additionally, information from an I&M flyer, mailer, or representative were also ways that customers learned

about how the program worked. Among those who viewed information beforehand, 77% indicated that the information somewhat or completely addressed any questions they may have had prior to deciding to participate. Those who did not feel like the information addressed the questions they had provided feedback. One respondent indicated they would have liked to see a detailed description of the program. Another respondent believed there were too many events and left the program.

Peak Events

Many customers were home all or most of the time when peak events occurred. Most respondents (67%) were at home during a peak event when the cooling from the air conditioner was reduced. Thirty-five percent of survey respondents indicated that someone was home all the time during a peak event, followed by 21% who indicated more than half the time (see Table 5-12).

Table 5-12 How Often Someone Was Home During an Event

Response	*Percentage of Respondents (n = 84)*
Never	4%
Less than half the time	14%
About half of the time	8%
More than half of the time	21%
All of the time	35%
Do not recall	18%

Among the 27% of participants who recalled opting out of an event, home comfort and temperature were the main reasons why they adjusted their thermostat.

Participants reported modest comfort impacts during the event. Among those who were home, 48% stated their home was a little uncomfortable during the event, followed by 13% who stated it was moderately uncomfortable and another 13% who said it was very uncomfortable. Twenty-seven percent indicated there was not a change in the comfort of their homes.

Program participants generally agreed that reducing electricity usage during times when demand is highest will make the grid more reliable, reduce greenhouse gas emissions, and lower utility costs (Figure 5-3). As shown in Figure 5-4, a smaller share of non-participants perceived these benefits.

Figure 5-3 Perceived Benefits Reducing Electricity Usage during High Demand Periods

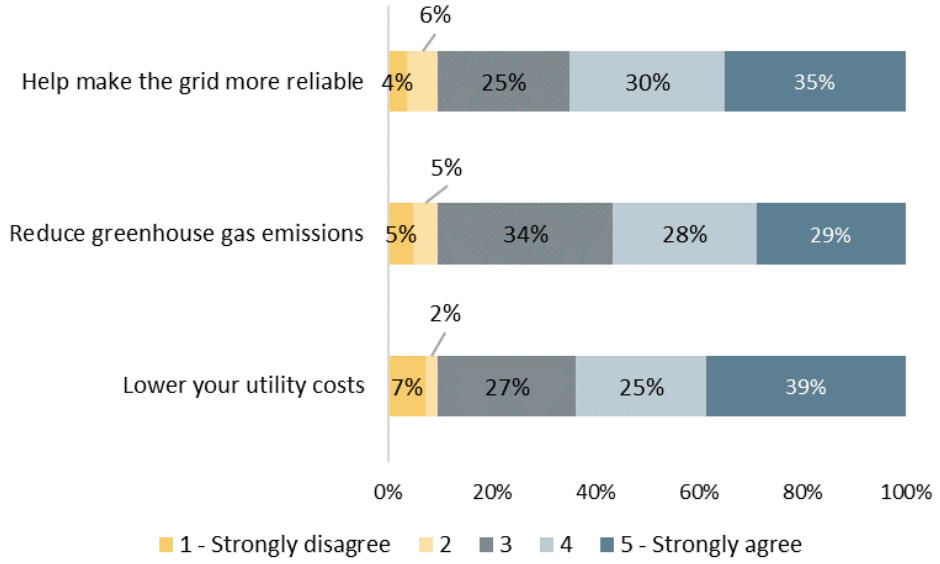
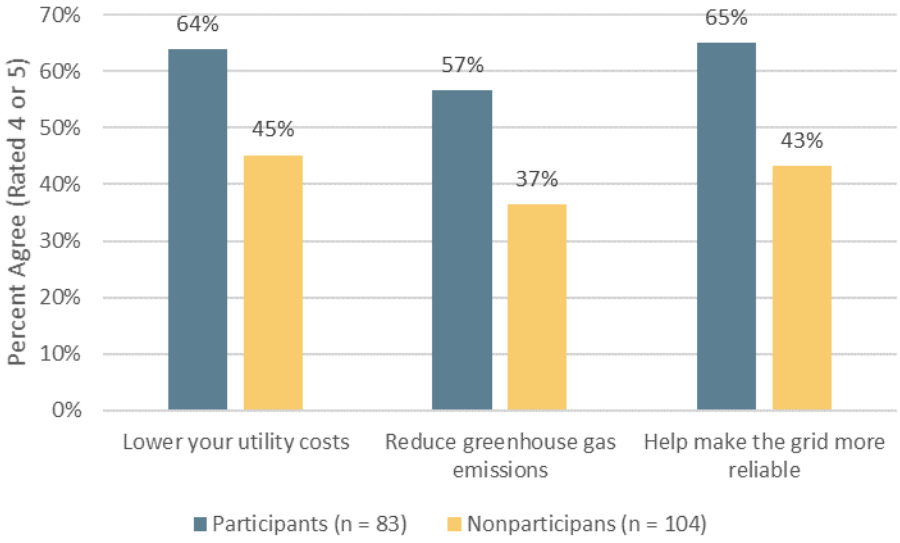


Figure 5-4 Perceived Benefits Reducing Electricity Usage during High Demand Periods (Participant and Non-Participant Comparison)



The number of peak events met 38% of participants expectations, followed by 23% who stated it was fewer than they expected and 5% who said it was more than expected. Thirty-five percent said they were not sure. Survey respondents provided feedback on how many events

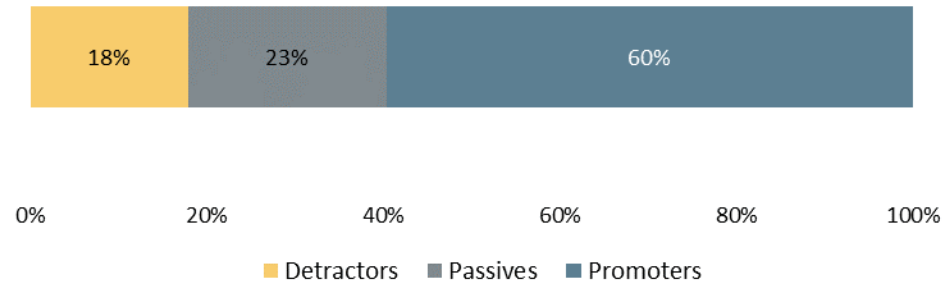
they were expected, which ranged from daily to only a couple. On average, respondents were expecting approximately nine events for the duration of the summer.

Forty-three percent of survey respondents stated the number of events was acceptable, followed by 39% who said there were too few events and 17% who said there too many. Survey respondents provided feedback on what they believed to be an acceptable number of events. The number of events ranged from ten to as many needed to save energy.

Net Promoter Score

Most respondents indicated they would recommend the program to others and participate again. Most respondents (58%) indicated they were very likely to particip Addressed. ate in the program next year and 60% were considered promoters. The overall net promoter score for the program was 42%[11] (see Figure 5-5).

Figure 5-5 Net Promoter Score



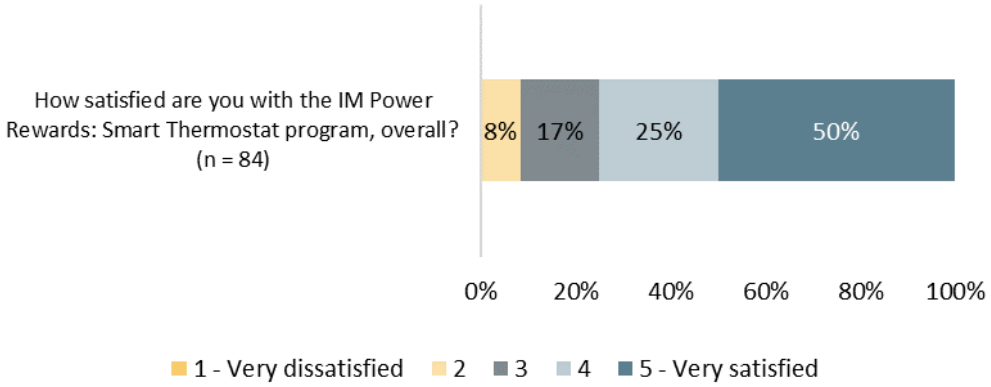
Program Satisfaction

Few respondents interacted with I&M staff. Most (98%) survey respondents did not have contact with I&M staff about the program. Among the two respondents who did have interactions, all were very satisfied with the response from I&M staff.

Most respondents were satisfied with the smart thermostat program. Seventy-five percent of survey respondents were very or somewhat satisfied with the HEM program (Figure 5-6). Respondents who were dissatisfied with the program provided feedback. Not enough savings, incentive amount, or comfort levels were cited by customers as their reasons for being dissatisfied with the program.

[11] The net promoter score® is equal to the % of Promoters - % of Detractors. Promoters are respondents who rate the likelihood of recommending the service as 9 or higher on a 0-10 point scale. Detractors are those who rate it as 6 or lower on the same scale.

Figure 5-6 Satisfaction among Program Participants



Program participants provided several suggestions to improve the offering. Suggestions included improving communications around the peak events, more upfront information to participants about how the program works, information about peak events and rates, allow the Google Nest thermostat into the program, shorter peak events time periods, providing information to participants on how much energy they saved during an event, and increasing the incentive amounts.

5.6. Findings and Recommendations

5.6.1. Conclusions

The enrollment incentive, and the prospect of saving energy and receiving the bill credit, motivate customers to participate in the HEM program. Saving energy and receiving bill credits also encourages participation. Survey results indicated that 81% of customers were motivated to participate to save on energy costs and 69% were motived by bill credits and/or the enrollment incentive. According to I&M staff, some customers do not like their home temperature to vary and try to alert customers that home comfort could be an issue if they choose to participate in the program. However, most survey respondents (69%) did not have concerns about participating in the HEM program.

I&M newsletters, emails, and thermostat notifications drove program activity. Most survey respondents indicated that they learned about the program from an I&M newsletter or email, followed by the I&M website. Many customers learn about the HEM program from the smart thermostat manufacturers (Honeywell and Ecobee) app alerts. I&M customers also learn about the program from their Electric Ideas website. The program is cross promoted through other residential programs.

Most HEM participants were satisfied with the program, reported it was easy to participate in, and few opted out of events. Most respondents (58%) indicated they were very likely to participate in the program next year and 60% of respondents were considered promoters, that is they would likely recommend the program to friends and family. Almost all participant survey

respondents (94%) rated the process of enrolling their thermostat in the program as very or somewhat easy. And, just one in five respondents recalled opting out of a peak event in 2021 and of those who opted out, most did so because the home was getting too uncomfortable.

A larger share of HEM participants agreed there were benefits to lowering utility costs, reducing greenhouse gas emissions, and helping make the grid more reliable than I&M non-participants. This finding suggests that customers enrolling customers are more likely to perceive benefits aside from the program financial incentives.

- **Recommendation 1:** Include benefits aside from the enrollment incentive and bill credits to encourage customers to enroll.

The non-participant survey (section 6.4) found that there are many I&M customers that would be willing to participate in DR events. More than two-thirds of nonparticipant respondents indicated they would at least consider participating in DR events suggesting they would participate in the HEM program, especially if enticed by incentives. Relatively few of these customers (5%) were aware of the IM Rewards: Thermostat service and 56% did not own a smart thermostat.

- **Recommendation 2:** Continue to advertise and promote the incentives associated with participating in the HEM program and look for new opportunities to promote the program to those that may not have heard of the program. For example, because advertisements through manufacturer apps (Honeywell and EcoBee) was a common way participants learned about the program, look to partner with other manufacturers.

6. Non-Participant Survey

The following sections describe the residential non-participant survey objectives and methodology.

6.1. Survey Objectives

The survey of nonparticipating customers is intended to meet multiple objectives:

- Characterize levels of program awareness;
- Gauge interest in demand response programs; and
- Estimate non-participant spillover.

6.2. Sample Description and Procedures for Fielding the Survey

ADM administered an online survey to a random sample of non-participant customers. ADM identified a population of non-program participants by matching current account records to account numbers that participated in the residential programs in 2019 – 2021 (November). Specifically, accounts were treated as non-participating accounts if the account was not listed in program tracking data for that period. In total, 107 customers completed the survey.

Table 6-1 Summary of Residential Non-participant Survey Response

Survey	*Mode*	*Time Frame*	*Number of Contacts*	*Number of Completions*
Residential Non-participant Survey	Online	December 2021	9,993	107

In administering the survey to customers, screening questions were employed to:

- Confirm that the household receives service from I&M; and
- That the household has not participated in an I&M program in the last three years.

6.3. Estimation on Non-Participant Spillover

6.3.1. Procedures for Calculating Non-Participant Spillover

Non-participant spillover is defined as energy savings resulting from measures installed by customers who have not participated in the last three years that were influenced the program marketing and outreach efforts.

Estimates of spillover were based on a series of questions administered to participants. The questions are intended to:

- Identify efficiency measures implemented by program non-participants;
- Collect measure specific information for use in estimating saving due to the measure; and

- Collect information used to substantiate attribution of the savings to program influence.

The survey administered to participants asked participants about the installation of any energy efficiency measures during the previous 12 months. Specifically, customers were asked the following question:

- In the last 12 months, did you or anyone else in your household make any of the following energy saving improvements?

This question was followed by additional questions on the measure specifications to estimate energy savings. For the items that are attributable to the program (see below), energy savings were calculated using the Indiana TRM or using other credible sources if needed.

The following measures were considered eligible spillover if the attribution criteria discussed below were satisfied:

- ENERGY STAR® appliance such as a refrigerator, dishwasher, clothes washer, air purifier, dehumidifier, or clothes dryer
- Water heater pipe insulation
- Water heater jacket, blanket, or insulation
- Low flow faucet aerators
- Low flow showerheads
- ENERGY STAR® room air conditioner
- Energy efficient water heaters
- Energy efficient central air conditioner or heat pump
- Smart (Wi-Fi) thermostat

Three key survey questions were used to determine if the savings associated with the measures reported by respondents were attributable to I&M's programs:

- SO1: When you were deciding to purchase those energy efficient light bulbs you mentioned, did you consider any of the following sources of information?
    - Emails from I&M about saving energy
    - I&M television or radio advertisements promoting energy efficiency
    - Information on I&M's website
    - Bill inserts or other mailings from I&M
    - Information from friends or family who participated in an I&M program
    - Information from I&M's social media sources (Twitter, Facebook, YouTube)
- SO2: On a scale of 0 to 10, where 0 represents "not at all influential" and 10 represents "extremely influential", how influential was the information or services provided through the

Electric Ideas programs in your decision to install or implement the equipment or improvements you mentioned?

- SO3: 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 install or implement the equipment or improvements you mentioned if I&M did not provide rebates or information through its Electric Ideas programs?

Savings were attributable when customers indicate that they considered those sources of information and if the spillover score based on SO2 and SO3 is greater than 7. Equation 6-1 shows the calculation of the spillover score.

Equation 6-1

$$\text{Spillover Score} = \text{Average}(SO2, 10\text{-}SO3)$$

Based on the application of the above methodology, ADM did not identify any non-participant spillover.

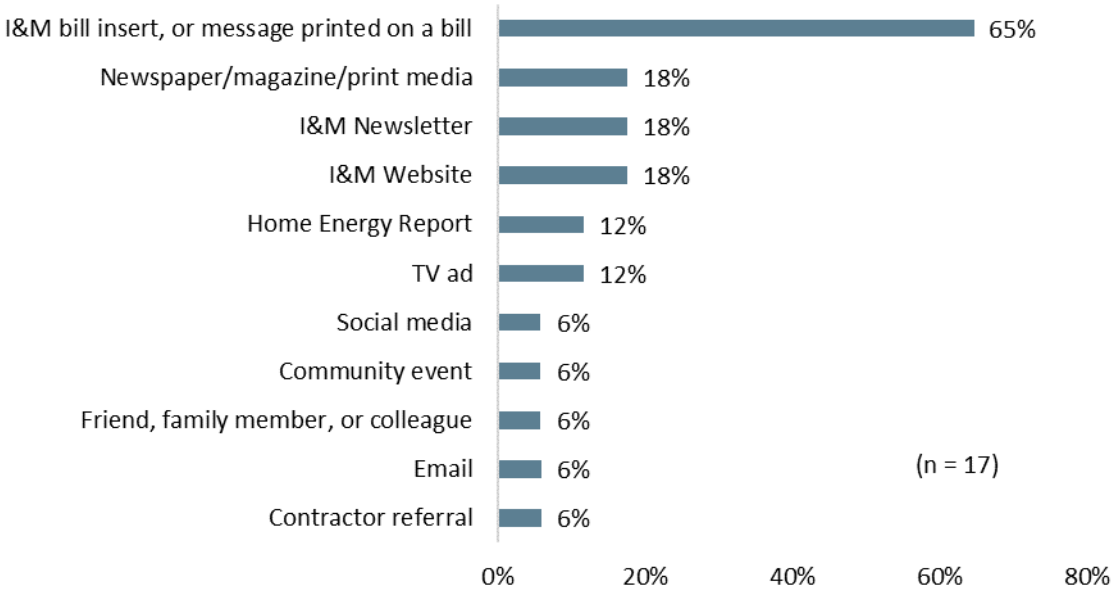
6.4. Nonparticipant Survey Results

The following sections summarize findings from non-participant surveys on customer awareness of I&M programs, attitudes towards demand reduction, and characteristics of customer homes. The main findings are summarized below.

Program Awareness

Most residential nonparticipants surveyed (82%) were not aware of rebates for energy efficiency equipment or other services offered by I&M. Among those who had heard of rebates, heating and cooling equipment rebates, heat pump water heaters, lighting discounts, smart thermostats, and IM Power Rewards: Smart Thermostats were the services they recalled. Bill inserts, newspaper or print media, and the I&M newsletter were the most common ways that residential nonparticipant respondents learned about I&M rebates and services (Figure 6-1)

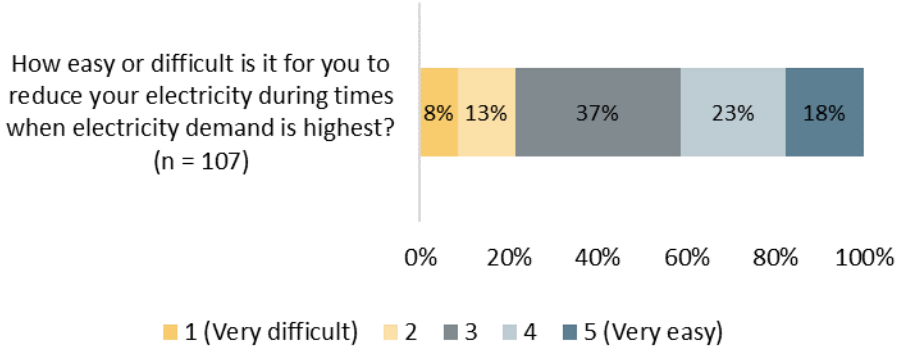
Figure 6-1 How Nonparticipants Learned about I&M Rebates and Services



Attitudes towards Energy Usage During Peak Demand

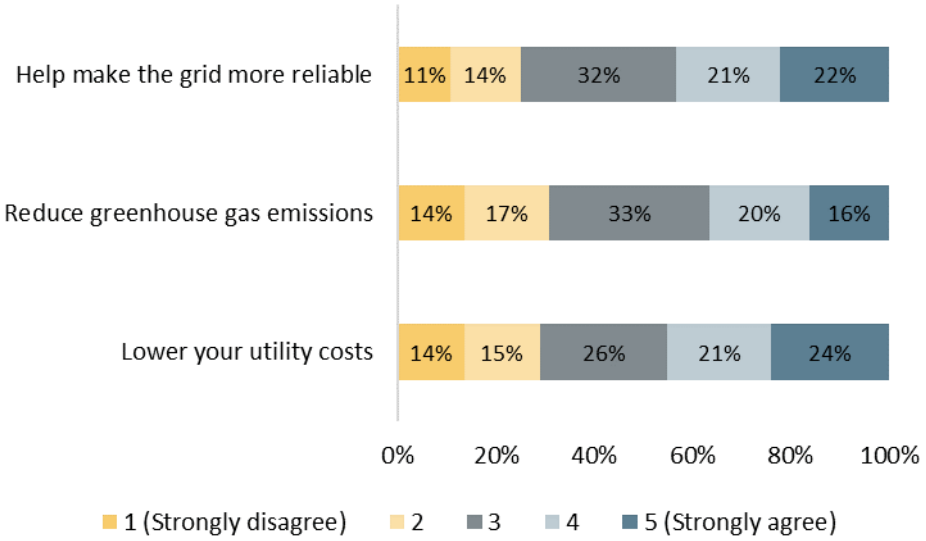
Less than half of customers surveyed indicated it is easy to reduce electricity usage during peak demand in summer when the weather is hottest (Figure 6-2).

Figure 6-2 Ease of Saving Electricity during Peak Demand



Similarly, less than half of nonparticipant respondents agreed that reducing electricity usage when demand is high will help made the grid more reliable, reduce greenhouse gas emissions, and lower utility costs (see Figure 6-3).

Figure 6-3 Customers' Attitudes Towards Reducing Electricity Usage when Demand is High



Readiness to Participate in a Demand Response Program

Customer attitudes towards demand response (DR) were collapsed into two categories, as were their views on the ease of saving electricity during peak demand. Those who strongly or somewhat agreed to the statements about reducing electricity usage when demand is high were coded as "yes" and those who strongly or somewhat disagreed were coded as "no." Those who found saving electricity as somewhat or very easy were coded as "yes" and those who found it somewhat or very difficult were coded as "no." A cross-tabulation of the two groups was examined to identify customers who are more open to demand response programs and those who may need additional education and outreach. This cross tabulation revealed:

- **Twenty-nine percent of respondents believe it is easy to reduce load during peak periods and perceive the benefits of DR.** This finding suggests that about a third of customers are open and ready to participate in a DR program who are not already (see green box in Figure 6-4). Additional analysis found that a minority of these customers had were aware that I&M offered the IM Power Rewards: Smart Thermostats service (6.5%).
- **Forty percent of respondents indicated they are open to a DR program but may need additional education about how to reduce their electricity use and the benefits of DR programs.** Twenty-eight percent of respondents perceived benefits to DR and did not think reducing their load during peak periods was easy and an additional 12% stated it was easy to reduce their load during peak periods but did not perceive benefits to DR (see yellow boxes in Figure 6-4).
- **Relatively few customers (5%) who were ready or somewhat ready for DR were aware of the IM Rewards: Thermostat service and 56% did not own a smart thermostat.**

- **Survey results suggest that almost one-third of respondents would not participate in a DR program**. Thirty-one percent of survey respondents did not appear to be open or ready to participate in a DR program (see red box in Figure 6-4).

Figure 6-4 Cross Tabulation of Customers' Attitudes Toward DR and Reducing Load

Smart Thermostats and Electric Vehicles

Residential nonparticipant respondents were not likely to have a Wi-Fi connected smart thermostat, with 17% indicating they have on installed in their home. One respondent indicated they or a member of their household owns or leases a plug-in electric vehicle. Fifty-four percent of respondents indicated they or a member of their household park a vehicle within about 20 feet of an electric outlet. However, 15% of surveyed nonparticipants indicated there was a 220/240-volt outlet, an outlet capable of supporting Level 2 vehicle charging, within 20 feet of where a vehicle is parked in their household.

6.5. Findings and Recommendations

Findings and recommendations from the nonparticipant survey appear as part of the program specific results. For example, information about the willingness of customers to participate in a demand response event appear in the Home Energy Management section.

7. 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 7-1.

Table 7-1 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.				✓		✓		✓

7.1. PY2021 Cost Effectiveness Evaluation

Table 7-2 through Table 7-5 summarize key financial benefit and cost inputs for the various tests along as well as the test results for each residential program.

The scores presented below are associated with the full 2021 program year. Where applicable, benefits associated with the first two months of program activity are calculated by referencing avoided cost assumptions associated with the previous program plan, and the benefits associated with the last ten months of program activity are calculated by referencing avoided cost assumptions associated with the PY2021 program plan.

Table 7-2 Residential New Construction

Variable	*PCT*		*UCT*		*RIM*		*TRC*	
	Benefit	*Cost*	*Benefit*	*Cost*	*Benefit*	*Cost*	*Benefit*	*Cost*
Incentives	$ 44,200			$ 44,200		$ 44,200		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 109,737							
Lost Revenue (NPV)						$ 185,210		
Avoided Energy Costs (NPV)			$ 85,481		$ 85,481		$ 85,481	
Avoided Capacity Costs (NPV)			$ 95,216		$ 95,216		$ 95,216	
Avoided T&D Costs (NPV)			$ -		$ -		$ -	
Incremental Costs		$ 109,200						$ 109,200
Program Overhead Costs				$ 103,887		$ 103,887		$ 103,887
Total Benefits	$ 153,937		$ 180,698		$ 180,698		$ 180,698	
Total Costs	$ 109,200		$ 148,087		$ 333,297		$ 213,087	
Test Score	1.41		1.22		0.54		0.85	

Table 7-3 Residential Income Qualified Weatherization

Variable	*PCT*		*UCT*		*RIM*		*TRC*	
	Benefit	*Cost*	*Benefit*	*Cost*	*Benefit*	*Cost*	*Benefit*	*Cost*
Incentives	$ 0			$ 0		$ 0		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 176,493							
Lost Revenue (NPV)						$ 239,711		
Avoided Energy Costs (NPV)			$ 77,158		$ 77,158		$ 77,158	
Avoided Capacity Costs (NPV)			$ 6,862		$ 6,862		$ 6,862	
Avoided T&D Costs (NPV)			$ -		$ -		$ -	
Incremental Costs		$ -						$ -
Program Overhead Costs				$ 352,360		$ 352,360		$ 352,360
Total Benefits	$ 176,493		$ 84,020		$ 84,020		$ 84,020	
Total Costs	$ -		$ 352,360		$ 592,071		$ 352,360	
Test Score	N/A		0.24		0.14		0.24	

Table 7-4 Home Energy Products

Variable	*PCT*		*UCT*		*RIM*		*TRC*	
	Benefit	*Cost*	*Benefit*	*Cost*	*Benefit*	*Cost*	*Benefit*	*Cost*
Incentives	$ 267,903			$ 267,903		$ 267,903		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 498,567							
Lost Revenue (NPV)						$ 672,403		
Avoided Energy Costs (NPV)			$ 258,641		$ 258,641		$ 258,641	
Avoided Capacity Costs (NPV)			$ 28,503		$ 28,503		$ 28,503	
Avoided T&D Costs (NPV)			$ -		$ -		$ -	
Incremental Costs		$ 360,929						$ 360,929
Program Overhead Costs				$ 248,258		$ 248,258		$ 248,258
Total Benefits	$ 766,470		$ 287,144		$ 287,144		$ 287,144	
Total Costs	$ 360,929		$ 516,161		$ 1,188,563		$ 609,186	
Test Score	2.12		0.56		0.24		0.47	

Table 7-5 Home Energy Management

Variable	*PCT*		*UCT*		*RIM*		*TRC*	
	Benefit	*Cost*	*Benefit*	*Cost*	*Benefit*	*Cost*	*Benefit*	*Cost*
Incentives	$ 69,241			$ 69,241		$ 69,241		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 3,088							
Lost Revenue (NPV)						$ 3,088		
Avoided Energy Costs (NPV)			$ 888		$ 888		$ 888	
Avoided Capacity Costs (NPV)			$ 134,706		$ 134,706		$ 134,706	
Avoided T&D Costs (NPV)			$ -		$ -		$ -	
Incremental Costs		$ -						$ -
Program Overhead Costs				$ 234,530		$ 234,530		$ 234,530
Total Benefits	$ 72,329		$ 135,594		$ 135,594		$ 135,594	
Total Costs	$ -		$ 303,772		$ 306,860		$ 234,530	
Test Score	N/A		0.45		0.44		0.58	

2021 Indiana Residential Portfolio EM&V Report

Volume II of II

Prepared for:

Indiana Michigan Power

April 2022

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1. Introduction

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 energy efficiency programs that I&M implemented in Indiana in 2021.

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 2021 program year. Volume II contains chapters presenting detailed information including data collection instruments and survey results. Volume II is organized as follows:

- Chapter 2: Home Weatherproofing and Income Qualified Weatherproofing Survey Instrument
- Chapter 3: Home Energy Products Appliances Survey Instrument
- Chapter 4: Home Energy Products Online Marketplace Survey Instrument
- Chapter 5: Home Energy Management Survey Instrument
- Chapter 6: Residential Non-Participant Survey Instrument
- Chapter 7: Residential Income Qualified Weatherproofing Survey Results
- Chapter 8: Home Energy Products Appliances Survey Results
- Chapter 9: Home Energy Products Online Marketplace Survey Results
- Chapter 10: Home Energy Management Survey Results
- Chapter 11: Residential Non-Participant Survey Results

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

2. Residential Income Qualified Weatherproofing Survey Instrument

1. Our records indicate that your household participated in I&M's Home Weatherproofing 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 Weatherproofing Program?

1. Newspaper/magazine/print media
2. I&M Mailing
3. I&M Website (www.electricideas.com or indianamichiganpower.com)
4. Friend or Relative (word-of-mouth)
5. TV/Radio ad
6. I&M Representative
7. I&M Newsletter
8. Community event
9. Social media (Facebook, Instagram or Twitter)
10. Home Energy Report
11. Other (Specify)
98. Don't know

3. What is the main reason you decided to participate in the program?

1. To save money on energy bill(s)
2. Environmental reasons
3. I&M financial assistance for making the home improvements
4. Other (Specify):
98. Don't know

ENERGY AUDIT

[DISPLAY Q4 THRU Q6 IF IQ = 0]

4. How likely is it that you would have hired a professional contractor to perform a home audit like the Home Weatherproofing program offers IF I&M did not offer the Home Weatherproofing Program? Would you say that you…

1. Definitely would have
2. Probably would have
3. Probably would not have
4. Definitely would not have
98. Don't know

[DISPLAY Q5 IF Q4 = 1 OR 2]

5. What local contractor would you have used to perform the assessment?

[DISPLAY Q6 IF Q4 = 1 OR 2]

6. How much is the most you would have been willing to pay for an assessment had I&M not provided one at a reduced cost of $99?

1. Less than $100
2. $100 - $200
3. $201 - $300
4. $301 - $400
5. $401 - $500
6. More than $500
98. Don’t know

MAJOR MEASURE VERIFICATION DISPLAY IF MAJMEAS_COUNT > 0]

7. According to our records you made the following home improvements through I&M’s Home Weatherproofing Program. Is this information correct? [SCALE: 1 = Correct, 2 = Incorrect, 98 = Don’t know]

a. [DISPLAY IF MAJMEAS_COUNT > 0] EFF_MEASURE1
b. [DISPLAY IF MAJMEAS_COUNT > 1] EFF_MEASURE2
c. [DISPLAY IF MAJMEAS_COUNT > 2] EFF_MEASURE3
d. [DISPLAY IF MAJMEAS_COUNT > 3] EFF_MEASURE4

MAJOR MEASURE FREE RIDERSHIP [DISPLAY IF IQ =0 AND Q7A =1] [REPEAT ONCE IF Q7B =1]

8. Would you have been able to afford to [IMPLEMENTL1/2] the [EFF_MEASURE1/2] if the rebate was not available from the program?

1. Yes
2. No
98. Don’t know

9. Were you planning to [IMPLEMENT1/2] the [EFF_MEASURE1/2] before you learned of I&M's Home Weatherproofing Program?

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

[DISPLAY Q10 IF EFF_MEASURE1/2 = AIR SEALING]

10. Did these plans include plans to perform diagnostic blower door testing?

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

11. Using a scale where 0 means "not at all influential" and 10 means "very influential," how influential was the program energy audit in your decision to [IMPLEMENT1/2] the [MEASURE]? [SCALE: 0 = 0 (NOT AT ALL INFLUENTIAL), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 =6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (VERY INFLUENTIAL), 98 = DON'T KNOW]

12. Using the same scale, how influential were the rebates available through program in your decision to [IMPLEMENT1/2] the [MEASURE]? [SCALE: 0 = 0 (Not at all influential), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 =6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (Very influential), 98 = Don't know]

13. Now we would like to know how likely you would have been to [IMPLEMENT1/2] the [MEASURE] if the program was not available.

Using a scale were 0 means "not at all likely" and 10 means "very likely," how likely is it that you would have [IMPLEMENTED1/2] the same [MEASURE] if you had not received the rebate through the program? [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), 98 = Don't know]

14. Using the same scale, how likely is it that you would have [IMPLEMENTED1/2] the same [MEASURE] if you had not received the home energy assessment through the program? [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), 98 = Don't know]

15. Did you [IMPLEMENT1/2] the [EFF_MEASURE] sooner than you would have if the information and financial assistance from the program had not been available?

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

[DISPLAY Q15 IF Q15 = 1]

16. When might you have [IMPLEMENTED1/2] the same [EFF_MEASURE] if you had not participated in the program? Would you say…

1. Within 6 months of when you received it through the program
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
99. Refused

DIRECT INSTALL MEASURES VERIFICATION DISPLAY IF DI_MEAS = 1]

17. According to our records you received the following energy saving items through I&M's Home Weatherproofing Program. Please indicate if the information is correct. [SCALE: 1 = Correct, 2 = Incorrect, 98 = Don't know, 99 = Refused]

a. [DISPLAY IF LED_QUANT > 0] [LED_QUANT] LED light bulbs
b. [DISPLAY IF BATH_AERATOR_QUANT > 0] Energy and water efficient bathroom faucet aerators(s)
c. [DISPLAY IF KIT_AERATOR_QUANT > 0] [KIT_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 THERMOSTATIC_RESTRICTOR = 1] A shower valve that shuts the water off when it gets hot

[DISPLAY Q18 IF Q17A = 2]

18. How many LED light bulbs were installed in your home?

[DISPLAY Q19 IF Q17B = 2]

19. How many energy and water efficient bathroom faucet aerators were installed in your home?

[DISPLAY Q20 IF Q17C = 2]

20. How many energy and water efficient kitchen faucet aerators were installed?

[DISPLAY Q21 IF Q17D = 2]

21. How many energy and water efficient showerheads were installed?

22. Have you removed any of those items installed in your home through the program? (Select all that apply)

1. No items were removed
2. [LED_QUANT > 0] Removed LED light bulbs
3. [DISPLAY IF BATH_AERATOR_QUANT > 0] Removed energy and water efficient bathroom faucet aerators
4. [DISPLAY IF KIT_AERATOR_QUANT > 0] Removed energy and water efficient kitchen faucet aerator
5. [DISPLAY IF SHOWER _QUANT > 0] Removed energy and water efficient showerheads
6. [DISPLAY IF PIPEWRAP = 1] Removed pipe wrap
7. [DISPLAY IF THERMOSTATIC_RESTRICTOR = 1] Removed shower valve that shuts the water off when it gets hot
98. Don't know

[DISPLAY Q23 IF Q22 = 2]

23. How many LED light bulbs were removed in your home?

[DISPLAY Q24 IF Q22 = 3]

24. How many energy and water efficient faucet aerators were removed in your home?

[DISPLAY Q25 IF Q22 = 4]

25. How many energy and water efficient kitchen faucet aerators were removed?

[DISPLAY Q26 IF Q22 = 5]

26. How many energy and water efficient showerheads were removed?

DIRECT INSTALL MEASURES FREE RIDERSHIP [DISPLAY IF DI_MEAS = 1 AND IQ = 0]

27. Thinking back to before you participated in the Home Weatherproofing Program, had you purchased any of the following items in the last three years? (Select all that apply)

1. [DISPLAY IF LED_QUANT > 0] LED light bulbs
2. [DISPLAY IF BATH_AERATOR_QUANT > 0] Energy and water efficient bathroom faucet aerators
3. [DISPLAY IF KIT_AERATOR_QUANT > 0] Energy and water efficient kitchen faucet aerator
4. [DISPLAY IF SHOWER _QUANT > 0] Energy and water efficient showerheads
5. [DISPLAY IF PIPEWRAP = 1] Pipe wrap
98. Don't know

28. Before you heard of the Home Weatherproofing Program, did you have specific plans to purchase any of these items that were installed for you?

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

[DISPLAY Q29 IF Q28 = 1]

29. For each of the following items, please tell me if you had plans to purchase the item before you heard of the Home Weatherproofing Program. [SCALE: 1 = Yes, 2 = No, 98 = Don't know, 99 = Refused]

g. [DISPLAY IF LED_QUANT > 0] LED light bulbs
h. [DISPLAY IF BATH_AERATOR_QUANT > 0] Energy and water efficient bathroom faucet aerators
i. [DISPLAY IF KIT_AERATOR_QUANT > 0] Energy and water efficient kitchen faucet aerator
j. [DISPLAY IF SHOWER _QUANT > 0] Energy and water efficient showerheads
k. [DISPLAY IF PIPEWRAP = 1] Pipe wrap

[DISPLAY Q30 IF Q29A = 1 AND LED_QUANT > 0]

30. How many of the [LED_QUANT] LED lightbulbs that you received did you plan to purchase?

[TEXT BOX]

[DISPLAY Q31 IF Q29B = 1 AND BATH_AERATOR_QUANT > 0]

31. How many of the [BATH_AERATOR_QUANT] energy and water efficient bathroom faucet aerators that you received did you plan to purchase?

[TEXT BOX]

[DISPLAY Q32 IF Q29B = 1 AND BATH_AERATOR_QUANT > 0]

32. And what would the gallon-per-minute flow rate have been for the bathroom faucet aerators that you planned to purchase?

[TEXT BOX]

[DISPLAY Q33 IF Q29C = 1 AND KIT_AERATOR_QUANT > 0]

33. How many of the [KIT_AERATOR_QUANT] energy and water efficient kitchen faucet aerators that you received did you plan to purchase?

[TEXT BOX]

[DISPLAY Q34 IF Q29C = 1 AND KIT_AERATOR_QUANT > 0]

34. And what would the gallon-per-minute flow rate have been for the kitchen faucet aerator that you planned to purchase?

[TEXT BOX]

[DISPLAY Q35 IF Q29D = 1 AND SHOWER_QUANT > 0]

35. How many of the [SHOWER _QUANT] energy and water efficient showerheads that you received did you plan to purchase?

[TEXT BOX]

[DISPLAY Q36 IF Q29D = 1 AND SHOWER_QUANT > 0]

36. And what would the gallon-per-minute flow rate have been for the shower heads that you planned to purchase?

[TEXT BOX]

37. Using a scale where 0 means "not at all likely and 10 means "very likely," how likely would you have been to purchase any of the following items on your own within 12 months of when you received them if you had not received them through the program? [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 LED_QUANT > 0] LED light bulbs
b. [DISPLAY IF BATH_AERATOR_QUANT > 0] Energy and water efficient bathroom faucet aerators
c. [DISPLAY IF KIT_AERATOR_QUANT > 0] Energy and water efficient kitchen faucet aerator
d. [DISPLAY IF SHOWER _QUANT > 0] Energy and water efficient showerheads
e. [DISPLAY IF PIPEWRAP = 1] Pipe wrap

[DISPLAY Q38 IF ANY IN Q37A-E > 0]

38. Based on your response, there is some likelihood that you would have purchased some of those items 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 purchased those items because: (SELECT ALL THAT APPLY) [MULTISELECT]

1. You didn't want to spend the money
2. You had not gotten around to purchasing the items
3. You didn't know where to purchase the items
4. You didn't know enough about the items
5. For other reasons
98. Don't know

[DISPLAY Q39 IF Q38 = 5]

39. What were those other reasons for why you had not previously purchased the items?

BEHAVIORAL SAVINGS SECTION

40. During the home energy assessment, did you learn about any tips for reducing energy use in your home?

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

[DISPLAY Q41 IF Q40 = 1]

41. Have you implemented any of the energy saving tips that you learned about from the home energy assessment since receiving the home energy assessment?

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

[DISPLAY Q42 IF Q41 = 1]

42. Which energy saving tips have you implemented? (Select all that apply)

1. Turning off lights when you leave the room
2. Unplugging unused appliances
3. Washing clothes in cold water
4. Installing a water heater tank wrap
5. Installing a programmable thermostat
6. Programming an existing thermostat
7. Other (Please specify)
98. Don't know

[DISPLAY Q43 IF Q41 = 1]

43. Using a scale where 0 means "not at all important" and 10 means "very important," how important was the Home Weatherproofing Program in your decision to implement those energy saving tip(s)? [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 (Very important), 98 = Don't know]

[DISPLAY Q44 IF Q41 = 1]

44. Using a scale where 0 means "not at all likely" and 10 means "very likely," how likely would you have been to implement the above energy saving tip(s) had you not participated in the Home Weatherproofing Program? [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), 98 = Don't know]

SPILLOVER SECTION [DISPLAY IF IQ = 0]

45. Have you bought any additional energy efficient items without a financial incentive or rebate because of your experience with the Home Weatherproofing Program?

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

[DISPLAY Q46 IF Q45 =1]

46. We would like to know what you purchased and installed because of your experience with the Home Weatherproofing Program that you did not receive an incentive or rebate for.

Since participating in the Home Weatherproofing Program in [YEAR] have you done any of the following? [MULTISELECT]

1. Installed CFLs (Compact Fluorescent Light bulbs)
2. Installed LED Light Bulbs
3. Purchased an ENERGY STAR appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer
4. Installed water heater pipe insulation
5. Installed water heater jacket, blanket, or insulation
6. Installed low flow faucet aerators
7. Installed low flow showerheads
8. Installed an ENERGY STAR room air conditioner
9. Installed an energy efficient water heater
10. Something else
98. Don't know

[DISPLAY Q47 IF Q46 = 1 - 10]

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

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. For some other reason (Please describe)
98. Don't know

[DISPLAY Q48 IF Q46 = 1 - 10]

48. Was that equipment recommended during the home energy audit?

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

[DISPLAY Q49 IF Q46 = 1]

49. How many CFLs did you purchase and install?

[TEXT BOX]

[DISPLAY Q50 IF Q46 = 2]

50. How many LEDs did you purchase and install?

[TEXT BOX]

[DISPLAY Q51 IF Q46 = 3]

51. What kind of appliance did you purchase?

[TEXT BOX]

[DISPLAY Q52 IF Q46 = 3]

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

[DISPLAY Q53 IF Q46 = 4]

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

[TEXT BOX]

[DISPLAY Q54 IF Q46 = 6]

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

[TEXT BOX]

[DISPLAY Q55 IF Q46 = 6]

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

[TEXT BOX]

[DISPLAY Q56 IF Q46 = 7]

56. How many low flow shower heads did you install?

[TEXT BOX]

[DISPLAY Q57 IF Q46 = 8]

57. How many ENERGY STAR room air conditioners did you install?

[TEXT BOX]

[DISPLAY Q58 IF Q46 = 8]

58. How many square feet is the room that the ENERGY STAR air conditioner is installed in? (If multiple units installed, ask how many square feet on average are the rooms you installed the air conditioners in)

[TEXT BOX]

[DISPLAY Q59 IF Q46 = 9]

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

[TEXT BOX]

[DISPLAY Q60 IF Q46 =9]

60. What type of water heater did you install?

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 (Specify)
98. Don’t know

[DISPLAY Q61 IF Q46 = 10]

61. What other energy efficient items did you install?

[TEXT BOX]

[DISPLAY Q62 IF Q46 = 1 - 10]

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

[TEXT BOX]

[DISPLAY Q63 IF Q46 = 1 - 10]

63. Using a scale where 0 means "not at all important" and 10 means "very important," how important was the experience with the Home Weatherproofing Program 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 (Very important), 98 = Don't know]

[DISPLAY Q64 IF Q46 = 1 - 10]

64. Using a scale where 0 means "not at all likely" and 10 means "very likely," how likely would you have been to purchase those additional items if you had not participated in the Home Weatherproofing Program? [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), 98 = Don't know, 99 = Refused]

PROGRAM SATISFACTION

65. 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), 98 = Don't know]

a. Performance of the items or improvements installed
b. The effort required for the program application process
c. Information about the program provided by I&M
d. The home energy audit
e. The quality of the installation work
f. The program overall

[DISPLAY Q66 IF ANY IN Q65 < 3]

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

67. If you could change or improve one thing about the Home Weatherproofing program, what would that be?

[TEXT BOX]

68. 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) 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very satisfied), 98 = Don't know]

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.

69. Do you own the home that participated in the Home Weatherproofing 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

70. 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

71. 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

72. Including all money earned from wages, salaries, tips, commissions, workers' compensation, unemployment insurance, child support, or other sources, about how much was your total annual household income before taxes in 2020?

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

73. Do you have any other comments that you would like to relay to I&M about energy efficiency in residences or about this or other programs?

We thank you for your time spent taking this survey. Your response has been recorded.

3. Home Energy Products Appliances Survey Instrument

1. Our records indicate that your household participated in I&M's Home Energy Products Program by receiving a rebate from I&M for a(n) [ALL_MEASURES].

[DISPLAY IF HVAC_PROJ_1/ OR 2 = 1] This program is also known as the HVAC Rebate Program. Your contractor may have received the rebate and passed the cost savings on to you.

Is that correct?

1. Yes
2. No [TERMINATE SURVEY]
98. Don't know [TERMINATE SURVEY]

2. To begin with, we would like to verify the equipment that you received a rebate or discount for. In 2021, did you receive a rebate for: [SCALE: 1 = YES, 2 = NO, 98 = DON'T KNOW]

a. [IF AC = 1] An air conditioner
b. [IF ASHP = 1] Air source heat pump heating and cooling system
c. [IF DHP = 1] A ductless heat pump
d. [IF HPWH =1] A heat pump water heater
e. [IF ECM = 1] Electronically commutated motor (on an efficient furnace)
f. [IF TSTAT= 1] A Wi-Fi / smart thermostat
g. [IF DEHUMID= 1] An ENERGY STAR dehumidifier
h. [IF POOLPUMP = 1] An ENERGY STAR pool pump
i. [IF GHSP = 1] A ground source heat pump
j. [IF ELEC_WATERHEATER] A high efficiency electric water heater

[TERMINATE SURVEY IF NONE IN Q2 = 1]

PROGRAM AWARENESS

3. How did you first learn about Home Energy Products Program?

1. Newspaper/magazine/print media
2. Mailer from I&M
3. I&M Website (www.electricideas.com or indianamichiganpower.com)
4. Friend or Relative (word-of-mouth)
5. Contractor or plumber
6. TV/Radio ad
7. I&M Representative
8. I&M Newsletter
9. Retailer/store
10. Community event
11. Social media (Facebook, Instagram or Twitter)
12. Home Energy Report
14. Other (SPECIFY)
98. Don't know

[NOTE THAT Q4 – Q7 ARE ASKED ABOUT ONE MEASURE INSTALLED IF THE CUSTOMER PURCHASED MULTIPLE MEASURES]

The next few questions are about the purchase of the [EFF_MEASURE1].

4. Did you know about I&M's Home Energy Products Program…

1. Before starting the process of purchasing the [EFF_MEASURE1]
2. At the time you made the purchase decision
3. After researching the product but before deciding to purchase
4. After deciding to purchase the [EFF_MEASURE1]
98. Don't know

5. Why did you select this model or type of [EFF_MEASURE1]? (Please select all that apply) [MULTI-SELECT]

1. It was a good price
2. There was a rebate for it
3. It costs less to operate it
4. It's good for the environment
5. It was all that was available/only choice
6. The contractor/retailer recommended it
7. It had features I wanted
8. It was the right size, color
9. Wanted that brand
10. It had an ENERGY STAR label
11. Other (Please specify)
98. Don't know

6. When you were deciding to purchase the [EFF_MEASURE1], where did you get information about what to buy? (Please select all that apply) [MULTI-SELECT]

1. Retailers
2. Installation contractors
3. Friend, neighbor, relative or co-worker
4. I&M website
5. Internet
6. Consumer reports or other product magazines
7. Newspaper
8. Radio
9. Television
10. Other (Please specify)
11. Did not look for any information about what to buy
98. Don't know

7. Where did you obtain the rebate application?

1. From the I&M website (www.electricideas.com or indianamichiganpower.com)
2. From another website
3. In a retail store
4. From a contractor
5. Other (Please Specify)
98. Don't know

The next few questions are about the equipment you purchased and received a rebate for.

AC SECTION

[DISPLAY IF Q2, "AC" = 1]

8. Is the central air conditioner that you received a rebate for currently installed and working?

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

[DISPLAY Q9 IF Q8 = 2]

9. What is wrong with the air conditioner or why is it not installed?

[DISPLAY IF Q2, "AC" = 1]

10. Was there a cooling system already installed in the location where the new air conditioner was installed?

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

[DISPLAY Q11 IF Q10=1]

11. Was the cooling equipment that you replaced a central air condition?

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

[DISPLAY Q12 IF Q11 = 1]

12. Thinking about the old air conditioner 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 Q13 IF Q11=1]

13. Was the air conditioner working at the time it was replaced?

1. Yes
2. No

[DISPLAY Q14 IF Q13 = 1]

14. How much longer do you think the air conditioner you replaced would have operated if it had not been replaced?

1. Less than 2 years
2. 2 to 4 years
3. 5 to 10 years
4. More than 10 years
98. Don't know

[DISPLAY Q15 IF Q13= 2]

15. Did you get an estimate of how much it would have cost to fix the old equipment before you decided to install a new unit?

1. Yes
2. No

[DISPLAY Q16 IF Q15 = 2]

16. How much was the repair estimate?

[DISPLAY Q17 IF Q12 = 3]

17. Do you know the approximate age of the old cooling equipment that was replaced?

1. Yes (How old was it?)
2. No

[DISPLAY Q18 IF Q17 = 1]

18. How were you able to determine the age of the old cooling equipment?

1. Documentation included with the unit
2. Contractor knew or estimated it
3. Age of units was included in description of home when we bought it
4. Previous owner told us
5. Other (Please specify)

[DISPLAY Q19 IF Q17= 2]

19. Which of the following do you think is the most likely age of the old cooling equipment:

1. More than 20 years old
2. 15 – 20 years old
3. 10 – 15 years old
4. Less than 10 years old

[DISPLAY Q20 IF Q12 = 4]

20. About what year did you install the old cooling equipment?

[DISPLAY Q21 IF Q11 = 1]

21. Please provide the seasonal energy efficiency ratio or SEER of the air conditioner that you replaced?

1. SEER [TEXT BOX]
98. Don’t know

HEAT PUMP SECTION

[DISPLAY IF Q2,, "DHP" = 1 OR ASHP = "1" OR GSHP = "1"]

22. Is the [HEATPUMP_TYPE] that you received a rebate for currently installed and working?

1. Yes
2. No

[DISPLAY Q23 IF Q22 = 2]

23. What is wrong with the [HEATPUMP_TYPE] or why is it not installed?

[DISPLAY IF Q2,, "DHP" = 1 OR ASHP = "1" OR GSHP = "1"]

24. Did the [HEATPUMP_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 Q25 IF Q24 = 1]

25. Did the [HEATPUMP_TYPE] replace a heat pump?

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

HEAT PUMP REPLACEMENT SECTION

[DISPLAY Q26 IF Q 25= 1, REPLACED HEAT PUMP]

26. 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)

[DISPLAY Q27 IF Q 25= 1, REPLACED HEAT PUMP]

27. Was the old heat pump working at the time it was replaced?

1. Yes
2. No

[DISPLAY Q28 IF Q26 = 3]

28. Do you know the approximate age of the old heat pump that was replaced?

1. Yes (How old was it?)
2. No

[DISPLAY Q29 IF Q28 = 1]

29. How were you able to determine the age of the old heat pump?

1. Documentation included with the unit
2. Contractor knew or estimated it
3. Age of units was included in description of home when we bought it
4. Previous owner told us
5. Other (Please specify)

[DISPLAY Q30 IF Q28= 2]

30. 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

[DISPLAY Q31 IF Q26 = 4]

31. About what year did you install the old heat pump?

[DISPLAY Q32 IF Q 25= 1, REPLACED HEAT PUMP]

32. Please provide the seasonal energy efficiency ratio or SEER of the heat pump that you replaced.

1. SEER [TEXT BOX]
98. Don’t know

[DISPLAY Q33 IF Q 25= 1, REPLACED HEAT PUMP]

33. Please provide the Heating Seasonal Performance Factor or HSPF of the heat pump that you replaced.

1. HSPF [TEXT BOX]
98. Don't know

OTHER HEATING EQUIPMENT REPLACEMENT SECTION

[DISPLAY Q34 IF [Q24=1 AND Q25 <>1] OR Q24=3 AND Q25 <>1], REPLACED HEATING EQUIPMENT]

34. What type of heating system did you have before you installed the [HEATPUMP_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 Q35 IF Q34=1]

35. Was your electric resistance heating system an electric furnace or baseboard heating?

1. Electric furnace
2. Electric baseboard heating
98. Don't know

[DISPLAY Q36 IF Q34 = 3]

36. What type of heating system did you have before installing the [HEATPUMP_TYPE]?

[DISPLAY Q37 IF [Q24=1 OR Q24=3, REPLACED HEATING EQUIPMENT]

37. Thinking about the old heating system 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 Q38 IF [Q24=1 OR Q24=3] AND[Q25 <>1], REPLACED HEATING EQUIPMENT]

38. Was the old heating system working at the time it was replaced?

1. Yes
2. No

[DISPLAY Q39 IF Q37 = 3]

39. Do you know the approximate age of the old heating equipment that was replaced?

1. Yes (How old was it?)
2. No

[DISPLAY Q40 IF Q39 = 1]

40. How were you able to determine the age of the old heating equipment?

1. Documentation included with the unit
2. Contractor knew or estimated it
3. Age of units was included in description of home when we bought it
4. Previous owner told us
5. Other (Please specify)

[DISPLAY Q41 IF Q39 = 2]

41. 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

[DISPLAY Q42 IF Q37 = 4]

42. About what year did you install the old heating equipment?

OTHER COOLING EQUIPMENT REPLACEMENT SECTION

[DISPLAY Q43 IF [Q24=1 AND Q25 <>1] OR Q24=2, REPLACED COOLING EQUIPMENT]

43. Was the cooling equipment that you replaced a central air condition?

1. Yes
2. No
98. Don’t know

[DISPLAY Q44 IF [Q24=1 OR Q24=2, REPLACED COOLING EQUIPMENT]

44. Thinking about the old cooling equipment 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 Q38 IF [Q24=1 OR Q24=2 AND[Q25 <>1], REPLACED HEATING EQUIPMENT]

45. Was the old cooling system working at the time it was replaced?

1. Yes
2. No

[DISPLAY Q46 IF Q44 = 3]

46. Do you know the approximate age of the old cooling equipment that was replaced?

1. Yes (How old was it?)
2. No

[DISPLAY Q47 IF Q46 = 1]

47. How were you able to determine the age of the old cooling equipment?

1. Documentation included with the unit
2. Contractor knew or estimated it
3. Age of units was included in description of home when we bought it
4. Previous owner told us
5. Other (Please specify)

[DISPLAY Q48 IF Q46 = 2]

48. Which of the following do you think is the most likely age of the old cooling equipment:

1. More than 20 years old
2. 15 – 20 years old
3. 10 – 15 years old
4. Less than 10 years old

[DISPLAY Q49 IF Q44 = 4]

49. About what year did you install the old cooling equipment?

[DISPLAY Q50 IF [Q24=1 AND Q25 <>1] OR Q24=2, REPLACED COOLING EQUIPMENT]

50. Please provide the seasonal energy efficiency ratio or SEER of the air conditioner that you replaced?

1. SEER [TEXT BOX]
98. Don't know

WIFI THERMOSTAT SECTION

[DISPLAY IF Q2, "WIFI THERMOSTAT" = 1]

51. Is the Wi-Fi thermostat that you received a rebate for currently installed and working?

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

[DISPLAY Q52 IF Q51 = 2]

52. What is wrong with the Wi-Fi thermostat or why is it not installed?

[DISPLAY IF Q2, "WIFI THERMOSTAT" = 1]

53. 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 Q54 IF Q53 = 1]

54. 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

[DISPLAY IF Q2, "WIFI THERMOSTAT" = 1]

55. 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 Q56 IF Q55 = 1 OR 3]

56. Is your central air conditioning system a heat pump?

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

[DISPLAY Q57 IF Q55 = 2 OR 3]

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

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

[DISPLAY Q58 IF Q55 = 2 OR 3]

58. 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

DEHUMDIFIER SECTION

[DISPLAY IF Q2, "DEHUMID" = 1]

59. Is the ENERGY STAR dehumidifier that you received a rebate for currently working?

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

[DISPLAY Q60 IF Q59 = 2]

60. What is wrong with the dehumidifier?

[DISPLAY IF Q2, "DEHUMID" = 1]

61. Did the rebated dehumidifier…

1. Replace a functioning unit
2. Replace a broken unit
3. It was not a replacement
98. Don't know

HEAT PUMP WATER HEATER

[DISPLAY IF Q2, "HPWH"= 1]

62. Is the heat pump water heater that you received a rebate for currently installed and working?

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

[DISPLAY Q63 IF Q62 = 2]

63. What is wrong with the heat pump water heater or why is it not installed?

[DISPLAY IF Q2,, "HPWH"= 1]

64. Was this water heater purchased…

1. To replace a functioning unit
2. To replace a broken unit
3. Not a replacement
98. Don't know

HIGH EFFICIENCY WATER HEATER

[DISPLAY IF Q2, "ELEC_WATERHEATER"= 1]

65. Is the high efficiency electric water heater that you received a rebate for currently installed and working?

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

[DISPLAY Q63 IF Q62 = 2]

66. What is wrong with the high efficiency electric water heater or why is it not installed?

[DISPLAY IF Q2, "ELEC_WATERHEATER"= 1]

67. Was this water heater purchased…

1. To replace a functioning unit
2. To replace a broken unit
3. Not a replacement
98. Don't know

ECM SECTION

[DISPLAY IF Q2, "ECM" = 1]

68. Was the ECM motor that you installed included with a new furnace or did you just replace the motor?

1. Installed new furnace
2. Installed just the motor
98. Don't know

POOL PUMP SECTION

[DISPLAY IF Q2, "POOL PUMP" = 1]

69. Is the ENERGY STAR pool pump that you received a rebate for currently installed and working?

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

[DISPLAY Q70 IF Q69 = 2]

70. What is wrong with the ENERGY STAR pool pump or why is it not installed?

[DISPLAY IF Q2, "POOL PUMP" = 1]

71. Did the ENERGY STAR pool pump replace an existing pool pump or was this a new installation?

1. Replaced existing pool pump
2. New installation
98. Don't know

FREE RIDERSHIP [REPEAT THIS SECTION UP TO TWO TIMES FOR UP TO TWO MEASURES]

72. "The next questions are about your decision to purchase equipment that qualified for a Home Energy Products rebate."

[DISPLAY Q73= IF HVAC_PROJ_1/2 = 1]

73. Did the contractor that you worked with discuss equipment with different efficiency levels when you were deciding on the [STAND_MEASURE1/2] that you installed?

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

[DISPLAY Q74 IF HVAC_PROJ_1/2 = 1]

74. Did the contractor that you worked with recommend that you install the [EFF_MEASURE1/2] instead of a standard efficiency [STAND_MEASURE1/2]?

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

[DISPLAY Q75 IF HVAC_PROJ_1/2 = 1]

75. Did the contractor that you worked with tell you there was a rebate available for the efficient equipment?

1. Yes
2. No

[DISPLAY Q76 IF Q75=1]

76. Did the contractor show you the discount amount you got from the rebate or did you get the rebate?

1. I saw the discount amount
2. I got the rebate
3. Neither

[DISPLAY Q77 IF HVAC_PROJ_1/2 = 1]

77. Did the contractor that you worked with provide you with information, marketing material or a recommendation to purchase or install the [EFF_MEASURE1/2]?

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

[DISPLAY Q78 IF Q77 = 1]

78. Using a scale where 0 is "not at all influential" and 10 is "very influential," how influential was the information, marketing material, or recommendation provided by this contractor in your decision to purchase the [EFF_MEASURE1/2]? [SCALE: 0 (NOT AT ALL INFLUENTIAL) = 0, 1=1, 2=2, 3=3, 4=4, 5=5, 6=6, 7=7, 8=8, 9=9, 10 (VERY INFLUENTIAL)=10]

79. Were you planning to purchase an [EFF_MEASURE1/2] before you learned of I&M's rebate program?

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

[DISPLAY Q80 IF Q79 = 1]

80. Just to be clear, did you have plans to specifically purchase an [EFF_MEASURE1/2] as opposed to a standard [STAND_MEASURE1/2]?

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

81. Would you have been able to afford to purchase the [EFF_MEASURE1/2] if the rebate was not available from the program?

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

82. Just to confirm, if the rebate was not available through the program, would you still have paid the additional cost to purchase an [EFF_MEASURE1/2] instead of a [STAND_MEASURE1/2]?

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

83. If the rebate was not available, what do you think you most likely would have done at the time when you installed the [EFF_MEASURE1/2]?

1. Not installed anything
2. Installed a new but less energy efficient [STAND_MEASURE1/2]
3. Installed a similarly energy efficient [STAND_MEASURE1/2]
4. Installed the exact same [STAND_MEASURE1/2]
98. Don't know

84. 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 [EFF_MEASURE1/2] at about the same time if you had not received the financial assistance or information through the program? [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, DON'T KNOW = 98]

85. Did you purchase and install the [EFF_MEASURE1/2] sooner than you would have if the information and financial assistance from the program had not been available?

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

[DISPLAY Q86 IF Q85 = 1]

86. When might you have purchased or installed the same [EFF_MEASURE1/2] 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

SPILLOVER

87. Have you bought, any additional energy efficient items on your own without a financial incentive or rebate because of your experience with the Home Energy Products Program?

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

[DISPLAY Q88 IF Q87 =1]

88. We would like to know what you purchased and installed because of your experience with the Home Energy Products Program that you did not receive an incentive or rebate for.

Since completing the online checkup in [YEAR] have you done any of the following? (Please select all that apply)

1. Installed CFLs (Compact Fluorescent Light bulbs)
2. Installed LED (Light Emitting Diode) Bulbs
3. Purchased an ENERGY STAR appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer
4. Installed water heater pipe insulation
5. Installed water Heater jacket, blanket, or insulation
6. Installed energy and water efficient faucet aerators
7. Installed energy and water efficient showerheads
8. Installed an ENERGY STAR room air conditioner
9. Installed an energy efficient water heater
10. Something else
98. Don't know

[DISPLAY Q89 IF Q88 = 1 - 10]

89. Why did you not get an I&M incentive, rebate, or discount for that energy saving equipment? (Please select all that apply) [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. For some other reason (Please describe)
98. Don't know

[DISPLAY Q90 IF Q88 = 1]

90. How many CFLs did you purchase and install?

1. (RECORD QUANTITY)
98. Don't know

[DISPLAY Q91 IF Q88 = 2]

91. How many LEDs did you purchase and install?

1. (RECORD QUANTITY)
98. Don't know

[DISPLAY Q92 IF Q88 = 3]

92. What kind of appliance did you purchase?

1. Dishwasher
2. Clothes washer
3. Clothes dryer
4. Full size refrigerator
5. Freezer
6. Other
98. Don't know

[DISPLAY Q93 IF Q88 = 3]

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

[DISPLAY Q94 IF Q88 = 4]

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

1. (RECORD QUANTITY IN FEET)
98. Don't know

[DISPLAY Q95 IF Q88 = 6]

95. How many energy and water efficient faucet aerators did you install in bathroom sinks?

1. (RECORD QUANTITY)
98. Don't know

[DISPLAY Q96 IF Q88 = 6]

96. How many energy and water efficient faucet aerators did you install in kitchen sinks?

1. (RECORD QUANTITY)
98. Don't know

[DISPLAY Q97 IF Q88 = 7]

97. How many energy and water efficient showerheads did you install?

1. (RECORD QUANTITY)
98. Don't know

[DISPLAY Q98 IF Q88 = 8]

98. How many ENERGY STAR room air conditioners did you install?

1. (RECORD QUANTITY)
98. Don't know

[DISPLAY Q99 IF Q88 = 8]

99. How many square feet is the room that the ENERGY STAR air conditioner is installed in? (If multiple units installed, ask how many square feet on average are the rooms you installed the air conditioners in)

1. (RECORD QUANTITY)
98. Don't know

[DISPLAY Q100 IF Q88 = 9]

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

[DISPLAY Q101 IF Q88 =9]

101. 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 (Specify)
98. Don't know

[DISPLAY Q102 IF Q88 = 10]

102. How many other energy efficient items did you install?

1. (RECORD QUANTITY)
98. Don't know

[DISPLAY Q103 IF Q88 = 1 - 10]

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

1. (RECORD DATE)
98. Don't know

[DISPLAY Q104 IF Q88 = 1 - 10]

104. On a scale of 0 to 10, where 0 represents "not at all important" and 10 represents "extremely important", how important was the experience with the Home Energy Products Program 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), 98 = Don't know]

[DISPLAY Q105 IF Q88 = 1 - 10]

105. 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 purchase those additional items if you had not participated in the Home Energy Products Program? [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 = Don't know]

PROGRAM SATISFACTION

"The next few questions about your experience with the program and your satisfaction with it."

106. Did you fill out your own rebate application, or did a contractor or sales representative do it for you?

1. I filled it out
2. A contractor or salesperson filled it out
3. Other (Please Specify):
98. Don't know

107. Have you noticed any energy savings on your electric bill since installing the rebated equipment?

1. Yes
2. No
98. Not sure

108. 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), 98 = DON'T KNOW]

a. [DISPLAY IF Q106 = 1] The rebate application process
b. [DISPLAY IF Q107 = 1] The savings on your electricity bills since installing the rebated equipment
c. The rebate equipment that you purchased
d. The rebate program overall

[DISPLAY Q109 IF ANY IN Q108 < 3]

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

110. 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), 98 = DON'T KNOW]

111. If you could change or improve something about the Home Energy Products program, what would it be?

DEMOGRAPHICS/HOME CHARACTERISTICS

"Now I have just a few final questions about your household. This information will be kept anonymous but you do not need to answer any question you do not want to answer."

112. 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

113. 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

114. 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

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

1. (RECORED VEBATIM)
98. Don't know

116. 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

117. 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

118. Including all money earned from wages, salaries, tips, commissions, workers' compensation, unemployment insurance, child support, or other sources, about how much was your total annual household income before taxes in 2020?

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

119. Do you have any other comments that you would like to relay to I&M about energy efficiency in residences or about this or other programs?

4. Home Energy Products Online Marketplace Survey Instrument

1. Our records indicate that your household ordered and received an instant rebate on [ALL_MEASURES] through I&M marketplace in 2021.

Are you familiar with this purchase?

1. Yes
2. No [TERMINATE SURVEY]

2. To begin with, we would like to verify the items that you received a discount on the following item(s). Is this information correct? [SCALE: 1 = YES, 2 = NO, 98 = DON'T KNOW]

a. [IF LED_QUANT > 0] [LED_QUANT] LED light bulb(s)
b. [IF APS_QUANT >0] [APS_QUANT] Advanced power strip(s)
c. [IF SHOWER_QUANT >0] [SHOWER_QUANT] High efficiency showerhead(s)
d. [IF BATH_QUANT >0] [BATH_QUANT] High efficiency bathroom faucet aerator(s)
e. [IF KITCHEN_QUANT >0] [KITCHEN_QUANT] High efficiency kitchen faucet aerator(s)
f. [IF TSTAT_QUANT>0] Wi-Fi / smart thermostat(s)
[TERMINATE SURVEY IF NONE IN Q2 = 1]

LED VERIFICATION [DISPLAY IF Q2B= 1]

3. 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 Q3= 2]

4. How many of the [LED_QUANT] LED light bulbs that you purchased are currently installed?

[DISPLAY IF Q3= 2 OR 3]

5. How many more of the LED light bulbs do you think you will install in the next six months?

[DISPLAY IF Q3= 2 OR 3]

6. 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)
98. Don't know

APS VERIFICATION [DISPLAY IF Q2B = 1]

7. Are you currently using the energy-saving Advanced Power Strip that you purchased from the I&M online marketplace?

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

[DISPLAY Q8 IF Q7 = 2]

8. 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 Q9 IF Q7 = 1]

9. The Advanced Power Strip has outlets labeled 'Always on", 'Controlled', and 'Switched". What do you currently have plugged in the 'Controlled' outlet?

1. Television
2. Computer
3. Other (Please describe)
4. Nothing
98. Don't know

[DISPLAY Q10 IF Q9 = 1,2, OR 3]

10. What equipment is plugged into the outlets labeled 'Switched"? (Select all that apply)

1. Audio/visual/entertainment equipment
2. Computer/office equipment
3. Other types of equipment
4. No equipment is plugged into the 'Switched" outlets [EXCLUSIVE]
98. Don't know [EXCLUSIVE]

SHOWER VERIFICATION [DISPLAY IF Q2C = 1]

11. 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 Q11= 2]

12. How many of the [SHOWER_QUANT] high efficiency showerhead(s) that you purchased are currently installed?

[DISPLAY IF Q11= 2 OR 3]

13. How many more of the high efficiency showerhead(s) do you think you will install in the next six months?

[DISPLAY IF Q11= 2 OR 3]

14. 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 IF Q2D = 1]

15. 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 Q15= 2]

16. How many of the [BATH_QUANT] high efficiency bathroom faucet aerator(s) that you purchased are currently installed?

[DISPLAY IF Q15= 2 OR 3]

17. How many more of the high efficiency bathroom faucet aerator(s) 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 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 IF Q2E = 1]

19. 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 Q19= 2]

20. How many of the [KITCHEN_QUANT] high efficiency kitchen faucet aerator(s) that you purchased are currently installed?

[DISPLAY IF Q19= 2 OR 3]

21. How many more of the high efficiency kitchen faucet aerator(s) do you think you will install in the next six months?

[DISPLAY IF Q19= 2 OR 3]

22. 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

TSTAT VERIFICATION [DISPLAY IF Q2F = 1]

23. 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 Q23 = 2]

24. What is wrong with the Wi-Fi thermostat or why is it not installed?

25. 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 Q25 =1]

26. 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

27. 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 Q27 = 1 OR 3]

28. Is your central air conditioning system a heat pump?

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

[DISPLAY IF Q27 = 2 OR 3]

29. 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 Q27 = 2 OR 3]

30. 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

The next few questions are about the purchase of the [EFF_MEASURE1].

31. Did you decide to purchase the [EFF_MEASURE1]…

1. Before you learned about I&M's Online Marketplace
2. After viewing products on I&M's Online Marketplace
98. Don't know

32. Did you shop for [EFF_MEASURE1] at any other retailers before making the purchase on I&M's Online Marketplace?

1. Yes
2. No

[DISPLAY IF Q32 = 1]

33. What is the most important reason for why you decided to purchase the [EFF_MEASURE1] on I&M's Online Marketplace? [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. For some other reason (Please explain)

34. Were you planning to purchase an [EFF_MEASURE1] before you learned that you could get an instant rebate through I&M's Online Marketplace?

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

35. Would you have been able to afford to purchase the [EFF_MEASURE1] if the instant rebate was not available through I&M's Online Marketplace?

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

[DISPLAY Q36 IF Q35 = 1]

36. Just to confirm, if the instant rebate was not available through the program, would you still have paid the additional cost to purchase an [EFF_MEASURE1]?

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

37. How likely is it that you would have purchased the same [EFF_MEASURE1] at about the same time if you could not have received the instant rebate 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]

38. Did you purchase and install the [EFF_MEASURE1] sooner than you would have if the information and financial assistance from the program had not been available?

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

[DISPLAY Q39 IF Q38 = 1]

39. When might you have purchased or installed 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

40. At the time you purchased them, would you have purchased the same number of [EFF_MEASURE1] if an instant rebate 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 Q41 IF Q40 = 3]

41. About how many percent fewer [EFF_MEASURE1] do you think you would have purchased?

PROGRAM SATISFACTION

42. Overall, how satisfied are you with the following products that you received an instant rebate for? [SCALE: 1 = 1 (VERY DISSATISFIED), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (VERY SATISFIED)]

a. [IF Q2A = 1] LED light bulb(s)
b. [IF Q2B = 1] Advanced power strip(s)
c. [IF Q2C = 1] High efficiency showerhead(s)
d. [IF Q2D = 1] High efficiency bathroom faucet aerator(s)
e. [IF Q2E = 1] High efficiency kitchen faucet aerator(s)
f. [IF Q2F = 1] Wi-Fi / smart thermostat(s)

43. Overall, how satisfied are you with your I&M Online Marketplace purchase experience? [SCALE: 1 = 1 (VERY DISSATISFIED) , 2 = 2, 3 = 3, 4 = 4, 5 = 5 (VERY SATISFIED)]

44. 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)]

[DISPLAY IF Q43 < 3]

45. What would have made your purchase experience better?

DEMOGRAPHICS/HOME CHARACTERISTICS

"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."

46. 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

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)
98. Don't know
99. Prefer not to state

48. 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

49. 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

50. Including all money earned from wages, salaries, tips, commissions, workers' compensation, unemployment insurance, child support, or other sources, about how much was your total annual household income before taxes in 2021?

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

5. Home Energy Management Survey Instrument

INTRODUCTION

1. Our records indicate that you enrolled in I&M's IM Power Rewards: Smart Thermostat Program by enrolling your smart thermostat to allow I&M to make brief changes to its settings during peak demand periods.

Is this correct?

1. Yes
2. No [TERMINATE]
98. Do not recall [TERMINATE]

2. How did you first learn about I&M's IM Power Rewards program? [RANDOMIZE ORDER OF 1-8]

1. I&M newsletter or email
2. A postcard or other mailing from I&M
3. I&M website
4. From an HVAC contractor
5. Through a community organization
6. Home Energy Report
7. Social networking site such as Facebook or Twitter
8. Friend, relative, coworker, or neighbor
9. In some other way (Please specify)
98. Do not recall

PROGRAM PARTICIPATION

3. Why did you choose to participate in this program? (select all that apply) [MULTISELECT] [RANDOMIZE ORDER OF 1-5]

1. The opportunity to participate in an energy savings program
2. Program was recommended to me by I&M
3. The bill credits/enrollment incentive
4. To reduce energy use for environmental reasons
5. To save on energy costs
6. Other (please specify)

4. Thinking about this past summer period of May through September, about how often was someone home during an event?

1. Never
2. Less than half the time
3. About half of the time
4. More than half of the time
5. All of the time
98. Do not recall

5. Before your decision to participate in the IM Power Rewards: Smart Thermostat program, did you have any concerns about participating in it?

1. Yes
2. No

[DISPLAY IF Q5= 1]

6. What concerns did you have? (Please select all that apply) [MULTISELECT] [RANDOMIZE ORDER OF 1 -5]

1. Concerns about being uncomfortable during energy reduction events
3. Concerns about the utility having the ability to control or shut off my AC
4. Concerns about not being able to control the temperature
5. Concerns about privacy/security
6. Other (Please specify)

7. How much do you agree or disagree that reducing your electricity use during times when electricity demand is highest will have the following effects? [SCALE: 1 (STRONGLY DISAGREE) – 5 (STRONGLY AGREE)]

a. Lower your utility costs
b. Reduce greenhouse gas emissions
c. Help make the grid more reliable

8. Where did you get information about how the program works? (Select all that apply) [MULTISELECT] [RANDOMIZE ORDER OF 1 -5]

1. Information provided by an I&M representative
2. The program website
3. Information provided in an I&M email or newsletter
4. Information from an I&M flyer
5. Information provided in an I&M mailing
6. Other (please specify)
98. Do not recall

9. Thinking about any information that you received or viewed before you decided to participate, how well did that information address any questions you had?

1. 1 (Not at all)
2. 2
3. 3
4. 4
5. 5 (Completely)
6. I did not review any information before I decided to participate

[DISPLAY IF Q9 < 4]

10. What additional information would you have liked to have had?

11. Using the scale below, how would you rate the process of enrolling your thermostat in the program?

1. 1 (Very difficult)
2. 2
3. 3
4. 4
5. 5 (Very easy)

[DISPLAY IF Q11 < 3]

12. What made the enrollment process difficult?

PEAK ENERGY USE EVENTS

13. Were you at home during any of the peak energy use events that reduced the cooling from your air conditioner?

1. Yes
2. No, not that you are aware of

[DISPLAY IF Q13 = 1]

14. Now thinking about all the peak energy use events, during these events, would you say that your home became:

1. A little uncomfortable
2. Moderately uncomfortable
3. Very uncomfortable
4. There wasn’t a change in the comfort of your home

15. Did you recall opting out of any peak energy use events in 2021?

1. Yes
2. No

[DISPLAY IF Q15 = 1]

16. Why did you opt out of an event?

17. Was the number of peak energy use events that occurred this summer about what you were expecting when you signed up for the program, more than you were expecting, or fewer than you were expecting?

1. More than expected
2. About what was expected
3. Fewer than expected
98. Don't know

[DISPLAY IF Q15 = 1 OR Q15 = 3]

18. How many events were you expecting?

[DISPLAY IF Q15 = 1 OR Q15 = 3]

19. Do you think that the number of peak energy use events that occurred this year was acceptable?

1. The number of events was acceptable
2. There were too many events
3. There were too few events

[DISPLAY IF Q19 = 2 OR Q19 = 3]

20. What would be an acceptable number of events?

21. Did you contact I&M program staff about any issues or questions that you had during the past year about the IM Power Rewards: Smart Thermostat?

1. Yes
2. No

[DISPLAY IF Q21 = 1]

22. How satisfied were you with the response from I&M staff?

1. Very dissatisfied
2. Somewhat dissatisfied
3. Neither satisfied nor dissatisfied
4. Somewhat satisfied
5. Very satisfied

23. How likely is it that you will participate in the IM Power Rewards: Smart Thermostat program next year? [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]

[DISPLAY IF Q23 < 7]

24. Why might you not participate in the program next year?

25. How satisfied are you with the IM Power Rewards: Smart Thermostat program, overall?

1. Very dissatisfied
2. Somewhat dissatisfied
3. Neither satisfied nor dissatisfied
4. Somewhat satisfied
5. Very satisfied

[DISPLAY IF Q25 = 1 OR 2]

26. Why were you dissatisfied?

27. How likely is it that you would recommend the IM Power Rewards: Smart Thermostat program to a friend, family member, or colleague?

[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]

DEMOGRAPHICS / HOME CHARACTERISTICS

28. Do you own the home that participated in the 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

29. Is the residence located at [ADDRESS]…

1. Your primary residence
2. A residence that you rent to someone else
3. A vacation property that is not occupied year-round
4. Something else

30. Which of the following best describes your home?

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)
99. Prefer not to answer

31. What temperature is your thermostat typically set at to control the cooling during the summer?

66. 66 degrees or cooler
67. 67
68. 68
69. 69
70. 70
71. 71
72. 72
73. 73
74. 74
75. 75
76. 76
77. 77
78. 78
79. 79
80. 80 degrees or warmer
99. Do not use a thermostat setting to control air conditioner

32. 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. I prefer not to state

33. Including all money earned from wages, salaries, tips, commissions, workers' compensation, unemployment insurance, child support, or other sources, about how much was your total annual household income before taxes in 2020?

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. I prefer not to state

34. Do you have any suggestions for improving I&M's IM Power Rewards program?

This completes the survey. If you have any additional questions regarding this survey or the program, please contact I&M at imenergyefficiencyprograms@aep.com. Thank you very much for your time.

6. Residential Non-Participant Survey Instrument

INTRODUCTION AND SCREENING

1. According to our records, I&M provides the electricity service to your residence located at [ADDRESS]. Is that correct?

1. Yes
2. No [TERMINATE]
3. The location is not a residence [TERMINATE]
98. Not sure [TERMINATE]

2. Have you received a rebate or financial incentive from I&M for installing energy efficient equipment or making energy efficiency improvements at this residence in the last three years?

1. Yes [TERMINATE]
2. No

3. Do you have a student in your household who participated in I&M's energy education school in the last three years and received an energy education kit with free lightbulbs and other items?

1. Yes [TERMINATE]
2. No

SPILLOVER EQUIPMENT

4. Thank you for that information. We would like to know if you or anyone else in your household made any energy efficiency improvements to your home in the last 12 months.

In the last 12 months, did you or anyone else in your household make any of the following energy saving improvements? [MULTI SELECT] [RANDOMIZE 2 – 12, FIX 1]

1. Have not made energy efficiency improvements
2. Installed LED Light Bulbs
3. Purchased an ENERGY STAR® appliance such as a refrigerator, dishwasher, clothes washer, air purifier, dehumidifier, or clothes dryer
4. Installed water heater pipe insulation
5. Installed water heater jacket, blanket, or insulation
6. Installed low flow faucet aerators
7. Installed low flow showerheads
8. Installed an ENERGY STAR® room air conditioner
9. Installed an energy efficient water heater
10. Installed an energy efficient central air conditioner or heat pump
11. Installed a smart (Wi-Fi) thermostat
12. Something else

[DISPLAY Q5 IF Q4 = 2 - 12]

5. Did you receive a rebate or incentive from I&M for the equipment or home improvements that you mentioned?

1. Yes
2. No
98. Not sure

[DISPLAY Q6 IF Q5= 2]

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

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. For some other reason (Please describe)
98. Don’t know

[DISPLAY Q7 IF Q4 = 2]

7. How many LEDs did you purchase and install?

1. (RECORD QUANTITY)
98. Don’t know

[DISPLAY Q8 IF Q4 = 2]

8. When you were deciding to purchase those energy efficient light bulbs you mentioned, did you consider any of the following sources of information? [SCALE: 1 = YES, 2 = NO]

a. Emails from I&M about saving energy
b. I&M television or radio advertisements promoting energy efficiency
c. Information on I&M's website
d. Bill inserts or other mailings from I&M
e. Information from friends or family who participated in an I&M program
f. Information from I&M's social media sources (Twitter, Facebook, YouTube)

[DISPLAY Q9 IF ANY IN Q8 = 1]

9. Using a scale where 0 means not at all influential and 10 means extremely influential, how important was that information in your decision to purchase those LED light bulbs? [SCALE: 0 = 0 (NOT AT ALL INFLUENTIAL), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (EXTREMELY INFLUENTIAL)]

[DISPLAY Q10 IF ANY IN Q8 = 1]

10. 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 purchase those LED bulbs if you did not receive that information? [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)]

[DISPLAY Q11 IF Q4 = 3]

11. What kind of ENERGY STAR appliance did you purchase? (Select all that apply) [MULTI SELECT]

1. Refrigerator
2. Clothes washer
3. Clothes dryer
4. Dishwasher
5. Air purifier/cleaner
6. Dehumidifier
7. Other (Please specify)
98. Don't know

[DISPLAY Q12 IF Q4 = 3]

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

[DISPLAY Q13 IF Q11 = 5]

13. How many ENERGY STAR air purifier/cleaners did you purchase?

[DISPLAY Q14 IF Q11 = 6]

14. How many ENERGY STAR dehumidifiers did you purchase?

[DISPLAY Q15 IF Q4 = 3]

15. When you were deciding to purchase the appliance(s) you mentioned, did you consider any of the following sources of information? [SCALE: 1 = YES, 2 = NO]

a. Emails from I&M about saving energy
b. I&M television or radio advertisements promoting energy efficiency
c. Information on I&M's website
d. Bill inserts or other mailings from I&M
e. Information from friends or family who participated in an I&M program
f. Information from I&M's social media sources (Twitter, Facebook, YouTube)

[DISPLAY Q16 IF ANY IN Q15 = 1]

16. Using a scale where 0 means not at all influential and 10 means extremely influential, how important was that information in your decision to purchase the appliances? [SCALE: 0 = 0 (NOT AT ALL INFLUENTIAL), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (EXTREMELY INFLUENTIAL)]

[DISPLAY Q17 IF ANY IN Q15 = 1]

17. 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 purchase the appliance(s) if you did not receive that information? [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)]

[DISPLAY Q18 IF Q4 = 4]

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

[DISPLAY Q19 IF Q4 = 4 OR 5]

19. When you were deciding to install the water heating insulation you mentioned, did you consider any of the following sources of information? [SCALE: 1 = YES, 2 = NO]

a. Emails from I&M about saving energy
b. I&M television or radio advertisements promoting energy efficiency
c. Information on I&M's website
d. Bill inserts or other mailings from I&M
e. Information from friends or family who participated in an I&M program
f. Information from I&M social media sources (Twitter, Facebook, YouTube)

[DISPLAY Q20 IF ANY IN Q19 = 1]

20. Using a scale where 0 means not at all influential and 10 means extremely influential, how important was that information in your decision to install the water heating insulation? [SCALE: 0 = 0 (NOT AT ALL INFLUENTIAL), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (EXTREMELY INFLUENTIAL)]

[DISPLAY Q21 IF ANY IN Q19 = 1]

21. 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 install the water heating insulation? [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)]

[DISPLAY Q22 IF Q4 = 6]

22. How many low flow faucet aerators did you install on a bathroom or kitchen faucet?

Number installed on a bathroom faucet
Number installed on a kitchen faucet

[DISPLAY Q23 IF Q4 = 7]

23. How many low flow shower heads did you install?

[DISPLAY Q24 IF Q4 = 6 OR 7]

24. When you were deciding to install the low flow devices, did you consider any of the following sources of information?

[SCALE: 1 = YES, 2 = NO]

a. Emails from I&M about saving energy
b. I&M television or radio advertisements promoting energy efficiency
c. Information on I&M's website
d. Bill inserts or other mailings from I&M
e. Information from friends or family who participated in an I&M program
f. Information from I&M social media sources (Twitter, Facebook, YouTube)

[DISPLAY Q25 IF ANY IN Q24 = 1]

25. Using a scale where 0 means not at all influential and 10 means extremely influential, how important was that information in your decision to install the low flow devices? [SCALE: 0 = 0 (NOT AT ALL INFLUENTIAL), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (EXTREMELY INFLUENTIAL)]

[DISPLAY Q26 IF ANY IN Q24 = 1]

26. 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 install the low flow devices? [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)]

[DISPLAY Q27 IF Q4 = 8]

27. How many ENERGY STAR® room air conditioners did you install?

[DISPLAY Q28 IF Q4 = 8]

28. How many square feet is the room that the ENERGY STAR® air conditioner is installed in? (If multiple units installed, how many square feet on average are the rooms you installed the air conditioners in?)

[DISPLAY Q29 IF Q4 = 8]

29. When you were deciding to purchase the ENERGY STAR® room air conditioner, did you consider any of the following sources of information?

[SCALE: 1 = YES, 2 = NO]

a. Emails from I&M about saving energy
b. I&M television or radio advertisements promoting energy efficiency
c. Information on I&M's website
d. Bill inserts or other mailings from I&M
e. Information from friends or family who participated in an I&M program
f. Information from I&M social media sources (Twitter, Facebook, YouTube)

[DISPLAY Q30 IF ANY IN Q29 = 1]

30. Using a scale where 0 means not at all influential and 10 means extremely influential, how important was that information in your decision to purchase the room air conditioner? [SCALE: 0 = 0 (NOT AT ALL INFLUENTIAL), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (EXTREMELY INFLUENTIAL)]

[DISPLAY Q31 IF ANY IN Q29 = 1]

31. 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 purchase the room air conditioner? [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)]

[DISPLAY Q32 IF Q4 = 9]

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

[DISPLAY Q33 IF Q4 =9]

33. 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 tankless water heater
5. Some other type of water heater (Specify)
98. Don't know

[DISPLAY Q34 IF Q4 = 9]

34. When you were deciding to purchase the energy efficient water heater, did you consider any of the following sources of information? [SCALE: 1 = YES, 2 = NO]

a. Emails from I&M about saving energy
b. I&M television or radio advertisements promoting energy efficiency
c. Information on I&M's website
d. Bill inserts or other mailings from I&M
e. Information from friends or family who participated in an I&M program
f. Information from I&M social media sources (Twitter, Facebook, YouTube)

[DISPLAY Q35 IF ANY IN Q34 = 1]

35. Using a scale where 0 means not at all influential and 10 means extremely influential, how important was that information in your decision to purchase the energy efficient water heater? [SCALE: 0 = 0 (NOT AT ALL INFLUENTIAL), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (EXTREMELY INFLUENTIAL)]

[DISPLAY Q36 IF ANY IN Q34 = 1]

36. 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 purchase the energy efficient water heater? [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)]

[DISPLAY Q37 IF Q4 =10]

37. Was the new ducted central cooling system that you installed an air conditioner or a heat pump?

1. Air conditioner
2. Heat pump
98. Don't know

[DISPLAY Q38 IF Q4 =10]

38. Air conditioners and heat pumps have what is called a SEER rating. The SEER rating is a number that tells you how efficient the unit is. Do you recall what the SEER rating is for the unit you installed?

1. Yes (What is it?)
2. No

[DISPLAY Q39 IF Q37 =2]

39. Heat pumps also have a Heating Seasonal Performance Factor or HSPF that is a number that tells you how efficient the unit is. Do you recall what the Heating Seasonal Performance Factor is for the unit you installed?

1. Yes (What is it)
2. No

[DISPLAY Q40 IF Q4 = 10]

40. When you were deciding to purchase the central cooling system, did you consider any of the following sources of information?

[SCALE: 1 = YES, 2 = NO]

a. Emails from I&M about saving energy
b. I&M television or radio advertisements promoting energy efficiency
c. Information on I&M's website
d. Bill inserts or other mailings from I&M
e. Information from friends or family who participated in an I&M program
f. Information from I&M social media sources (Twitter, Facebook, YouTube)

[DISPLAY Q41 IF ANY IN Q40 = 1]

41. Using a scale where 0 means not at all influential and 10 means extremely influential, how important was that information in your decision to purchase the central cooling system? [SCALE: 0 = 0 (NOT AT ALL INFLUENTIAL), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (EXTREMELY INFLUENTIAL)]

[DISPLAY Q42 IF ANY IN Q40= 1]

42. 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 purchase the central cooling system? [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)]

[DISPLAY Q43 IF Q4 = 11]

43. Does the smart Wi-Fi thermostat that you got a rebate for 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 Q44 IF Q4 = 11]

44. Is your central air conditioning system a heat pump?

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

[DISPLAY Q45 IF Q43 = 2 OR 3]

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

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

[DISPLAY Q46 IF Q43 = 2 OR 3]

46. What type of fuel does your central heating system use?

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

[DISPLAY Q47 IF Q4 = 11]

47. What type of thermostat did the rebated smart Wi-Fi thermostat replace?

1. A standard manual thermostat that lets you set on/off temperatures
2. A programmable thermostat that allows you to schedule the temperature settings for different times of the day
3. A different Wi-Fi smart thermostat
4. It was not a replacement
98. Don't know

[DISPLAY Q48 IF Q4 = 11]

48. When you were deciding to purchase the smart thermostat, did you consider any of the following sources of information? [SCALE: 1 = YES, 2 = NO]

a. Emails from I&M about saving energy
b. I&M television or radio advertisements promoting energy efficiency
c. Information on I&M's website
d. Bill inserts or other mailings from I&M
e. Information from friends or family who participated in an I&M program
f. Information from I&M social media sources (Twitter, Facebook, YouTube)

[DISPLAY Q49 IF ANY IN Q48 = 1]

49. Using a scale where 0 means not at all influential and 10 means extremely influential, how important was that information in your decision to purchase the thermostat? [SCALE: 0 = 0 (NOT AT ALL INFLUENTIAL), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (EXTREMELY INFLUENTIAL)]

[DISPLAY Q50 IF ANY IN Q48 = 1]

50. 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 purchase the thermostat? [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)]

[DISPLAY Q51 IF Q4 = 12]

51. What other energy efficient items did you install?

[DISPLAY Q52 IF Q4 = 12]

52. When you were deciding to purchase those other energy efficient items, did you consider any of the following sources of information?

[SCALE: 1 = YES, 2 = NO]

a. Emails from I&M about saving energy
b. I&M television or radio advertisements promoting energy efficiency
c. Information on I&M's website
d. Bill inserts or other mailings from I&M
e. Information from friends or family who participated in an I&M program
f. Information from I&M social media sources (Twitter, Facebook, YouTube)

[DISPLAY Q53 IF ANY IN Q52 = 1]

53. Using a scale where 0 means not at all influential and 10 means extremely influential, how important was that information in your decision to purchase those other energy efficient items?

[SCALE: 0 = 0 (NOT AT ALL INFLUENTIAL), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (EXTREMELY INFLUENTIAL)]

[DISPLAY Q54 IF ANY IN Q52 = 1]

54. 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 purchase those other energy efficient items?

[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)]

PEAK DEMAND

55. Demand for electricity is often highest during summer afternoons when the weather is hottest. How easy or difficult is it for you to reduce your electricity during times when electricity demand is highest? [SCALE: 1 = VERY DIFFICULT, 2 = 2, 3 = 3, 4 = 4, 5 = VERY EASY]

56. How much do you agree or disagree that reducing your electricity use during times when electricity demand is highest will have the following effects? [SCALE: 1 (STRONGLY DISAGREE) – 5 (STRONGLY AGREE)] [RANDOMIZE]

a. Lower your utility costs
b. Reduce greenhouse gas emissions
c. Help make the grid more reliable

57. How important are the following to you: [SCALE: 1 = NOT AT ALL IMPORTANT, 2 = 2, 3 = 3, 4 = 4, 5 = VERY IMPORTANT]

a. Lowering your utility costs
b. Helping to make the grid more reliable
c. Reducing greenhouse gas emissions

ELECTRIC HOMES

58. Do you think the following statements about all-electric homes are true or false? Your best guess is fine. [RANDOMIZE ORDER OF 1 –4] [SCALE: 1 = TRUE, 2 = FALSE]

1. All-electric homes are more energy efficient
2. All-electric homes are expensive to buy
3. All-electric homes improve indoor and outdoor air quality
4. All-electric homes have higher utility costs

PROGRAM AWARENESS

59. Are you aware of any rebates for energy efficient equipment and home improvements or other services offered by I&M?

1 Yes
2 No
98 Don't know

[DISPLAY IF Q59= 1]

60. What types of rebates or services do you recall hearing about? (Select all that apply)

[MULTISELECT]

1. [DISPLAY IF STATE = MI] Heating and cooling equipment
2. Heat pump water heaters or high-efficiency electric water heater
3. Discounts for LED light bulbs
4. [DISPLAY IF STATE = MI] Insulation / air sealing
5. Smart Wi-Fi thermostats
6. [DISPLAY IF STATE = MI] Recycling old refrigerators or freezers
7. [DISPLAY IF STATE = MI] Home energy assessments
8. Energy-saving pool pump
9. Efficient dehumidifier
10. ECM furnace fan motor
11. [DISPLAY IF STATE = MI] Geothermal heat pump
12. [DISPLAY IF STATE = MI] Packaged terminal heat pump
13. IM Power Rewards: Smart Thermostat
14. Other (Specify)
98. Don't know

[DISPLAY IF Q59 = 1]

61. How did you learn of these rebates or services? (Select all that apply)

[MULTISELECT]

1. I&M Website (www.electricideas.com or indianamichiganpower.com)
2. I&M bill insert, or message printed on your bill
3. Friend, family member, or colleague
4. TV ad
5. I&M Representative
6. I&M Newsletter
7. Community event
8. Social media
9. Home Energy Report
10. Newspaper/magazine/print media
11. Other (Please describe)
98. Don't recall

DEMOGRAPHICS / HOME CHARACTERISTICS

I now have some questions about this residence. These are confidential and will be used solely for combining different customers' responses. If you do not want to answer any of these, let me know. It is okay to not answer any of these questions.

62. Which of the following best describes your home?

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. I prefer not to state

63. Do you own, rent, or own and rent to someone else the property located at [ADDRESS]?

1. Own
2. Rent
3. Own and rent to someone else
99. I prefer not to state

64. 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. Don't know/Prefer not to state

65. What is the fuel source for your clothes dryer?

1. Natural gas
2. Electricity
3. Propane
4. Other
5. I don't have a clothes dryer
99. Don't know/Prefer not to state

66. What is the fuel source for your oven and range?

1. Natural gas
2. Electricity
3. Propane
4. Other
5. I don't have an oven/range
99. Don't know/Prefer not to state

67. Do you have a Wi-Fi connect smart thermostat?

1. Yes
2. No
99. Don't know/Prefer not to state

68. Do you or any member of your household own or lease a plug-in electric vehicle?

1. Yes
2. No
99. Don't know/Prefer not to state

[DISPLAY Q69 THRU Q70 IF Q68 = 1]

69. Do you have a plug-in hybrid vehicle or a battery electric vehicle?

1. Plug-in hybrid
2. Battery electric vehicle
3. Both
99. Don't know/Prefer not to state

70. Do you charge your electric vehicle at home?

1. Yes
2. No
99. Prefer not to state

71. Do you or any member of your household park a vehicle within about 20 feet of an electric outlet?

1. Yes
2. No
99. Prefer not to state

72. Is there a 220/240-volt outlet within about 20 feet of where you or another member of your household park your vehicle? These are the larger outlets, like you would use to plug in a clothes dryer.

1. Yes
2. No
99. Don't know/Prefer not to state

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

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

74. What fuel does your main water heater use?

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

75. 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. I prefer not to state

76. Including all money earned from wages, salaries, tips, commissions, workers' compensation, unemployment insurance, child support, or other sources, about how much was your total annual household income before taxes in 2020?

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. I prefer not to state

7. Residential Income Qualified Weatherproofing Participant Survey Results

Q2 - Our records indicate that your household participated in I&M's Home Weatherproofing Program by receiving an in-home energy assessment and some energy saving home improvements. Is that correct?

#	Answer	%	Count
1	Yes	100.00%	7
2	No	0.00%	0
98	Don't know	0.00%	0
	Total	100%	7

Q3 - How did you first learn about I&M's Home Weatherproofing Program?

#	Answer	%	Count
1	Newspaper/magazine/print media	0.00%	0
2	I&M Mailing	42.86%	3
3	I&M Website (www.electricideas.com or indianamichiganpower.com)	28.57%	2
4	Friend or Relative (word-of-mouth)	0.00%	0
5	TV/Radio ad	0.00%	0
6	I&M Representative	14.29%	1
7	I&M Newsletter	0.00%	0
8	Community event	0.00%	0
9	Social media (Facebook, Instagram or Twitter)	0.00%	0
10	Home Energy Report	0.00%	0
11	Other (Specify)	14.29%	1
98	Don't know	0.00%	0
	Total	100%	7

Q4 - What is the main reason you decided to participate in the program?

#	Answer	%	Count
1	To save money on energy bill(s)	71.43%	5
2	Environmental reasons	0.00%	0
3	I&M financial assistance for making the home improvements	14.29%	1
4	Other (Specify)	14.29%	1
98	Don't know	0.00%	0
	Total	100%	7

Q5 - How likely is it that you would have hired a professional contractor to perform a home audit like the Home Weatherproofing program offers if I&M did not offer the Home Weatherproofing Program? Would you say that you…

#	Answer	%	Count
1	Definitely would have	0.00%	0
2	Probably would have	0.00%	0
3	Probably would not have	0.00%	0
4	Definitely would not have	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q7 - How much is the most you would have been willing to pay for an assessment had I&M not provided one at a reduced cost of $99?

#	Answer	%	Count
1	Less than $100	0.00%	0
2	$100 - $200	0.00%	0
3	$201 - $300	0.00%	0
4	$301 - $400	0.00%	0
5	$401 - $500	0.00%	0
6	More than $500	0.00%	0
98	Don’t know	0.00%	0
	Total		0

Q8 - According to our records you made the following home improvements through I&M's Home Weatherproofing Program. Is this information correct?

#	Question	Correct		Incorrect		Don't know		Total
1	[Field-EFF_MEASURE1]	42.86%	3	42.86%	3	14.29%	1	7
2	[Field-EFF_MEASURE2]	57.14%	4	14.29%	1	28.57%	2	7
3	[Field-EFF_MEASURE3]	60.00%	3	20.00%	1	20.00%	1	5
4	[Field-EFF_MEASURE4]	100.00%	2	0.00%	0	0.00%	0	2

Q9 - Would you have been able to afford to [Field-IMPLEMENT1] the [Field-EFF_MEASURE1] if the rebate was not available from the program?

#	Answer	%	Count
1	Yes	0.00%	0
2	No	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q10 - Were you planning to [Field-IMPLEMENT1] the [Field-EFF_MEASURE1] before you learned of I&M's Home Weatherproofing Program?

#	Answer	%	Count
1	Yes	0.00%	0
2	No	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q11 - Did these plans include plans to perform diagnostic blower door testing?

#	Answer	%	Count
1	Yes	0.00%	0
2	No	0.00%	0
98	Don’t know	0.00%	0
	Total		0

Q12 - Using a scale where 0 means “not at all influential” and 10 means “very influential,” how influential was the program energy audit in your decision to [Field-IMPLEMENT1] the [Field-EFF_MEASURE1]?

#	Answer	%	Count
0	0- Not at all influential	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very influential	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q13 - Using the same scale, how influential were the rebates available through program in your decision to [Field-IMPLEMENT1] the [Field-EFF_MEASURE1]?

#	Answer	%	Count
0	0- Not at all influential	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very influential	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q14 - Now we would like to know how likely you would have been to [Field-IMPLEMENT1] the [Field-EFF_MEASURE1] if the program was not available. Using a scale were 0 means "not at all likely" and 10 means "very likely," how likely is it that you would have [Field-IMPLEMENTED1] the same [Field-EFF_MEASURE1] if you had not received the rebate through the program?

#	Answer	%	Count
0	0- Not at all likely	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very likely	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q15 - Using the same scale, how likely is it that you would have [Field-IMPLEMENTED1] the same [Field-EFF_MEASURE1] if you had not received the home energy assessment through the program?

#	Answer	%	Count
0	0- Not at all likely	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very likely	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q16 - Did you [Field-IMPLEMENT1] 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	0.00%	0
2	No	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q17 - When might you have [Field-IMPLEMENT1] the same [Field-EFF_MEASURE1] if you had not participated in the program? Would you say…

#	Answer	%	Count
1	Within 6 months of when you received it through the program	0.00%	0
2	Between 6 months and 1 year	0.00%	0
3	In more than 1 year to 2 years	0.00%	0
4	In two years or more	0.00%	0
98	Don’t know	0.00%	0
99	Refused	0.00%	0
	Total		0

Q18 - Would you have been able to afford to [Field-IMPLEMENT2] the [Field-EFF_MEASURE2] if the rebate was not available from the program?

#	Answer	%	Count
1	Yes	0.00%	0
2	No	0.00%	0
98	Don’t know	0.00%	0
	Total		0

Q19 - Were you planning to [Field-IMPLEMENT2] the [Field-EFF_MEASURE2] before you learned of I&M's Home Weatherproofing Program?

#	Answer	%	Count
1	Yes	0.00%	0
2	No	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q20 - Did these plans include plans to perform diagnostic blower door testing?

#	Answer	%	Count
1	Yes	0.00%	0
2	No	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q21 - Using a scale where 0 means "not at all influential" and 10 means "very influential," how influential was the program energy audit in your decision to [Field-IMPLEMENT2] the [Field-EFF_MEASURE2]?

#	Answer	%	Count
0	0- Not at all influential	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very influential	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q22 - Using the same scale, how influential were the rebates available through program in your decision to [Field-IMPLEMENT2] the [Field-EFF_MEASURE2]?

#	Answer	%	Count
0	0- Not at all influential	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very influential	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q23 - Now we would like to know how likely you would have been to [Field-IMPLEMENT2] the [Field-EFF_MEASURE2] if the program was not available. Using a scale were 0 means "not at all likely" and 10 means "very likely," how likely is it that you would have [Field-IMPLEMENTED2] the same [Field-EFF_MEASURE2] if you had not received the rebate through the program?

#	Answer	%	Count
0	0- Not at all likely	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very likely	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q24 - Using the same scale, how likely is it that you would have [Field-IMPLEMENTED2] the same [Field-EFF_MEASURE2] if you had not received the home energy assessment through the program?

#	Answer	%	Count
0	0- Not at all likely	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very likely	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q25 - Did you [Field-IMPLEMENT2] the [Field-EFF_MEASURE2] sooner than you would have if the information and financial assistance from the program had not been available?

#	Answer	%	Count
1	Yes	0.00%	0
2	No	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q26 - When might you have [Field-IMPLEMENTED2] the same [Field-EFF_MEASURE2] if you had not participated in the program? Would you say…

#	Answer	%	Count
1	Within 6 months of when you received it through the program	0.00%	0
2	Between 6 months and 1 year	0.00%	0
3	In more than 1 year to 2 years	0.00%	0
4	In two years or more	0.00%	0
98	Don’t know	0.00%	0
99	Refused	0.00%	0
	Total		0

Q27 - According to our records you received the following energy saving items through I&M’s Home Weatherproofing Program. Please indicate if the information is correct.

#	Question	Correct		Incorrect		Don't know		Refused		Total
1	[Field-LED_QUANT] LED light bulbs	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1
2	[Field-BATH_AERATOR_QUANT] Energy and water efficient bathroom faucet aerators(s)	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1
3	[Field-KIT_AERATOR_QUANT] Energy and water efficient kitchen faucet aerator(s)	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0
4	[Field-SHOWER_QUANT] Energy and water efficient showerheads	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1
5	Pipe wrap	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0
6	A shower valve that shuts the water off when it gets hot	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0

Q32 - Have you removed any of those items installed in your home through the program? (Select all that apply)

#	Answer	%	Count
1	No items were removed	100.00%	1
2	Removed LED light bulbs	0.00%	0
3	Removed energy and water efficient bathroom faucet aerators	0.00%	0
4	Removed energy and water efficient kitchen faucet aerator	0.00%	0
5	Removed energy and water efficient showerheads	0.00%	0
6	Removed pipe wrap	0.00%	0
7	Removed shower valve that shuts the water off when it gets hot	0.00%	0
98	Don’t know	0.00%	0
	Total	100%	1

Q37 - Thinking back to before you participated in the Home Weatherproofing Program, had you purchased any of the following items in the last three years? (Select all that apply)

#	Answer	%	Count
1	LED light bulbs	0.00%	0
2	Energy and water efficient bathroom faucet aerators	0.00%	0
3	Energy and water efficient kitchen faucet aerator	0.00%	0
4	Energy and water efficient showerheads	0.00%	0
5	Pipe wrap	0.00%	0
6	Don’t know	0.00%	0
	Total		0

Q38 - Before you heard of the Home Weatherproofing Program, did you have specific plans to purchase any of these items that were installed for you?

#	Answer	%	Count
1	Yes	0.00%	0
2	No	0.00%	0
98	Don’t know	0.00%	0
	Total		0

Q39 - For each of the following items, please tell me if you had plans to purchase the item before you heard of the Home Weatherproofing Program.

#	Question	Yes		No		Don't know		Refused		Total
1	LED light bulbs	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0
2	Energy and water efficient bathroom faucet aerators	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0
3	Energy and water efficient kitchen faucet aerator	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0
4	Energy and water efficient showerheads	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0
5	Pipe wrap	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0

Q48 - Based on your response, there is some likelihood that you would have purchased some of those items 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 purchased those items because: (Select all that apply)

#	Answer	%	Count
1	You didn't want to spend the money	0.00%	0
2	You had not gotten around to purchasing the items	0.00%	0
3	You didn't know where to purchase the items	0.00%	0
4	You didn't know enough about the items	0.00%	0
5	For other reasons	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q50 - During the home energy assessment, did you learn about any tips for reducing energy use in your home?

#	Answer	%	Count
1	Yes	85.71%	6
2	No	14.29%	1
98	Don't know	0.00%	0
	Total	100%	7

Q51 - Have you implemented any of the energy saving tips that you learned about from the home energy assessment since receiving the home energy assessment?

#	Answer	%	Count
1	Yes	50.00%	3
2	No	33.33%	2
98	Don't know	16.67%	1
	Total	100%	6

Q52 - Which energy saving tips have you implemented? (Select all that apply)

#	Answer	%	Count
1	Turning off lights when you leave the room	25.00%	2
2	Unplugging unused appliances	12.50%	1
3	Washing clothes in cold water	25.00%	2
4	Installing a water heater tank wrap	0.00%	0
5	Installing a programmable thermostat	0.00%	0
6	Programming an existing thermostat	0.00%	0
7	Other (Please specify)	37.50%	3
98	Don't know	0.00%	0
	Total	100%	8

Q53 - Using a scale where 0 means "not at all important" and 10 means "very important," how important was the Home Weatherproofing Program in your decision to implement those energy saving tip(s)?

#	Answer	%	Count
0	0- Not at all important	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very important	100.00%	3
98	Don't know	0.00%	0
	Total	100%	3

Q54 - Using a scale where 0 means "not at all likely" and 10 means "very likely," how likely would you have been to implement the above energy saving tip(s) had you not participated in the Home Weatherproofing Program?

#	Answer	%	Count
0	0- Not at all likely	33.33%	1
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	33.33%	1
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very likely	33.33%	1
98	Don't know	0.00%	0
	Total	100%	3

Q55 - Have you bought any additional energy efficient items without a financial incentive or rebate because of your experience with the Home Weatherproofing Program?

#	Answer	%	Count
1	Yes	0.00%	0
2	No	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q56 - We would like to know what you purchased and installed because of your experience with the Home Weatherproofing Program that you did not receive an incentive or rebate for. Since participating in the Home Weatherproofing Program in [Field-YEAR] have you done any of the following?

#	Answer	%	Count
1	Installed CFLs (Compact Fluorescent Light bulbs)	0.00%	0
2	Installed LED Light Bulbs	0.00%	0
3	Purchased an ENERGY STAR appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer	0.00%	0
4	Installed water heater pipe insulation	0.00%	0
5	Installed water heater jacket, blanket, or insulation	0.00%	0
6	Installed low flow faucet aerators	0.00%	0
7	Installed low flow showerheads	0.00%	0
8	Installed an ENERGY STAR room air conditioner	0.00%	0
9	Installed an energy efficient water heater	0.00%	0
10	Something else	0.00%	0
98	Don’t know	0.00%	0
	Total		0

Q57 - 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	0.00%	0
2	Did not have the time to complete rebate application	0.00%	0
3	Found out about rebate too late	0.00%	0
4	Did not think my equipment was eligible	0.00%	0
5	Submitted a rebate application that was rejected	0.00%	0
6	For some other reason (Please describe)	0.00%	0
98	Don’t know	0.00%	0
	Total		0

Q58 - Was that equipment recommended during the home energy audit?

#	Answer	%	Count
1	Yes	0.00%	0
2	No	0.00%	0
98	Don’t know	0.00%	0
	Total		0

Q70 - What type of water heater did you install?

#	Answer	%	Count
1	Natural gas storage tank water heater	0.00%	0
2	Electric storage tank water heater	0.00%	0
3	Heat pump water heater	0.00%	0
4	A natural gas tank less water heater	0.00%	0
5	Some other type of water heater (Specify)	0.00%	0
98	Don’t know	0.00%	0
	Total		0

Q73 - Using a scale where 0 means "not at all important" and 10 means "very important," how important was the experience with the Home Weatherproofing Program in your decision to purchase the items you just mentioned?

#	Answer	%	Count
0	0- Not at all important	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very important	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q74 - Using a scale where 0 means "not at all likely" and 10 means "very likely," how likely would you have been to purchase those additional items if you had not participated in the Home Weatherproofing Program?

#	Answer	%	Count
0	0- Not at all likely	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	0.00%	0
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8	0.00%	0
9	9	0.00%	0
10	10- Very likely	0.00%	0
98	Don't know	0.00%	0
99	Refused	0.00%	0
	Total		0

Q75 - 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	1- Very dissatisfied		2		3		4		5- Very satisfied		Don't know		Total
1	Performance of the items or improvements installed	0.00%	0	14.29%	1	14.29%	1	14.29%	1	42.86%	3	14.29%	1	7
2	The effort required for the program application process	0.00%	0	0.00%	0	0.00%	0	57.14%	4	42.86%	3	0.00%	0	7
3	Information about the program provided by I&M	0.00%	0	0.00%	0	14.29%	1	28.57%	2	57.14%	4	0.00%	0	7
4	The home energy audit	0.00%	0	0.00%	0	0.00%	0	14.29%	1	71.43%	5	14.29%	1	7
5	The quality of the installation work	0.00%	0	0.00%	0	14.29%	1	14.29%	1	57.14%	4	14.29%	1	7
6	The program overall	0.00%	0	0.00%	0	14.29%	1	28.57%	2	57.14%	4	0.00%	0	7

Q78 - 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	1- Very dissatisfied	0.00%	0
2	2	28.57%	2
3	3	0.00%	0
4	4	14.29%	1
5	5- Very satisfied	57.14%	4
98	Don't know	0.00%	0
	Total	100%	7

Q80 - Do you own the home that participated in the Home Weatherproofing Program, rent it, or own it and rent it to someone else?

#	Answer	%	Count
1	Own	85.71%	6
2	Rent	14.29%	1
3	Own and rent to someone else	0.00%	0
98	Prefer not to answer	0.00%	0
	Total	100%	7

Q81 - Which of the following best describes your home? Is it a…

#	Answer	%	Count
1	Manufactured home	0.00%	0
2	Single-family house detached from any other house	85.71%	6
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	14.29%	1
4	Apartment in a building with 2 to 3 units	0.00%	0
5	Apartment in a building with 4 or more units	0.00%	0
6	Other (Specify)	0.00%	0
99	Prefer not to answer	0.00%	0
	Total	100%	7

Q82 - When was your home built?

#	Answer	%	Count
1	Before 1950	0.00%	0
2	1950 to 1959	0.00%	0
3	1960 to 1969	0.00%	0
4	1970 to 1979	0.00%	0
5	1980 to 1989	0.00%	0
6	1990 to 1999	0.00%	0
7	2000 to 2009	0.00%	0
8	2010 or later	0.00%	0
99	Prefer not to answer	0.00%	0
	Total		0

Q83 - Including all money earned from wages, salaries, tips, commissions, workers' compensation, unemployment insurance, child support, or other sources, about how much was your total annual household income before taxes in 2020?

#	Answer	%	Count
1	Less than $10,000	14.29%	1
2	$10,000 to less than $20,000	28.57%	2
3	$20,000 to less than $30,000	14.29%	1
4	$30,000 to less than $40,000	28.57%	2
5	$40,000 to less than $50,000	14.29%	1
6	$50,000 to less than $75,000	0.00%	0
7	$75,000 to less than $100,000	0.00%	0
8	$100,000 to less than $150,000	0.00%	0
9	$150,000 to less than $200,000	0.00%	0
10	$200,000 or more	0.00%	0
99	Prefer not to answer	0.00%	0
	Total	100%	7

8. Home Energy Products Appliances Survey Results

Q2 - To begin with, we would like to verify the equipment that you received a rebate for. In 2021, did you receive a rebate or discount for:

#	Question	Yes		No		Total
1	An air conditioner	0.0%	0	0.0%	0	undefined
2	Air source heat pump heating and cooling system	100.0%	15	0.0%	0	15
3	A ductless heat pump	100.0%	14	0.0%	0	14
4	A heat pump water heater	100.0%	1	0.0%	0	1
5	Electronically commutated motor (on an efficient furnace)	0.0%	0	0.0%	0	undefined
6	A Wi-Fi / smart thermostat	100.0%	26	0.0%	0	26
7	An ENERGY STAR dehumidifier	100.0%	8	0.0%	0	8
8	An ENERGY STAR pool pump	0.0%	0	0.0%	0	undefined
9	A ground source heat pump	0.0%	0	0.0%	0	undefined
10	A high efficiency electric water heater	100.0%	12	0.0%	0	12

Q3 - How did you first learn about Home Energy Products Program?

#	Answer	%	Count
1	Newspaper/magazine/print media	2.8%	2
2	Mailer from I&M	16.9%	12
3	I&M Website (www.electricideas.com or indianamichiganpower.com)	21.1%	15
4	Friend or Relative (word-of-mouth)	4.2%	3
5	Contractor or plumber	18.3%	13
6	TV/Radio ad	0.0%	0
7	I&M Representative	0.0%	0
8	I&M Newsletter	5.6%	4
9	Retailer/store	8.5%	6
10	Community event	0.0%	0
11	Social media (Facebook, Instagram or Twitter)	0.0%	0
12	Home Energy Report	0.0%	0
13	Other (SPECIFY)	19.7%	14
14	Don’t know	2.8%	2
	Total	100%	71

Q4 - The next few questions are about the purchase of the [Field-EFF_MEASURE1]. Did you know about I&M's Home Energy Products Program…

#	Answer	%	Count
1	Before starting the process of purchasing the ${e://Field/EFF_MEASURE1}	46.5%	33
2	At the time you made the purchase decision	11.3%	8
3	After researching the product but before deciding to purchase	12.7%	9
4	After deciding to purchase the ${e://Field/EFF_MEASURE1}	22.5%	16
98	Don't know	7.0%	5
	Total	100%	71

Q5 - Why did you select this model or type of [Field-EFF_MEASURE1]? (Please select all that apply)

#	Answer	%	Count
1	It was a good price	43.7%	31
2	There was a rebate for it	31.0%	22
3	It costs less to operate it	25.4%	18
4	It’s good for the environment	14.1%	10
5	It was all that was available/only choice	1.4%	1
6	The contractor/retailer recommended it	21.1%	15
7	It had features I wanted	47.9%	34
8	It was the right size, color	16.9%	12
9	Wanted that brand	14.1%	10
10	It had an ENERGY STAR label	21.1%	15
11	Other (Please specify)	12.7%	9
98	Don’t know	1.4%	1
	Total	100%	71

Q6 - When you were deciding to purchase the [Field-EFF_MEASURE1], where did you get information about what to buy? (Please select all that apply)

#	Answer	%	Count
1	Retailers	18.3%	13
2	Installation contractors	25.4%	18
3	Friend, neighbor, relative or co-worker	11.3%	8
4	I&M website	7.0%	5
5	Internet	52.1%	37
6	Consumer reports or other product magazines	5.6%	4
7	Newspaper	0.0%	0
8	Radio	1.4%	1
9	Television	0.0%	0
10	Other (Please specify)	7.0%	5
11	Did not look for any information about what to buy	2.8%	2
98	Don’t know	0.0%	0
	Total	100%	71

Q7 - Where did you obtain the rebate application?

#	Answer	%	Count
1	From the I&M website (www.electricideas.com or indianamichiganpower.com)	71.8%	51
2	From another website	2.8%	2
3	In a retail store	1.4%	1
4	From a contractor	19.7%	14
5	Other (Please Specify)	2.8%	2
98	Don’t know	1.4%	1
	Total	100%	71

Q8 - Is the central air conditioner that you received a rebate for currently installed and working?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	0.0%	0
98	Don’t know	0.0%	0
	Total		0

Q10 - Was there a cooling system already installed in the location where the new air conditioner was installed?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	0.0%	0
98	Don’t know	0.0%	0
	Total		0

Q11 - Was the cooling equipment that you replaced a central air condition?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	0.0%	0
98	Don’t know	0.0%	0
	Total		0

Q12 - Thinking about the old 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)	0.0%	0
	Total		0

Q13 - Was the air conditioner working at the time it was replaced?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	0.0%	0
	Total		0

Q14 - How much longer do you think the air conditioner you replaced would have operated if it had not been replaced?

#	Answer	%	Count
1	Less than 2 years	0.0%	0
2	2 to 4 years	0.0%	0
3	5 to 10 years	0.0%	0
4	More than 10 years	0.0%	0
98	Don’t know	0.0%	0
	Total		0

Q15 - Did you get an estimate of how much it would have cost to fix the old equipment before you decided to install a new unit?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	0.0%	0
	Total		0

Q18 - How were you able to determine the age of the old cooling equipment?

#	Answer	%	Count
1	Documentation included with the unit	0.0%	0
2	Contractor knew or estimated it	0.0%	0
3	Age of units was included in description of home when we bought it	0.0%	0
4	Previous owner told us	0.0%	0
5	Other (Please specify)	0.0%	0
	Total		0

Q19 - Which of the following do you think is the most likely age of the old cooling 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

Q22 - Is the [Field-HEATPUMP_TYPE] that you received a rebate for currently installed and working?

#	Answer	%	Count
1	Yes	100.0%	29
2	No	0.0%	0
	Total	100%	29

Q24 - Did the [Field-HEATPUMP_TYPE] replace some old heating and cooling equipment?

#	Answer	%	Count
1	Yes, it replaced both cooling and heating equipment	69.0%	20
2	Yes, it replaced cooling equipment	6.9%	2
3	Yes, it replaced heating equipment	13.8%	4
4	No, it was a new installation that did not replace any equipment	10.3%	3
	Total	100%	29

Q25 - Did the [Field-HEATPUMP_TYPE] replace a heat pump?

#	Answer	%	Count
1	Yes	40.0%	8
2	No	40.0%	8
98	Don't know	20.0%	4
	Total	100%	20

Q26 - 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.	75.0%	6
4	You or your family installed the old unit.	25.0%	2
5	Other (Please specify)	0.0%	0
	Total	100%	8

Q28 - Do you know the approximate age of the old heat pump that was replaced?

#	Answer	%	Count
1	Yes (How old was it?)	100.0%	6
2	No	0.0%	0
	Total	100%	6

Q29 - How were you able to determine the age of the old heat pump?

#	Answer	%	Count
1	Documentation included with the unit	33.3%	2
2	Contractor knew or estimated it	50.0%	3
3	Age of units was included in description of home when we bought it	0.0%	0
4	Previous owner told us	0.0%	0
5	Other (Please specify)	16.7%	1
	Total	100%	6

Q30 - 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

Q32 - Please provide the seasonal energy efficiency ratio or SEER of the heat pump that you replaced.

#	Answer	%	Count
1	SEER	25.0%	2
98	Don't know	75.0%	6
	Total	100%	8

Q33 - Please provide the Heating Seasonal Performance Factor or HSPF of the heat pump that you replaced.

#	Answer	%	Count
1	HSPF	0.0%	0
98	Don't know	100.0%	8
	Total	100%	8

Q34 - What type of heating system did you have before you installed the [Field-HEATPUMP_TYPE]?

#	Answer	%	Count
1	Electric resistance heating	37.5%	6
2	An air source heat pump	6.3%	1
3	Some other kind of heating system	37.5%	6
4	No heating equipment	0.0%	0
98	Don’t know	18.8%	3
	Total	100%	16

Q35 - Was your electric resistance heating system an electric furnace or baseboard heating?

#	Answer	%	Count
1	Electric furnace	16.7%	1
2	Electric baseboard heating	66.7%	4
98	Don’t know	16.7%	1
	Total	100%	6

Q37 - Thinking about the old heating system 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.	8.3%	2
2	It was original equipment in a newly constructed home when the previous owner bought it.	16.7%	4
3	It was there when you bought the house from a previous owner.	50.0%	12
4	You or your family installed the old unit.	20.8%	5
5	Other (Please specify)	4.2%	1
	Total	100%	24

Q39 - Do you know the approximate age of the old heating equipment that was replaced?

#	Answer	%	Count
1	Yes (How old was it?)	83.3%	10
2	No	16.7%	2
	Total	100%	12

Q40 - How were you able to determine the age of the old heating equipment?

#	Answer	%	Count
1	Documentation included with the unit	10.0%	1
2	Contractor knew or estimated it	40.0%	4
3	Age of units was included in description of home when we bought it	10.0%	1
4	Previous owner told us	0.0%	0
5	Other (Please specify)	40.0%	4
	Total	100%	10

Q41 - 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	50.0%	1
2	15 – 20 years old	50.0%	1
3	10 – 15 years old	0.0%	0
4	Less than 10 years old	0.0%	0
	Total	100%	2

Q43 - Was the cooling equipment that you replaced a central air condition?

#	Answer	%	Count
1	Yes	42.9%	6
2	No	57.1%	8
98	Don't know	0.0%	0
	Total	100%	14

Q44 - Thinking about the old cooling equipment 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.	4.5%	1
2	It was original equipment in a newly constructed home when the previous owner bought it.	13.6%	3
3	It was there when you bought the house from a previous owner.	50.0%	11
4	You or your family installed the old unit.	27.3%	6
5	Other (Please specify)	4.5%	1
	Total	100%	22

Q46 - Do you know the approximate age of the old cooling equipment that was replaced?

#	Answer	%	Count
1	Yes (How old was it?)	72.7%	8
2	No	27.3%	3
	Total	100%	11

Q47 - How were you able to determine the age of the old cooling equipment?

#	Answer	%	Count
1	Documentation included with the unit	12.5%	1
2	Contractor knew or estimated it	37.5%	3
3	Age of units was included in description of home when we bought it	12.5%	1
4	Previous owner told us	0.0%	0
5	Other (Please specify)	37.5%	3
	Total	100%	8

Q48 - Which of the following do you think is the most likely age of the old cooling equipment:

#	Answer	%	Count
1	More than 20 years old	0.0%	0
2	15 – 20 years old	33.3%	1
3	10 – 15 years old	0.0%	0
4	Less than 10 years old	66.7%	2
	Total	100%	3

Q50 - Please provide the seasonal energy efficiency ratio or SEER of the air conditioner that you replaced?

#	Answer	%	Count
1	SEER	7.1%	1
2	Don't know	92.9%	13
	Total	100%	14

Q51 - Is the Wi-Fi thermostat that you received a rebate for currently installed and working?

#	Answer	%	Count
1	Yes	91.1%	41
2	No	4.4%	2
98	Don't know	4.4%	2
	Total	100%	45

Q53 - 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	42.2%	19
2	A standard thermostat that lets you set on/off temperatures	44.4%	20
3	A different Wi-Fi smart thermostat	0.0%	0
98	Don't know	13.3%	6
	Total	100%	45

Q54 - 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	63.2%	12
2	No	31.6%	6
98	Don't know	5.3%	1
	Total	100%	19

Q55 - Does the Wi-Fi thermostat control a central cooling system, a central heating system, or both?

#	Answer	%	Count
1	Central cooling system	0.0%	0
2	Central heating system	2.3%	1
3	Both cooling and heating systems	97.7%	43
98	Don't know	0.0%	0
	Total	100%	44

Q56 - Is your central air conditioning system a heat pump?

#	Answer	%	Count
1	Yes	37.2%	16
2	No	48.8%	21
98	Don't know	14.0%	6
	Total	100%	43

Q57 - What type of central heating system do you have?

#	Answer	%	Count
1	Central furnace	52.3%	23
2	Heat pump	22.7%	10
3	Other (Please specify)	11.4%	5
98	Don't know	13.6%	6
	Total	100%	44

Q58 - What is the main fuel used by the central heating system?

#	Answer	%	Count
1	Electricity	38.6%	17
2	Natural Gas	52.3%	23
3	Propane	2.3%	1
4	Something else (Please specify)	4.5%	2
98	Don’t know	2.3%	1
	Total	100%	44

Q59 - Is the ENERGY STAR dehumidifier that you received a rebate for currently working?

#	Answer	%	Count
1	Yes	100.0%	8
2	No	0.0%	0
98	Don’t know	0.0%	0
	Total	100%	8

Q61 - Did the rebated dehumidifier…

#	Answer	%	Count
1	Replace a functioning unit	25.0%	2
2	Replace a broken unit	37.5%	3
3	It was not a replacement	37.5%	3
98	Don’t know	0.0%	0
	Total	100%	8

Q62 - Is the heat pump water heater that you received a rebate for currently installed and working?

#	Answer	%	Count
1	Yes	100.0%	1
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	1

Q64 - Was this water heater purchased…

#	Answer	%	Count
1	To replace a functioning unit	0.0%	0
2	To replace a broken unit	100.0%	1
3	Not a replacement	0.0%	0
98	Don't know	0.0%	0
	Total	100%	1

Q65 - Is the high efficiency electric water heater that you received a rebate for currently installed and working?

#	Answer	%	Count
1	Yes	100.0%	12
2	No	0.0%	0
3	Don't know	0.0%	0
	Total	100%	12

Q67 - Was this water heater purchased…

#	Answer	%	Count
1	To replace a functioning unit	41.7%	5
2	To replace a broken unit	58.3%	7
3	Not a replacement	0.0%	0
98	Don’t know	0.0%	0
	Total	100%	12

Q68 - Was the ECM motor that you installed included with a new furnace or did you just replace the motor?

#	Answer	%	Count
1	Installed new furnace	0.0%	0
2	Installed just the motor	0.0%	0
98	Don’t know	0.0%	0
	Total		0

Q69 - Is the ENERGY STAR pool pump that you received a rebate for currently installed and working?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	0.0%	0
98	Don’t know	0.0%	0
	Total		0

Q71 - Did the ENERGY STAR pool pump replace an existing pool pump or was this a new installation?

#	Answer	%	Count
1	Replaced existing pool pump	0.0%	0
2	New installation	0.0%	0
98	Don’t know	0.0%	0
	Total		0

Q73 - Did the contractor that you worked with discuss equipment with different efficiency levels when you were deciding on the [Field-STAND_MEASURE1] that you installed?

#	Answer	%	Count
1	Yes	65.5%	19
2	No	17.2%	5
98	Don’t know	17.2%	5
	Total	100%	29

Q74 - Did the contractor that you worked with recommend that you install the [Field-EFF_MEASURE1] instead of a standard efficiency [Field-STAND_MEASURE1]?

#	Answer	%	Count
1	Yes	55.2%	16
2	No	13.8%	4
98	Don’t know	31.0%	9
	Total	100%	29

Q75 - Did the contractor that you worked with tell you there was a rebate available for the efficient equipment?

#	Answer	%	Count
1	Yes	55.2%	16
2	No	31.0%	9
98	Don't know	13.8%	4
	Total	100%	29

Q76 - Did the contractor show you the discount amount you got from the rebate or did you get the rebate?

#	Answer	%	Count
1	I saw the discount amount	18.8%	3
2	I got the rebate	75.0%	12
3	Neither	6.3%	1
	Total	100%	16

Q77 - Did the contractor that you worked with provide you with information, marketing material or a recommendation to purchase or install the [Field-EFF_MEASURE1]?

#	Answer	%	Count
1	Yes	62.1%	18
2	No	17.2%	5
98	Don't know	20.7%	6
	Total	100%	29

Q78 - Using a scale where 0 is "not at all influential" and 10 is "very influential," how influential was the information, marketing material, or recommendation provided by this contractor in your decision to purchase the [Field-EFF_MEASURE1]?

#	Answer	%	Count
0	0 Not at all influential	5.9%	1
1	1	0.0%	0
2	2	0.0%	0
3	3	0.0%	0
4	4	0.0%	0
5	5	11.8%	2
6	6	11.8%	2
7	7	5.9%	1
8	8	17.6%	3
9	9	17.6%	3
10	10 Very influential	29.4%	5
	Total	100%	17

Q79 - Were you planning to purchase an [Field-EFF_MEASURE1] before you learned of I&M's rebate program?

#	Answer	%	Count
1	Yes	69.0%	49
2	No	22.5%	16
98	Don't know	8.5%	6
	Total	100%	71

Q80 - Just to be clear, did you have plans to specifically purchase an [Field-EFF_MEASURE1] as opposed to a standard [Field-STAND_MEASURE1]?

#	Answer	%	Count
1	Yes	83.7%	41
2	No	8.2%	4
98	Don’t know	8.2%	4
	Total	100%	49

Q81 - Would you have been able to afford to purchase the [Field-EFF_MEASURE1] if the rebate was not available from the program?

#	Answer	%	Count
1	Yes	84.5%	60
2	No	7.0%	5
98	Don’t know	8.5%	6
	Total	100%	71

Q82 - Just to confirm, if the rebate was not available through the program, would you still have paid the additional cost to purchase an [Field-EFF_MEASURE1] instead of a [Field-STAND_MEASURE1]?

#	Answer	%	Count
1	Yes	73.2%	52
2	No	12.7%	9
98	Don't know	14.1%	10
	Total	100%	71

Q83 - If the rebate was not available, what do you think you most likely would have done at the time when you installed the [Field-EFF_MEASURE1]?

#	Answer	%	Count
1	Not installed anything	9.9%	7
2	Installed a new but less energy efficient ${e://Field/STAND_MEASURE1}	12.7%	9
3	Installed a similarly energy efficient ${e://Field/STAND_MEASURE1}	22.5%	16
4	Installed the exact same ${e://Field/STAND_MEASURE1}	43.7%	31
98	Don’t know	11.3%	8
	Total	100%	71

Q84 - 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-EFF_MEASURE1] at about the same time if you had not received the financial or information assistance through the program?

#	Answer	%	Count
0	0 Not at all likely	7.0%	5
1	1	0.0%	0
2	2	1.4%	1
3	3	5.6%	4
4	4	1.4%	1
5	5	19.7%	14
6	6	8.5%	6
7	7	5.6%	4
8	8	5.6%	4
9	9	7.0%	5
10	10 Very likely	38.0%	27
	Total	100%	71

Q85 - Did you purchase and install 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	38.0%	27
2	No	54.9%	39
98	Don't know	7.0%	5
	Total	100%	71

Q86 - When might you have purchased or installed the same [Field-EFF_MEASURE1] if you had not participated in the program?

#	Answer	%	Count
1	Within 6 months of when you purchased it	40.7%	11
2	Between 6 months and 1 year	25.9%	7
3	In more than 1 year to 2 years	11.1%	3
4	In two years or more	11.1%	3
98	Don’t know	11.1%	3
	Total	100%	27

Q87 - Did the contractor that you worked with discuss equipment with different efficiency levels when you were deciding on the [Field-STAND_MEASURE2] that you installed?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	0.0%	0
98	Don't know	0.0%	0
	Total		0

Q88 - Did the contractor that you worked with recommend that you install the [Field-EFF_MEASURE2] instead of a standard efficiency [Field-STAND_MEASURE2]?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	0.0%	0
98	Don't know	0.0%	0
	Total		0

Q89 - Did the contractor that you worked with tell you there was a rebate available for the efficient equipment?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	0.0%	0
98	Don't know	0.0%	0
	Total		0

Q90 - Did the contractor show you the discount amount you got from the rebate or did you get the rebate?

#	Answer	%	Count
1	I saw the discount amount	0.0%	0
2	I got the rebate	0.0%	0
3	Neither	0.0%	0
	Total		0

Q91 - Did the contractor that you worked with provide you with information, marketing material or a recommendation to purchase or install the [Field-EFF_MEASURE2]?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	0.0%	0
3	Don't know	0.0%	0
	Total		0

Q92 - Using a scale where 0 is "not at all influential" and 10 is "very influential," how influential was the information, marketing material, or recommendation provided by this contractor in your decision to purchase the [Field-EFF_MEASURE2]?

#	Answer	%	Count
0	0 Not at all influential	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	0.0%	0
9	9	0.0%	0
10	10 Very influential	0.0%	0
	Total		0

Q93 - Were you planning to purchase an [Field-EFF_MEASURE2] before you learned of I&M's rebate program?

#	Answer	%	Count
1	Yes	40.0%	2
2	No	60.0%	3
98	Don't know	0.0%	0
	Total	100%	5

Q94 - Just to be clear, did you have plans to specifically purchase an [Field-EFF_MEASURE2] as opposed to a standard [Field-STAND_MEASURE2]?

#	Answer	%	Count
1	Yes	100.0%	2
2	No	0.0%	0
98	Don’t know	0.0%	0
	Total	100%	2

Q95 - Would you have been able to afford to purchase the [Field-EFF_MEASURE2] if the rebate was not available from the program?

#	Answer	%	Count
1	Yes	60.0%	3
2	No	40.0%	2
98	Don’t know	0.0%	0
	Total	100%	5

Q96 - Just to confirm, if the rebate was not available through the program, would you still have paid the additional cost to purchase an [Field-EFF_MEASURE2] instead of a [Field-STAND_MEASURE2]?

#	Answer	%	Count
1	Yes	60.0%	3
2	No	40.0%	2
98	Don't know	0.0%	0
	Total	100%	5

Q97 - If the rebate was not available, what do you think you most likely would have done at the time when you installed the [Field-EFF_MEASURE2]?

#	Answer	%	Count
1	Not installed anything	0.0%	0
2	Installed a new but less energy efficient ${e://Field/STAND_MEASURE2}	20.0%	1
3	Installed a similarly energy efficient ${e://Field/STAND_MEASURE2}	0.0%	0
4	Installed the exact same ${e://Field/STAND_MEASURE2}	80.0%	4
98	Don’t know	0.0%	0
	Total	100%	5

Q98 - 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-EFF_MEASURE2] at about the same time if you had not received the financial assistance or information through the program?

#	Answer	%	Count
0	0 Not at all likely	20.0%	1
1	1	0.0%	0
2	2	0.0%	0
3	3	20.0%	1
4	4	0.0%	0
5	5	0.0%	0
6	6	0.0%	0
7	7	0.0%	0
8	8	20.0%	1
9	9	0.0%	0
10	10 Very likely	20.0%	1
98	Don't know	20.0%	1
	Total	100%	5

Q99 - Did you purchase and install the [Field-EFF_MEASURE2] sooner than you would have if the information and financial assistance from the program had not been available?

#	Answer	%	Count
1	Yes	40.0%	2
2	No	60.0%	3
98	Don't know	0.0%	0
	Total	100%	5

Q100 - When might you have purchased or installed the same [Field-EFF_MEASURE2] if you had not participated in the program?

#	Answer	%	Count
1	Within 6 months of when you purchased it	0.0%	0
2	Between 6 months and 1 year	50.0%	1
3	In more than 1 year to 2 years	0.0%	0
4	In two years or more	0.0%	0
98	Don’t know	50.0%	1
	Total	100%	2

Q101 - Have you bought, any additional energy efficient items on your own without a financial incentive or rebate because of your experience with the Home Energy Products Program?

#	Answer	%	Count
1	Yes	26.8%	19
2	No	63.4%	45
98	Don't know	9.9%	7
	Total	100%	71

Q102 - We would like to know what you purchased and installed because of your experience with the Home Energy Products Program that you did not receive an incentive or rebate for. Since completing the online checkup in [Field-YEAR] have you done any of the following? (Please select all that apply)

#	Answer	%	Count
1	Installed CFLs (Compact Fluorescent Light bulbs)	5.3%	1
2	Installed LED (Light Emitting Diode) Bulbs	73.7%	14
3	Purchased an ENERGY STAR appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer	63.2%	12
4	Installed water heater pipe insulation	0.0%	0
5	Installed water Heater jacket, blanket, or insulation	0.0%	0
6	Installed energy and water efficient faucet aerators	10.5%	2
7	Installed energy and water efficient showerheads	26.3%	5
8	Installed an ENERGY STAR room air conditioner	5.3%	1
9	Installed an energy efficient water heater	15.8%	3
10	Something else	31.6%	6
98	Don’t know	5.3%	1
	Total	100%	19

Q103 - Why did you not get an I&M incentive, rebate, or discount for that energy saving equipment? (Please select all that apply)

#	Answer	%	Count
1	Was not aware there was a rebate available	72.2%	13
2	Did not have the time to complete rebate application	0.0%	0
3	Found out about rebate too late	5.6%	1
4	Did not think my equipment was eligible	44.4%	8
5	Submitted a rebate application that was rejected	5.6%	1
6	For some other reason (Please describe)	5.6%	1
98	Don’t know	5.6%	1
	Total	100%	18

Q118 - On a scale of 0 to 10, where 0 represents "not at all important" and 10 represents "extremely important", how important was the experience with the Home Energy Products Program in your decision to purchase the items you just mentioned?

#	Answer	%	Count
0	0 Not at all important	16.7%	3
1	1	11.1%	2
2	2	0.0%	0
3	3	5.6%	1
4	4	0.0%	0
5	5	16.7%	3
6	6	0.0%	0
7	7	0.0%	0
8	8	22.2%	4
9	9	5.6%	1
10	10 Extremely important	16.7%	3
98	Don't know	5.6%	1
	Total	100%	18

Q119 - 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 purchase those additional items if you had not participated in the Home Energy Products Program?

#	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	5.6%	1
6	6	0.0%	0
7	7	0.0%	0
8	8	11.1%	2
9	9	16.7%	3
10	10 Extremely likely	50.0%	9
98	Don't know	16.7%	3
	Total	100%	18

Q121 - Did you fill out your own rebate application, or did a contractor or sales representative do it for you?

#	Answer	%	Count
1	I filled it out	74.6%	53
2	A contractor or salesperson filled it out	19.7%	14
3	Other (Please Specify)	4.2%	3
98	Don’t know	1.4%	1
	Total	100%	71

Q122 - Have you noticed any energy savings on your electric bill since installing the rebated equipment?

#	Answer	%	Count
1	Yes	47.9%	34
2	No	14.1%	10
98	Not sure	38.0%	27
	Total	100%	71

Q123 - Using the scale below, please rate how dissatisfied or satisfied you are with each of the following:

#	Question	Very dissatisfied1		2		3		4		Very satisfied5		Total
1	The rebate application process	0.0%	0	1.9%	1	11.3%	6	20.8%	11	66.0%	35	53
2	The savings on your electricity bills since installing the rebated equipment	0.0%	0	0.0%	0	23.5%	8	23.5%	8	52.9%	18	34
3	The rebate equipment that you purchased	0.0%	0	0.0%	0	8.5%	6	14.1%	10	77.5%	55	71
4	The rebate program overall	0.0%	0	1.4%	1	7.1%	5	17.1%	12	74.3%	52	70

Q125 - Using the scale below, how dissatisfied or satisfied are you with I&M as your electricity service provider?

#	Answer	%	Count
1	Very dissatisfied1	0.0%	0
2	2	1.4%	1
3	3	21.7%	15
4	4	31.9%	22
5	Very satisfied5	44.9%	31
	Total	100%	69

Q128 - 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	93.0%	66
2	Rent	2.8%	2
3	Own and rent to someone else	0.0%	0
98	Don’t know	4.2%	3
	Total	100%	71

Q129 - Which of the following best describes your home? Is it a…

#	Answer	%	Count
1	Manufactured home	5.8%	4
2	Single-family house detached from any other house	89.9%	62
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	1.4%	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 (Specify)	1.4%	1
98	Don’t know	1.4%	1
	Total	100%	69

Q130 - When was your home built?

#	Answer	%	Count
1	Before 1950	17.4%	12
2	1950 to 1959	14.5%	10
3	1960 to 1969	20.3%	14
4	1970 to 1979	14.5%	10
5	1980 to 1989	10.1%	7
6	1990 to 1999	5.8%	4
7	2000 to 2009	7.2%	5
8	2010 or later	4.3%	3
98	Don’t know	5.8%	4
	Total	100%	69

Q132 - What fuel does your main water heater use?

#	Answer	%	Count
1	Electricity	59.4%	41
2	Natural Gas	37.7%	26
3	Propane	0.0%	0
4	Something else (SPECIFY)	0.0%	0
5	Don’t heat home	0.0%	0
98	Don’t know	2.9%	2
	Total	100%	69

Q133 - Including yourself, how many people currently live in your home year-round?

#	Answer	%	Count
1	1	14.5%	10
2	2	43.5%	30
3	3	20.3%	14
4	4	11.6%	8
5	5	5.8%	4
6	6	4.3%	3
7	7	0.0%	0
8	8 or more	0.0%	0
98	Don’t know	0.0%	0
	Total	100%	69

9. Home Energy Products Online Marketplace Survey Results

Q1 - Our records indicate that your household ordered and received an instant rebate on [Field-ALL_MEASURES] through I&M marketplace in 2021. Are you familiar with this purchase?

#	Answer	%	Count
1	Yes	100.0%	117
2	No	0.0%	0
	Total	100%	117

Q2 - To begin with, we would like to verify the items that you received a discount on the following item(s). Is this information correct?

#	Question	Yes		No		Don't know		Total
1	[Field-LED_QUANT] LED light bulb(s)	100.0%	1	0.0%	0	0.0%	0	1
2	[Field-APS_QUANT] Advanced power strip(s)	98.2%	111	0.0%	0	1.8%	2	113
3	[Field-SHOWER_QUANT] High efficiency showerhead(s)	100.0%	5	0.0%	0	0.0%	0	5
4	[Field-BATH_QUANT] High efficiency bathroom faucet aerator(s)	100.0%	3	0.0%	0	0.0%	0	3
5	[Field-KITCHEN_QUANT] High efficiency kitchen faucet aerator(s)	100.0%	2	0.0%	0	0.0%	0	2
6	[Field-TSTAT_QUANT] Wi-Fi / smart thermostat(s)	100.0%	4	0.0%	0	0.0%	0	4

Q3 - Are/is the [Field-LED_QUANT] LED light bulbs that you purchased from the Online Marketplace currently installed?

#	Answer	%	Count
1	Yes	0.0%	0
2	Some are	100.0%	1
3	No, none are	0.0%	0
	Total	100%	1

Q6 - Why have you not installed all of the LED bulbs yet? (Select all that apply)

#	Answer	%	Count
1	I have not had the time to install them	0.0%	0
2	I am not interested in installing them	0.0%	0
3	I am waiting for light bulbs to burn out before replacing them	100.0%	1
4	I don’t like them	0.0%	0
5	Some or all of the bulbs were broken	0.0%	0
6	Other (Please specify)	0.0%	0
98	Don’t know	0.0%	0
	Total	100%	1

Q7 - How many of the [Field-APS_QUANT] energy-saving Advanced Power Strip(s) that you purchased from the I&M online marketplace are you currently using?

#	Answer	%	Count
0	0 (Not using any power strips purchased)	19.8%	22
1	1	21.6%	24
2	2	33.3%	37
3	3	12.6%	14
4	4	12.6%	14
	Total	100%	111

Q8 - Why are you not using the / all of the Advanced Power Strips you purchased? (Select all that apply)

#	Answer	%	Count
1	The power turned off while I was using equipment that was plugged into it	4.8%	4
2	I'm not sure how to use it	9.6%	8
3	I'm not interested in using it	1.2%	1
4	I didn't have a need for it	14.5%	12
5	Other (Please specify)	71.1%	59
98	Don't know	2.4%	2
	Total	100%	83

Q9 - The Advanced Power Strip has outlets labeled 'Always on", 'Controlled', and 'Switched".

#	Answer	%	Count
1	Television	40.4%	36
2	Computer	29.2%	26
3	Other (Please describe)	22.5%	20
4	Nothing	2.2%	2
98	Don't know	5.6%	5
	Total	100%	89

Q10 - What equipment is plugged into the outlets labeled 'Switched"? (Select all that apply)

#	Answer	%	Count
1	Audio/visual/entertainment equipment	43.9%	36
2	Computer/office equipment	34.1%	28
3	Other types of equipment	40.2%	33
4	No equipment is plugged into the 'Switched" outlets	11.0%	9
98	Don't know	4.9%	4
	Total	100%	82

Q11 - Thinking about the second Advanced Power Strip you are currently using, what do you currently have plugged in the 'Controlled' outlet?

#	Answer	%	Count
1	Television	37.5%	24
2	Computer	23.4%	15
3	Other (Please describe)	21.9%	14
4	Nothing	10.9%	7
98	Don't know	6.3%	4
	Total	100%	64

Q12 - What equipment is plugged into the outlets labeled 'Switched"? (Select all that apply)

#	Answer	%	Count
1	Audio/visual/entertainment equipment	50.9%	27
2	Computer/office equipment	30.2%	16
3	Other types of equipment	28.3%	15
4	No equipment is plugged into the 'Switched" outlets	17.0%	9
98	Don't know	1.9%	1
	Total	100%	53

Q13 - Thinking about the third Advanced Power Strip you are currently using, what do you currently have plugged in the 'Controlled' outlet?

#	Answer	%	Count
1	Television	37.0%	10
2	Computer	11.1%	3
3	Other (Please describe)	25.9%	7
4	Nothing	18.5%	5
98	Don't know	7.4%	2
	Total	100%	27

Q14 - What equipment is plugged into the outlets labeled 'Switched"? (Select all that apply)

#	Answer	%	Count
1	Audio/visual/entertainment equipment	35.0%	7
2	Computer/office equipment	25.0%	5
3	Other types of equipment	40.0%	8
4	No equipment is plugged into the 'Switched" outlets	10.0%	2
98	Don't know	5.0%	1
	Total	100%	20

Q15 - Thinking about the fourth Advanced Power Strip you are currently using, what do you currently have plugged in the 'Controlled' outlet?

#	Answer	%	Count
1	Television	14.3%	2
2	Computer	35.7%	5
3	Other (Please describe)	21.4%	3
4	Nothing	14.3%	2
98	Don't know	14.3%	2
	Total	100%	14

Q16 - What equipment is plugged into the outlets labeled 'Switched"? (Select all that apply)

#	Answer	%	Count
1	Audio/visual/entertainment equipment	20.0%	2
2	Computer/office equipment	30.0%	3
3	Other types of equipment	40.0%	4
4	No equipment is plugged into the 'Switched" outlets	30.0%	3
98	Don't know	10.0%	1
	Total	100%	10

Q17 - Are/is the [Field-SHOWER_QUANT] high efficiency showerhead(s) that you purchased from the Online Marketplace currently installed?

#	Answer	%	Count
1	Yes	20.0%	1
2	Some are	0.0%	0
3	No, none are	80.0%	4
	Total	100%	5

Q20 - Why have you not installed all of the high efficiency showerhead(s) ? (Select all that apply)

#	Answer	%	Count
1	I have not had the time to install them	50.0%	2
2	I am not interested in installing them	0.0%	0
3	I need help installing them	25.0%	1
4	I don’t like them	0.0%	0
5	Doesn’t fit my shower	0.0%	0
6	Other (Please specify)	25.0%	1
98	Don’t know	0.0%	0
	Total	100%	4

Q21 - Are/is the [Field-BATH_QUANT] high efficiency bathroom faucet aerator(s) that you purchased from the Online Marketplace currently installed?

#	Answer	%	Count
1	Yes	33.3%	1
2	Some are	0.0%	0
3	No, none are	66.7%	2
	Total	100%	3

Q24 - Why have you not installed all of the high efficiency bathroom faucet aerator(s)? (Select all that apply)

#	Answer	%	Count
1	I have not had the time to install them	50.0%	1
2	I am not interested in installing them	0.0%	0
3	I need help installing them	50.0%	1
4	I don’t like them	0.0%	0
5	Doesn’t fit my faucet	0.0%	0
6	Other (Please specify)	0.0%	0
98	Don’t know	0.0%	0
	Total	100%	2

Q25 - Are/is the [Field-KITCHEN_QUANT] high efficiency kitchen faucet aerator(s) that you purchased from the Online Marketplace currently installed?

#	Answer	%	Count
1	Yes	50.0%	1
2	Some are	0.0%	0
3	No, none are	50.0%	1
	Total	100%	2

Q28 - Why have you not installed all of the high efficiency kitchen faucet aerator(s)? (Select all that apply)

#	Answer	%	Count
1	I have not had the time to install them	0.0%	0
2	I am not interested in installing them	0.0%	0
3	I need help installing them	100.0%	1
4	I don’t like them	0.0%	0
5	Doesn’t fit my faucet	0.0%	0
6	Other (Please specify)	0.0%	0
98	Don’t know	0.0%	0
	Total	100%	1

Q29 - Are/is the Wi-Fi thermostat(s) that you received a rebate for currently installed and working?

#	Answer	%	Count
1	Yes	25.0%	1
2	No	75.0%	3
98	Don't know	0.0%	0
	Total	100%	4

Q31 - 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	75.0%	3
2	A standard thermostat that lets you set on/off temperatures	25.0%	1
3	A different Wi-Fi smart thermostat	0.0%	0
98	Don’t know	0.0%	0
	Total	100%	4

Q32 - 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	33.3%	1
2	No	66.7%	2
98	Don't know	0.0%	0
	Total	100%	3

Q33 - Does the Wi-Fi thermostat control a central cooling system, a central heating system, or both?

#	Answer	%	Count
1	Central cooling system	0.0%	0
2	Central heating system	0.0%	0
3	Both cooling and heating systems	100.0%	4
98	Don't know	0.0%	0
	Total	100%	4

Q34 - Is your central air conditioning system a heat pump?

#	Answer	%	Count
1	Yes	50.0%	2
2	No	25.0%	1
3	Don't know	25.0%	1
	Total	100%	4

Q35 - What type of central heating system do you have?

#	Answer	%	Count
1	Central furnace	75.0%	3
2	Heat pump	25.0%	1
3	Other (Please specify)	0.0%	0
98	Don't know	0.0%	0
	Total	100%	4

Q36 - What is the main fuel used by the central heating system?

#	Answer	%	Count
1	Electricity	50.0%	2
2	Natural Gas	50.0%	2
3	Propane	0.0%	0
4	Something else (Please specify)	0.0%	0
98	Don’t know	0.0%	0
	Total	100%	4

Q38 - Did you decide to purchase the [Field-EFF_MEASURE1]....

#	Answer	%	Count
1	Before you learned about I&M’s Online Marketplace	10.3%	12
2	After viewing products on I&M’s Online Marketplace	85.5%	100
98	Don’t know	4.3%	5
	Total	100%	117

Q39 - Did you shop for [Field-EFF_MEASURE1] at any other retailers before making the purchase on I&M’s Online Marketplace?

#	Answer	%	Count
1	Yes	13.7%	16
2	No	86.3%	101
	Total	100%	117

Q40 - What is the most important reason for why you decided to purchase the [Field-EFF_MEASURE1] on I&M's Online Marketplace?

#	Answer	%	Count
1	It was convenient	6.3%	1
2	Shipping was free	0.0%	0
3	The instant rebate / price of the product	87.5%	14
4	You felt confident in the quality	0.0%	0
5	For some other reason (Please explain)	6.3%	1
	Total	100%	16

Q41 - Were you planning to purchase an [Field-EFF_MEASURE1] before you learned that you could get an instant rebate through I&M's Online Marketplace?

#	Answer	%	Count
1	Yes	21.4%	25
2	No	69.2%	81
98	Don't know	9.4%	11
	Total	100%	117

Q42 - Would you have been able to afford to purchase the [Field-EFF_MEASURE1] if the instant rebate was not available through I&M's Online Marketplace?

#	Answer	%	Count
1	Yes	48.7%	55
2	No	31.0%	35
98	Don't know	20.4%	23
	Total	100%	113

Q43 - Just to confirm, if the instant rebate was not available through the program, would you still have paid the additional cost to purchase an [Field-EFF_MEASURE1]?

#	Answer	%	Count
1	Yes	12.0%	14
2	No	49.6%	58
98	Don't know	38.5%	45
	Total	100%	117

Q44 - How likely is it that you would have purchased the same [Field-EFF_MEASURE1] at about the same time if you could not have received the instant rebate through the I&M Online Marketplace?

#	Answer	%	Count
0	0 Not at all likely	49.6%	58
1	1	6.0%	7
2	2	7.7%	9
3	3	5.1%	6
4	4	7.7%	9
5	5	10.3%	12
6	6	1.7%	2
7	7	2.6%	3
8	8	5.1%	6
9	9	1.7%	2
10	10 Very likely	2.6%	3
	Total	100%	117

Q45 - Did you purchase and install 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	60.7%	71
2	No	17.9%	21
98	Don't know	21.4%	25
	Total	100%	117

Q46 - When might you have purchased or installed the same [Field-EFF_MEASURE1] if you had not participated in the program?

#	Answer	%	Count
1	Within 6 months of when you purchased it	16.9%	12
2	Between 6 months and 1 year	18.3%	13
3	In more than 1 year to 2 years	11.3%	8
4	In two years or more	5.6%	4
98	Don’t know	47.9%	34
	Total	100%	71

Q47 - At the time you purchased them, would you have purchased the same number of [Field-EFF_MEASURE1] if an instant rebate was not available through I&M's Online Marketplace?

#	Answer	%	Count
1	Yes	21.4%	25
2	No would not have purchased any	32.5%	38
3	No, would have purchased fewer ${e://Field/EFF_MEASURE1}	36.8%	43
4	Don't know	9.4%	11
	Total	100%	117

Q49 - Overall, how satisfied are you with the following products that you received an instant rebate for?

#	Question	1Very dissatisfied		2		3		4		5Very satisfied		Total
1	LED light bulb(s)	100.0%	1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	1
2	Advanced power strip(s)	9.0%	10	1.8%	2	16.2%	18	23.4%	26	49.5%	55	111
3	High efficiency showerhead(s)	40.0%	2	0.0%	0	0.0%	0	0.0%	0	60.0%	3	5
4	High efficiency bathroom faucet aerator(s)	0.0%	0	0.0%	0	0.0%	0	0.0%	0	100.0%	3	3
5	High efficiency kitchen faucet aerator(s)	0.0%	0	0.0%	0	0.0%	0	0.0%	0	100.0%	2	2
6	Wi-Fi / smart thermostat(s)	25.0%	1	0.0%	0	0.0%	0	25.0%	1	50.0%	2	4

Q50 - Overall, how satisfied are you with your I&M Online Marketplace purchase experience?

#	Answer	%	Count
1	1 Very dissatisfied	8.6%	10
2	2	2.6%	3
3	3	11.2%	13
4	4	22.4%	26
5	5 Very satisfied	55.2%	64
	Total	100%	116

Q54 - 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	93.2%	109
2	Rent	6.0%	7
3	Own and rent to someone else	0.0%	0
98	Don’t know	0.0%	0
99	Prefer not to state	0.9%	1
	Total	100%	117

Q55 - Which of the following best describes your home? Is it a…

#	Answer	%	Count
1	Manufactured home	5.1%	6
2	Single-family house detached from any other house	85.5%	100
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	3.4%	4
4	Apartment in a building with 2 to 3 units	0.0%	0
5	Apartment in a building with 4 or more units	2.6%	3
6	Other (Please specify)	1.7%	2
98	Don’t know	0.0%	0
99	Prefer not to state	1.7%	2
	Total	100%	117

Q56 - What fuel does your main water heater use?

#	Answer	%	Count
1	Electricity	29.1%	34
2	Natural Gas	65.0%	76
3	Propane	0.9%	1
4	Something else (Please specify)	0.9%	1
5	Don’t heat home	0.0%	0
98	Don’t know	1.7%	2
99	Prefer not to state	2.6%	3
	Total	100%	117

Q57 - Including yourself, how many people currently live in your home year-round?

#	Answer	%	Count
1	1	24.8%	29
2	2	53.8%	63
3	3	8.5%	10
4	4	6.8%	8
5	5	4.3%	5
6	6	0.0%	0
7	7	0.0%	0
8	8 or more	0.0%	0
98	Don’t know	0.0%	0
99	Prefer not to state	1.7%	2
	Total	100%	117

Q58 - Including all money earned from wages, salaries, tips, commissions, workers' compensation, unemployment insurance, child support, or other sources, about how much was your total annual household income before taxes in 2021?

#	Answer	%	Count
1	Less than $10,000	0.9%	1
2	$10,000 to less than $20,000	6.9%	8
3	$20,000 to less than $30,000	3.4%	4
4	$30,000 to less than $40,000	6.9%	8
5	$40,000 to less than $50,000	11.2%	13
6	$50,000 to less than $75,000	12.9%	15
7	$75,000 to less than $100,000	13.8%	16
8	$100,000 to less than $150,000	8.6%	10
9	$150,000 to less than $200,000	0.9%	1
10	$200,000 or more	0.9%	1
98	Don't know	0.9%	1
99	Prefer not to state	32.8%	38
	Total	100%	116

10. Home Energy Management Participant Survey Results

Q1 - Our records indicate that you enrolled in I&M's IM Power Rewards: Smart Thermostat Program by enrolling your smart thermostat to allow I&M to make brief changes to its settings during peak demand periods. Is this correct?

#	Answer	%	Count
1	Yes	100.00%	84
2	No	0.00%	0
98	Do not recall	0.00%	0
	Total	100%	84

Q2 - How did you first learn about I&M's IM Power Rewards program?

#	Answer	%	Count
1	I&M newsletter or email	35.71%	30
2	A postcard or other mailing from I&M	5.95%	5
3	I&M website	23.81%	20
4	From an HVAC contractor	8.33%	7
5	Through a community organization	0.00%	0
6	Home Energy Report	5.95%	5
7	Social networking site such as Facebook or Twitter	1.19%	1
8	Friend, relative, coworker, or neighbor	1.19%	1
9	In some other way	8.33%	7
98	Do not recall	9.52%	8
	Total	100%	84

Q3 - Why did you choose to participate in this program? (Select all that apply)

#	Answer	%	Count
1	The opportunity to participate in an energy savings program	18.65%	36
2	Program was recommended to me by I&M	3.63%	7
3	The bill credits/enrollment incentive	26.94%	52
4	To reduce energy use for environmental reasons	19.69%	38
5	To save on energy costs	29.53%	57
6	Other (please specify)	1.55%	3
	Total	100%	193

Q4 - Thinking about this past summer period of May through September, about how often was someone home during an event?

#	Answer	%	Count
1	Never	3.57%	3
2	Less than half the time	14.29%	12
3	About half of the time	8.33%	7
4	More than half of the time	21.43%	18
5	All of the time	34.52%	29
98	Do not recall	17.86%	15
	Total	100%	84

Q5 - Before your decision to participate in the IM Power Rewards: Smart Thermostat program, did you have any concerns about participating in it?

#	Answer	%	Count
1	Yes	13.10%	11
2	No	86.90%	73
	Total	100%	84

Q6 - What concerns did you have? (Please select all that apply)

#	Answer	%	Count
1	Concerns about being uncomfortable during energy reduction events	22.22%	6
2	Concerns about the utility having the ability to control or shut off my AC	33.33%	9
3	Concerns about not being able to control the temperature	25.93%	7
4	Concerns about privacy/security	18.52%	5
5	Other (Please specify)	0.00%	0
	Total	100%	27

Q7 - How much do you agree or disagree that reducing your electricity use during times when electricity demand is highest will have the following effects?

#	Question	1 (Strongly disagree)		2		3		4		5 (Strongly agree)		Total
1	Lower your utility costs	7.23%	6	2.41%	2	26.51%	22	25.30%	21	38.55%	32	83
2	Reduce greenhouse gas emissions	4.82%	4	4.82%	4	33.73%	28	27.71%	23	28.92%	24	83
3	Help make the grid more reliable	3.61%	3	6.02%	5	25.30%	21	30.12%	25	34.94%	29	83

Q9 - Where did you get information about how the program works? (Select all that apply)

#	Answer	%	Count
1	Information provided by an I&M representative	1.98%	2
2	The program website	37.62%	38
3	Information provided in an I&M email or newsletter	29.70%	30
4	Information from an I&M flyer	10.89%	11
5	Information provided in an I&M mailing	11.88%	12
6	Other (please specify)	7.92%	8
	Total	100%	101

Q10 - Thinking about any information that you received or viewed before you decided to participate, how well did that information address any questions you had?

#	Answer	%	Count
1	1 (Not at all)	1.19%	1
2	2	2.38%	2
3	3	8.33%	7
4	4	33.33%	28
5	5 (Completely)	44.05%	37
6	I did not review any information before I decided to participate	10.71%	9
	Total	100%	84

Q12 - Using the scale below, how would you rate the process of enrolling your thermostat in the program?

#	Answer	%	Count
1	1 (Very difficult)	0.00%	0
2	2	0.00%	0
3	3	8.33%	7
4	4	26.19%	22
5	5 (Very easy)	65.48%	55
	Total	100%	84

Q14 - Were you at home during any of the peak energy use events that reduced the cooling from your air conditioner?

#	Answer	%	Count
1	Yes	66.67%	56
2	No, not that you are aware of	33.33%	28
	Total	100%	84

Q15 - Now thinking about all the peak energy use events, during these events, would you say that your home became:

#	Answer	%	Count
1	A little uncomfortable	48.21%	27
2	Moderately uncomfortable	12.50%	7
3	Very uncomfortable	12.50%	7
4	There wasn’t a change in the comfort of your home	26.79%	15
	Total	100%	56

Q16 - Did you recall opting out of any peak energy use events in 2021?

#	Answer	%	Count
1	Yes	20.24%	17
2	No	79.76%	67
	Total	100%	84

Q18 - Was the number of peak energy use events that occurred this summer about what you were expecting when you signed up for the program, more than you were expecting, or fewer than you were expecting?

#	Answer	%	Count
1	More than expected	4.76%	4
2	About what was expected	38.10%	32
3	Fewer than expected	22.62%	19
98	Don't know	34.52%	29
	Total	100%	84

Q20 - Do you think that the number of peak energy use events that occurred this year was acceptable?

#	Answer	%	Count
1	The number of events was acceptable	43.48%	10
2	There were too many events	17.39%	4
3	There were too few events	39.13%	9
	Total	100%	23

Q22 - Did you contact I&M program staff about any issues or questions that you had during the past year about the IM Power Rewards: Smart Thermostat?

#	Answer	%	Count
1	Yes	2.38%	2
2	No	97.62%	82
	Total	100%	84

Q23 - How satisfied were you with the response from I&M staff?

#	Answer	%	Count
1	Very dissatisfied	0.00%	0
2	Somewhat dissatisfied	0.00%	0
3	Neither satisfied nor dissatisfied	0.00%	0
4	Somewhat satisfied	0.00%	0
5	Very satisfied	100.00%	2
	Total	100%	2

Q24 - How likely is it that you will participate in the IM Power Rewards: Smart Thermostat program next year?

#	Answer	%	Count
0	0 (Not at all likely)	0.00%	0
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	3.57%	3
5	5	3.57%	3
6	6	3.57%	3
7	7	3.57%	3
8	8	13.10%	11
9	9	14.29%	12
10	10 (Very likely)	58.33%	49
	Total	100%	84

Q26 - How satisfied are you with the IM Power Rewards: Smart Thermostat program, overall?

#	Answer	%	Count
1	Very dissatisfied	0.00%	0
2	Somewhat dissatisfied	8.33%	7
3	Neither satisfied nor dissatisfied	16.67%	14
4	Somewhat satisfied	25.00%	21
5	Very satisfied	50.00%	42
	Total	100%	84

Q28 - How likely is it that you would recommend the IM Power Rewards: Smart Thermostat program to a friend, family member, or colleague?

#	Answer	%	Count
0	0 (Not at all likely)	1.19%	1
1	1	0.00%	0
2	2	0.00%	0
3	3	4.76%	4
4	4	0.00%	0
5	5	7.14%	6
6	6	4.76%	4
7	7	9.52%	8
8	8	13.10%	11
9	9	15.48%	13
10	10 (Very likely)	44.05%	37
	Total	100%	84

Q29 - Do you own the home that participated in the program, rent it, or own it and rent it to someone else?

#	Answer	%	Count
1	Own	94.05%	79
2	Rent	4.76%	4
3	Own and rent to someone else	0.00%	0
99	Prefer not to answer	1.19%	1
	Total	100%	84

Q30 - Is the residence located at [Field-ADDRESS]…

#	Answer	%	Count
1	Your primary residence	96.43%	81
2	A residence that you rent to someone else	0.00%	0
3	A vacation property that is not occupied year-round	2.38%	2
4	Something else	1.19%	1
	Total	100%	84

Q31 - Which of the following best describes your home?

#	Answer	%	Count
1	Manufactured home	1.19%	1
2	Single-family house detached from any other house	92.86%	78
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	1.19%	1
4	Apartment in a building with 2 to 3 units	0.00%	0
5	Apartment in a building with 4 or more units	4.76%	4
6	Other (Please describe)	0.00%	0
99	Prefer not to answer	0.00%	0
	Total	100%	84

Q32 - What temperature is your thermostat typically set at to control the cooling during the summer?

#	Answer	%	Count
66	66 degrees or cooler	2.38%	2
67	67	2.38%	2
68	68	7.14%	6
69	69	3.57%	3
70	70	10.71%	9
71	71	8.33%	7
72	72	17.86%	15
73	73	8.33%	7
74	74	10.71%	9
75	75	8.33%	7
76	76	8.33%	7
77	77	5.95%	5
78	78	3.57%	3
79	79	1.19%	1
80	80 degrees or warmer	1.19%	1
99	Do not use a thermostat setting to control air conditioner	0.00%	0
	Total	100%	84

Q33 - Including yourself, how many people currently live in your home year-round?

#	Answer	%	Count
1	1	21.69%	18
2	2	34.94%	29
3	3	12.05%	10
4	4	18.07%	15
5	5	2.41%	2
6	6	7.23%	6
7	7	1.20%	1
8	8 or more	1.20%	1
99	I prefer not to state	1.20%	1
	Total	100%	83

Q34 - Including all money earned from wages, salaries, tips, commissions, workers' compensation, unemployment insurance, child support, or other sources, about how much was your total annual household income before taxes in 2020?

#	Answer	%	Count
1	Less than $10,000	2.38%	2
2	$10,000 to less than $20,000	7.14%	6
3	$20,000 to less than $30,000	4.76%	4
4	$30,000 to less than $40,000	2.38%	2
5	$40,000 to less than $50,000	8.33%	7
6	$50,000 to less than $75,000	14.29%	12
7	$75,000 to less than $100,000	16.67%	14
8	$100,000 to less than $150,000	15.48%	13
9	$150,000 to less than $200,000	2.38%	2
10	$200,000 or more	5.95%	5
99	I prefer not to state	20.24%	17
	Total	100%	84

11. Non-Participant Spillover Survey Results

Q1 - According to our records, I&M provides the electricity service to your residence located at [Field-ADDRESS]. Is that correct?

#	Answer	%	Count
1	Yes	100.0%	107
2	No	0.0%	0
3	The location is not a residence	0.0%	0
4	Not sure	0.0%	0
	Total	100%	107

Q2 - Do you or any member of your household currently work for Indiana Michigan Power?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	100.0%	107
	Total	100%	107

Q3 - Have you received a rebate or financial incentive from I&M for installing energy efficient equipment or making energy efficiency improvements at this residence in the last three years?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	100.0%	107
	Total	100%	107

Q4 - Do you have a student in your household who participated in I&M's energy education school in the last three years and received an energy education kit with free lightbulbs and other items?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	100.0%	107
	Total	100%	107

Q5 - Thank you for that information. We would like to know if you or anyone else in your household made any energy efficiency improvements to your home in the last 12 months. In the last 12 months, did you or anyone else in your household make any of the following energy saving improvements?

#	Answer	%	Count
1	Have not made energy efficiency improvements	30.0%	30
2	Installed LED Light Bulbs	63.0%	63
3	Purchased an ENERGY STAR® appliance such as a refrigerator, dishwasher, clothes washer, air purifier, dehumidifier, or clothes dryer	25.0%	25
4	Installed water heater pipe insulation	2.0%	2
5	Installed water heater jacket, blanket, or insulation	1.0%	1
6	Installed low flow faucet aerators	2.0%	2
7	Installed low flow showerheads	14.0%	14
8	Installed an ENERGY STAR® room air conditioner	1.0%	1
9	Installed an energy efficient water heater	9.0%	9
10	Installed an energy efficient central air conditioner or heat pump	7.0%	7
11	Installed a smart (Wi-Fi) thermostat	8.0%	8
12	Something else	10.0%	10
	Total	100%	100

Q6 - Did you receive a rebate or incentive from I&M for the equipment or home improvements that you mentioned?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	97.1%	68
3	Not sure	2.9%	2
	Total	100%	70

Q7 - 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	76.1%	51
2	Did not have the time to complete rebate application	1.5%	1
3	Found out about rebate too late	0.0%	0
4	Did not think my equipment was eligible	7.5%	5
5	Submitted a rebate application that was rejected	0.0%	0
6	For some other reason (Please describe)	7.5%	5
7	Don’t know	7.5%	5
	Total	100%	67

Q56 - Demand for electricity is often highest during summer afternoons when the weather is hottest. How easy or difficult is it for you to reduce your electricity during times when electricity demand is highest?

#	Answer	%	Count
1	1(Very difficult)	8.4%	9
2	2	13.1%	14
3	3	37.4%	40
4	4	23.4%	25
5	5(Very easy)	17.8%	19
	Total	100%	107

Q57 - How much do you agree or disagree that reducing your electricity use during times when electricity demand is highest will have the following effects?

#	Question	1(Strongly disagree)		2		3		4		5(Strongly agree)		Total
1	Lower your utility costs	13.5%	14	15.4%	16	26.0%	27	21.2%	22	24.0%	25	104
2	Reduce greenhouse gas emissions	13.5%	14	17.3%	18	32.7%	34	20.2%	21	16.3%	17	104
3	Help make the grid more reliable	10.6%	11	14.4%	15	31.7%	33	21.2%	22	22.1%	23	104

Q58 - Do you think the following statements about all-electric homes are true or false? Your best guess is fine.

#	Question	True		False		Total
1	All-electric homes are more energy efficient	21.6%	22	78.4%	80	102
2	All-electric homes are expensive to buy	41.7%	43	58.3%	60	103
3	All-electric homes improve indoor and outdoor air quality	51.0%	52	49.0%	50	102
4	All-electric homes have higher utility costs	76.2%	80	23.8%	25	105

Q59 - Are you aware of any rebates for energy efficient equipment and home improvements or other services offered by I&M?

#	Answer	%	Count
1	Yes	17.8%	19
2	No	65.4%	70
3	Don't know	16.8%	18
	Total	100%	107

Q60 - What types of rebates or services do you recall hearing about? (Select all that apply)

#	Answer	%	Count
1	Heating and cooling equipment	61.1%	11
2	Heat pump water heaters or high-efficiency electric water heater	55.6%	10
3	Discounts for LED light bulbs	66.7%	12
4	Insulation / air sealing	0.0%	0
5	Smart Wi-Fi thermostats	55.6%	10
6	Recycling old refrigerators or freezers	0.0%	0
7	Home energy assessments	0.0%	0
8	Energy-saving pool pump	5.6%	1
9	Efficient dehumidifier	5.6%	1
10	ECM furnace fan motor	5.6%	1
11	Geothermal heat pump	0.0%	0
12	Packaged terminal heat pump	0.0%	0
13	IM Power Rewards: Smart Thermostat	33.3%	6
14	Other (Specify)	0.0%	0
15	Don’t know	5.6%	1
	Total	100%	18

Q61 - 61. How did you learn of these rebates or services? (Select all that apply)

#	Answer	%	Count
1	I&M Website (www.electricideas.com or indianamichiganpower.com)	16.7%	3
2	I&M bill insert, or message printed on your bill	61.1%	11
3	Friend, family member, or colleague	5.6%	1
4	TV ad	11.1%	2
5	I&M Representative	0.0%	0
6	I&M Newsletter	16.7%	3
7	Community event	5.6%	1
8	Social media	5.6%	1
9	Home Energy Report	11.1%	2
10	Newspaper/magazine/print media	16.7%	3
11	Other (Please describe)	11.1%	2
12	Don’t recall	5.6%	1
	Total	100%	18

Q63 - Which of the following best describes your home?

#	Answer	%	Count
1	Manufactured home	3.7%	4
2	Single-family house detached from any other house	82.2%	88
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	2.8%	3
4	Apartment in a building with 2 to 3 units	0.0%	0
5	Apartment in a building with 4 or more units	9.3%	10
6	Other (Specify)	0.9%	1
99	I prefer not to state	0.9%	1
	Total	100%	107

Q64 - Do you own, rent, or own and rent to someone else the property located at [Field-ADDRESS]?

#	Answer	%	Count
1	Own	81.1%	86
2	Rent	16.0%	17
3	Own and rent to someone else	0.0%	0
99	I prefer not to state	2.8%	3
	Total	100%	106

Q65 - When was your home built?

#	Answer	%	Count
1	Before 1950	17.8%	19
2	1950 to 1959	13.1%	14
3	1960 to 1969	7.5%	8
4	1970 to 1979	9.3%	10
5	1980 to 1989	7.5%	8
6	1990 to 1999	7.5%	8
7	2000 to 2009	9.3%	10
8	2010 or later	13.1%	14
99	Don’t know/Prefer not to state	15.0%	16
	Total	100%	107

Q66 - What is the fuel source for your clothes dryer?

#	Answer	%	Count
1	Natural gas	30.5%	32
2	Electricity	61.9%	65
3	Propane	1.0%	1
4	Other	0.0%	0
5	I don’t have a clothes dryer	4.8%	5
99	Don’t know/Prefer not to state	1.9%	2
	Total	100%	105

Q67 - What is the fuel source for your oven and range?

#	Answer	%	Count
1	Natural gas	37.7%	40
2	Electricity	58.5%	62
3	Propane	2.8%	3
4	Other	0.0%	0
5	I don’t have an oven/range	0.0%	0
99	Don’t know/Prefer not to state	0.9%	1
	Total	100%	106

Q68 - Do you have a Wi-Fi connect smart thermostat?

#	Answer	%	Count
1	Yes	16.8%	18
2	No	79.4%	85
99	Don’t know/Prefer not to state	3.7%	4
	Total	100%	107

Q69 - Do you or any member of your household own or lease a plug-in electric vehicle?

#	Answer	%	Count
1	Yes	0.9%	1
2	No	99.1%	105
99	Don’t know/Prefer not to state	0.0%	0
	Total	100%	106

Q70 - Do you have a plug-in hybrid vehicle or a battery electric vehicle?

#	Answer	%	Count
1	Plug-in hybrid	0.0%	0
2	Battery electric vehicle	0.0%	0
3	Both	0.0%	0
99	Don’t know/Prefer not to state	100.0%	1
	Total	100%	1

Q71 - Do you charge your electric vehicle at home?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	0.0%	0
99	Prefer not to state	100.0%	1
	Total	100%	1

Q72 - Do you or any member of your household park a vehicle within about 20 feet of an electric outlet?

#	Answer	%	Count
1	Yes	54.2%	58
2	No	42.1%	45
3	Prefer not to state	3.7%	4
	Total	100%	107

Q73 - Is there a 220/240-volt outlet within about 20 feet of where you or another member of your household park your vehicle? These are the larger outlets, like you would use to plug in a clothes dryer.

#	Answer	%	Count
1	Yes	15.0%	16
2	No	71.0%	76
99	Don't know/Prefer not to state	14.0%	15
	Total	100%	107

Q74 - What is the main fuel used for heating your home?

#	Answer	%	Count
1	Electricity	20.8%	22
2	Natural Gas	70.8%	75
3	Propane	5.7%	6
4	Something else (Please explain)	0.9%	1
5	Don't heat home	0.0%	0
99	Don't know/Prefer not to state	1.9%	2
	Total	100%	106

Q75 - What fuel does your main water heater use?

#	Answer	%	Count
1	Electricity	36.2%	38
2	Natural Gas	53.3%	56
3	Propane	2.9%	3
4	Something else (Please explain)	1.0%	1
5	Don’t heat home	0.0%	0
99	Don’t know/Prefer not to state	6.7%	7
	Total	100%	105

Q76 - Including yourself, how many people currently live in your home year-round?

#	Answer	%	Count
1	1	29.2%	31
2	2	45.3%	48
3	3	11.3%	12
4	4	6.6%	7
5	5	2.8%	3
6	6	0.0%	0
7	7	0.9%	1
8	8 or more	0.0%	0
99	I prefer not to state	3.8%	4
	Total	100%	106

Q77 - Including all money earned from wages, salaries, tips, commissions, workers' compensation, unemployment insurance, child support, or other sources, about how much was your total annual household income before taxes in 2020?

#	Answer	%	Count
1	Less than $10,000	1.9%	2
2	$10,000 to less than $20,000	2.8%	3
3	$20,000 to less than $30,000	9.4%	10
4	$30,000 to less than $40,000	7.5%	8
5	$40,000 to less than $50,000	7.5%	8
6	$50,000 to less than $75,000	12.3%	13
7	$75,000 to less than $100,000	13.2%	14
8	$100,000 to less than $150,000	9.4%	10
9	$150,000 to less than $200,000	0.9%	1
10	$200,000 or more	3.8%	4
99	I prefer not to state	31.1%	33
	Total	100%	106