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2021 Michigan Residential Portfolio EM&V Report Volume I of II

Prepared for: Indiana Michigan Power

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Prepared by:



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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 that confirmed the energy savings (kWh) and demand reduction (kW) realized through the energy efficiency programs that I&M implemented in Michigan during January 2021 through December 2021 (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.

Survey	Mode	Time Frame	Number of Contacts	Number of Completions
Home New Construction Participant Interview	Telephone	January 2022	1	1
Home Appliance Recycling Participant Survey	Online	October 2021	406	90
Home Appliance Recycling Participant Survey	Online	January 2022	269	60
Income Qualified Weatherproofing Participant Survey	Online	January 2022	2	1
Income Qualified Weatherproofing Participant Survey	Telephone	January 2022	77	12
Income Qualified Weatherproofing Donated Kits Survey	QR Code on Kit Box	November 2021 - January 2022	NA	9
Home Energy Products – Products Component Participant Survey	Telephone	January 2022	8	2
Home Energy Products – Products Component Participant Survey	Online	November 2021	469	76
Home Energy Products – Online Marketplace Purchaser Survey	Online	December 2021	466	108
Home Energy Products – Products Component Contractor Survey	Online	January 2022	40	3
Home Energy Engagement - Residential AMI Portal Participant Survey	Online	January 2022	214	9
Home Energy Engagement - Online Energy Checkup Participant	Online	October 2021	1,212	87
Home Energy Engagement - Online Energy Checkup Participant	Online	December 2021	331	30
School Energy Education Participant Survey	Online	December 2021	207	7
Residential Nonparticipant Survey	Online	December 2021	9,984	145

Table 1-1 Summary of Survey and Interview Data Collection

Program	Organization	Number of Interviewed Staff
Home New Construction	I&M	1
Home Energy Management	I&M	1
Home Energy Engagement - Residential AMI Portal	I&M	1
School Energy Education	I&M / AM Conservation	2

 Table 1-2 Summary of Staff Interviews

1.2 Impact Evaluation Findings

Below, cross-cutting information relating to the impact evaluation approach is presented followed by a summary of the impact evaluation results.

1.2.1 Cross-Cutting Impact Evaluation Approach

1.2.1.1 Terminology

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

Variable	Definition		
kWh Savings Goal	<i>kWh Savings Goal</i> is the energy savings goal cited in the applicable portfolio plan.		
Ex Ante Gross kWh Savings	<i>Ex Ante Gross kWh Savings</i> are the annual energy savings reported by I&M and are typically obtained from I&M's DSM/EE Program Scorecard documents.		
Gross Audited MEMD- Compliant kWh Savings	<i>Gross Audited MEMD-Compliant kWh Savings</i> . This accounts for corrections of any errors identified through review of tracking data. For MEMD measures, this accounts for any evaluator reclassification of MEMD measure code or other changes to the application of the MEMD to calculation of measure energy savings.		
Gross Verified MEMD- Compliant kWh Savings	<i>Gross Verified MEMD-Compliant kWh Savings</i> . For MEMD measures, this is determined by applying an installation rate to the <i>Gross Audited MEMD-Compliant kWh Savings</i> . The installation rate is defined as the ratio of units that were installed (verified) to the number of units reported (claimed). For non-MEMD measures, this reflects all adjustments made by ADM, without accounting for free ridership or spillover.		
Ex Post Gross MEMD- Compliant kWh Savings	<i>Ex Post Gross MEMD-Compliant kWh Savings</i> . For all measures, this reflects all gross savings adjustments made by ADM, without accounting for free ridership or spillover		
Gross Verified Lifetime MEMD-Compliant kWh Savings	Gross Verified Lifetime MEMD-Compliant kWh Savings is the Gross Verified MEMD-Compliant kWh Savings occurring over the course of the applicable measure effective useful life (EUL), including any multiple baseline measure period savings as applicable.		

Table 1-3 S	Savings-Related	Terminology
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Variable	Definition
Gross Realization Rate	Gross Realization Rate is equal to Ex Post Gross MEMD-Compliant kWh Savings divided by Ex Ante Gross kWh Savings.
Net-to-Gross Ratio	Net-to-Gross Ratio is equal to Ex Post Net MEMD-Compliant kWh Savings divided by Ex Post Gross MEMD-Compliant kWh Savings.

1.2.1.2 Cross-Cutting Gross Savings Analysis Approach

For energy efficiency measures found in the Michigan Energy Measures Database (MEMD):

- ADM referenced the appropriate MEMD per unit kWh savings values to calculate ex post kWh savings.
- ADM referenced the appropriate MEMD per unit kW demand reduction values to calculate ex post kW demand reductions.

Further, for those measures not found in the MEMD and for which kWh savings and kW demand reductions could be estimated by referencing the work papers underlying the MEMD, ADM referenced information contained in MEMD work papers to calculate ex post kWh savings and ex post kW demand reductions.

For measures not found in the MEMD and for which kWh savings and kW demand reduction could not be estimated by referencing the work papers underlying the MEMD, the methods outlined in the applicable, program-specific sections of this report were applied in calculating ex post kWh savings and ex post kW demand reductions.

1.2.1.3 Cross-Cutting Net Savings Analysis Approach

ADM applied evaluated net-to-gross (NTG) ratios to determine net ex post kWh savings and net ex post kW demand reductions. Net energy impacts were calculated as follows:

Net Ex Post kWh Savings = Gross Ex Post kWh Savings * NTG Ratio Net Ex Post kW Demand Reduction = Gross Ex Post kW Demand Reduction * NTG Ratio

1.2.2 Impact Evaluation Results

ADM performed EM&V activities for each of the residential programs offered by I&M during PY2021. Total residential portfolio ex post gross energy savings are 10,853,710 kWh, while ex post net energy savings are 5,950,226 kWh, as shown in Table 1-4.

Program Name	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD- Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kWh Savings	Net- to- Gross Ratio	Gross Verified Lifetime MEMD- Compliant kWh Savings
Home Appliance Recycling	1,088,480	1,107,015	1,065,903	1,065,903	98%	558,265	52%	8,527,222
Home Energy Products - Appliances	1,319,848	1,536,846	1,466,432	1,466,432	111%	987,567	67%	20,480,368
Home Energy Products - Lighting	5,192,172	5,665,497	4,985,637	4,985,637	96%	1,799,679	36%	18,648,810
Home New Construction	297,507	180,796	180,796	180,796	61%	149,090	82%	2,594,211
Home Weatherproofing	2,910	2,128	2,128	2,128	73%	7,200	338%	30,765
Residential Income Qualified Weatherproofing	352,999	489,765	441,093	441,093	125%	441,093	100%	1,946,630
Residential Online Energy Check-up	767,686	1,172,545	726,440	726,440	95%	749,528	103%	6,281,210
Home Energy Reports	1,258,024	1,628,057	1,628,057	1,628,057	129%	892,534	55%	1,628,057
Residential AMI Portal	-	-	-	-	N/A	-	N/A	-
Schools Energy Education	92,173	360,841	83,237	83,237	90%	91,282	110%	717,511
Heat Pump Clothes Dryer Pilot	298,648	64,479	64,479	64,479	22%	64,479	100%	64,479
Residential Mid-Stream Pilot	-	209,510	209,510	209,510	N/A	209,510	100%	209,510
Residential Portfolio Totals	10,670,448	12,417,478	10,853,710	10,853,710	102%	5,950,226	55%	61,128,773

 Table 1-4 Summary of Energy Savings – PY2021

Total residential portfolio ex post gross peak demand savings are 1,211.14 kW, while ex post net peak demand savings are 798.16 kW, as shown in Table 1-5.

Program Name	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kW Savings	Net- to- Gross Ratio
Home Appliance Recycling	126.95	129.18	124.39	124.39	98%	65.16	52%
Home Energy Products - Appliances	86.60	(22.84)	(29.38)	(29.38)	-34%	(6.63)	23%
Home Energy Products - Lighting	665.61	673.06	592.30	592.30	89%	212.98	36%
Home New Construction	-	(3.44)	(3.44)	(3.44)	N/A	(4.78)	139%
Home Weatherproofing	0.15	0.10	0.10	0.10	68%	0.68	659%
Residential Income Qualified Weatherproofing	16.19	54.42	50.10	50.10	309%	50.10	100%
Residential Online Energy Check-up	74.82	110.28	72.72	72.72	97%	75.44	104%
Home Energy Reports	159.80	392.48	392.48	392.48	246%	392.48	100%
Residential AMI Portal	-	-	-	-	N/A	-	N/A
Schools Energy Education	12.68	44.48	11.86	11.86	94%	12.73	107%
Heat Pump Clothes Dryer Pilot	-	-	-	-	N/A	-	N/A
Residential Mid-Stream Pilot	-	-	-	-	N/A	-	N/A
Residential Portfolio Totals	1,142.81	1,377.73	1,211.14	1,211.14	106%	798.16	66%

Table 1-5 Summary of Peak Demand Impacts – PY2021

1.3 Evaluation Findings Recommendations

The evaluation findings are summarized by program below.

1.3.1 Home Weatherproofing

The program energy savings gross realization rate is relatively low at 73%. Measures with low realization rates included air infiltration and kitchen faucet aerators.

- **Recommendation 1:** Accounting for housing type in estimation of hot water measure savings may result in more accurate estimation of savings.
- 1.3.2 Home New Construction

The realization rates for ductless heat pumps and envelope measures were low. The realization rates for the heat pumps and thermal envelope improvements were 61% and 23% respectively. For both measures, the ex post analysis referenced the applicable MEMD measures based on the measure specifications.

• **Recommendation 1**: Review savings assumptions for multifamily new construction minisplit heat pumps and thermal envelope improvements projects.

The market does not know about the potential energy savings and non-energy benefits of allelectric 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.

1.3.3 Home Appliance Recycling

The gross realization rates indicate that estimated, ex ante savings accurately predicted realized savings.

The program net-to-gross ratio is 52%. The net-to-gross ratio for refrigerators is 52%, which is the same as in PY2020. The primary driver of the net-to-gross ratio is that 37% of participants reported they would have destroyed their units in the absence of the program – as such these units would have been removed from the grid without program support. Additionally, 39% reported they would have transferred the unit to another party. The net-to-gross ratio for freezers was 53%, an increase from the 37% net-to-gross ratio found in PY2020. Thirty-three percent of respondents said they would have destroyed their freezer if the program was unavailable and 39% reported they would have transferred the unit to another party.

1.3.4 Income Qualified Weatherproofing

Analysis revealed that the income qualified program achieved greater energy savings than originally projected. With a realization rate of 130% 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 kWh realization rate for refrigerators was particularly high at 768%. The ex ante savings appear to be based on the MEMD savings value for a new top freezer refrigerator and assumes a new refrigerator that meets the current appliance standard as the baseline equipment. ADM assumed an early replacement baseline because it is probable that the existing refrigerator was operating and would continue to be used absent the program replacement.

• **Recommendation 1:** Accounting for the early replacement of low-income refrigerators will improve the ex ante savings estimate.

A low realization rate for heat pump water heaters was the result of a misclassification of electric resistance water heaters as heat pump water heaters. ADM reviewed the AHRI numbers for the three installed heat pump water heaters that were listed in the program data and found that two of three water heaters were standard efficiency electric resistance water heaters.

- **Recommendation 2:** ADM recommends that program staff confirm the equipment type and efficiency information by reviewing AHRI numbers associated with space heating and cooling, and water heating equipment.
- 1.3.5 Home Energy Products Products Component

The overall realization rate for the efficient products component was high at 111%, although realization rates differed substantially from 100% for some measures.

- **Recommendation 1:** Review ex ante savings estimates for the following measures:
 - Electric resistance water heaters had a low realization rate. The ex ante savings estimates is high and more in-line with what would be expected for a heat pump water heater.

- Ex ante estimates for air source heat pumps and central air conditioners were low. The estimates did not account for unit capacity and were not consistent with the MEMD.
- The ex ante estimates for multi speed pool pumps referenced the MEMD savings value for variable speed pool pumps and the ex ante savings for the variable speed pool pumps referenced the MEMD savings for multi speed pool pumps.

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 1.6 of them.

• **Recommendation 2:** Consider limiting customers to the purchase of no more than two advanced power strips.

Most customers (88%) were satisfied with their online marketplace purchase experience, and two-thirds were considered net promoters. About one in ten respondents were detractors¹ of the program suggesting there may still be some opportunity to improve customer's experience with the online marketplace.

1.3.6 Home Energy Products – Lighting

The net-to-gross ratio for LED bulbs was 36%. Free ridership for specialty bulbs was higher than for standard LEDs (94% vs. 54%) A review of the amount of the discount provided found that the average discount was 49% for specialty LEDs as compared to 62% for standard LEDs. The relatively lower discount may be driving the higher free ridership for the specialty bulbs. Analysis of free ridership that excluded specialty LEDs with a discount of 15% or less (i.e., smaller discounts) resulted in an 11-percentage point decrease in free ridership (i.e., net savings increased).

• **Recommendation 1:** Review discounted prices for LEDs and remove those with discounts that are small relative to the retail price from the program.

¹ 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.

1.3.7 Home Energy Engagement

1.3.7.1 Online Energy Checkup

Ex Post Gross MEMD-Compliant kWh Savings for OEC are near 100% of the ex ante savings for most measures. Nightlights had a lower realization rate which is largely a function of customers primarily installing the nightlights as a new installation instead of as a replacement of an existing nightlight.

1.3.7.2 Home Energy Reports

BRM-consistent kWh savings are less than the ancillary econometric analysis savings. Under the ancillary econometric analysis performed according to the method outlined above, the annual energy savings are estimated to be 2,404,840 kWh, which is equal to 105% of the BRM-consistent, uncapped ex post gross kWh savings.

1.3.7.3 Residential AMI Portal

No energy savings were calculated for the Residential AMI Portal service. The lack of calculated savings impact may have been a function of the relatively small number of customers with access to the AMI portal at this time. The potential for evaluable savings will increase as more customers gain access to the AMI data portal.

I&M has taken multiple steps to inform customers of the availability of the service. Multiple communications are provided to customers about the availability of the AMI Energy Management Tools. Customers receive a post card about their planned AMI meter installation 60 days prior to installation, and a letter that allows them to opt-out of the AMI meter installation 30 days prior to installation. Once the meter is installed, Opower sends a welcome letter with information about the smart meter. Three months later, customers receive a participation experience communication that provides information about the types of energy use information available for their account.

• **Recommendation 1: Consider following up with inactive customers.** While I&M has taken multiple steps to inform customers of the portal, periodic communications to customers who have not accessed the web platform or opted in to send a weekly communication may be helpful to remind them of the availability of the services.

The program has a mix of "passive" information and active customer communications. The web portal is available to all customers, and it requires that the customer seek out the information on their energy consumption. The program also delivers information on energy consumption through communications in the form of high usage alert emails (which are an opt-out service) and weekly energy use email reports (which are an opt-in service).

• **Recommendation 2: Consider offering additional opt-out services.** If it is possible within the service contract with Opower, I&M should consider an additional opt-out communication such as a monthly energy report to increase the active engagement of customers with the service. The current opt-in weekly communication may be too frequent of an interval that may negatively affect customer relations.

1.3.8 School Energy Education

Program staff made design changes to adjust to lower than anticipated participation in the online program. In the first two quarters of 2021, the program utilized a digital platform to deliver educational content on energy efficiency and renewable resources. With the online platform, students received a coupon to redeem a kit online after completing the online curriculum. However, because few students redeemed kits, program staff changed the design back to a paper-based educational program that was marketed directly to parents. With this approach, parents could request a kit through the online marketplace.

1.4 Organization of Report

This report is divided into two volumes, providing information on the impact and process evaluation of the Indiana Michigan Power portfolio of residential programs implemented in Michigan during the 2021 program year. Volume I is organized as follows:

- Chapter 2: Home Weatherproofing
- Chapter 3: Home New Construction
- Chapter 4: Home Appliance Recycling
- Chapter 5: Income Qualified Weatherproofing
- Chapter 6: Home Energy Products Product Component
- Chapter 7: Home Energy Products Lighting
- Chapter 8: Home Energy Engagement
- Chapter 9: School Energy Education
- Chapter 10: Residential Pilots
- Chapter 11: Non-Participant Survey

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

2 Home Weatherproofing

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

2.1 Program Description

The Home Weatherproofing Program is offered to residential customers who would benefit from higher-level standard home weatherization measures such as ceiling insulation, home infiltration, and duct sealing.

The first step to participate in the program is for customers to sign up and receive a Home Energy Assessment. During the assessment, the auditor identifies energy efficiency improvements and recommends measures to the participants.

To receive the weatherization incentives, the customer must decide which weatherization measures recommended in the assessment they want implemented. By having an authorized contractor install recommended home weatherization improvements, I&M customers with electrically heated homes can earn incentives up to 50% of the cost of the work up to \$3,000.

2.2 Data Collection

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

- Program tracking data from the primary tracking database;
- Program summary data from the I&M DSM EE Program Scorecard; and
- Program applications and supporting documentation.

Because participation was limited to two customers, ADM did not attempt to complete a survey of program participants to estimate net savings and in-service rates. Instead, ADM applied the results from the survey of participants completed for the evaluation of the 2020 program year.

2.3 Estimation of MEMD-Compliant Savings

The following section presents the methodology that was used for estimating the MEMD-Compliant energy and demand impacts resulting from the Home Weatherproofing Program in 2021.

2.3.1 Methodology for Estimating MEMD-Compliant Savings

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

- Numbers of weatherization measures installed;
- Average annual kWh savings per weatherization measure implemented; and
- Average kW reduction per weatherization measure implemented.

Table 2-1 below summarizes the inputs used for gross savings calculations and the source of each input.

Table	2-1	Data	Sources	for	Gross	Impact	Parameters -	- Home	Weather	proofing	Program

Parameter	Source
Number of Participants	Program Tracking Data
Participant Location	Program Tracking Data
Participant HVAC Equipment Type	Program Tracking Data
Home Square Footage	Program Tracking Data
Pre-Post Insulation Values	Program Tracking Data
HVAC efficiencies	Program Tracking Data
Square Footage Insulated	Program Tracking Data
Pre-Post Blower Door Test	Program Tracking Data
Wattage of Efficient Lighting	Program Tracking Data
Length of Water Heater Pipe	Program Tracking Data
Gallons per minute of low flow aerator/showerhead	Program Tracking Data
In-service rate	Participant Survey

2.3.1.1 In-Service Rates

Table 2-2 below summarizes the in-service rate determined from the program participant survey results and review of program documentation.

Measure	In-Service Rate
Air Infiltration Reduction	100%
Attic Insulation	100%
Bath Faucet Aerator	100%
Kitchen Faucet Aerator	100%
LED Lighting	100%
Low Flow Showerhead	100%

Table 2-2 In-Service Rate - Survey Results by Measure

2.3.1.2 Review of Documentation

A first aspect of conducting measurements of program activity is to verify if participants of the program did participate in the program. ADM takes several steps in verifying the number of weatherization measures installed, which consists of the following:

- Validating program tracking data provided by I&M by checking for duplicate or erroneous entries; and
- Conducting verification surveys with a sample of program participants. The focus of these verification surveys is to verify that customers listed in the program tracking database did indeed participate and the number of measures installed was accurate.

2.3.1.3 Procedures for Estimating Measure-Level MEMD-Compliant Savings

Gross energy impacts and demand reductions for the Home Weatherproofing program were calculated (by measure) using the 2021 MEMD. ADM referenced the weighted results section of

the MEMD Weather Sensitive Workbook for applicable measures, including Air Infiltration Reduction, Duct Sealing, and Insulation measures. The MEMD master measure database was referenced for the remaining measure types. Table 2-3 below summarizes the deemed MEMD savings and Estimated Useful Life (EUL) according to measure type.

Measure	Average Per Unit MEMD kWh Savings	Average Per Unit MEMD kW Savings	Unit	MEMD EUL
Air Infiltration Reduction	762	0.013	1000 sq ft cond floor area	13
Attic Insulation	740	0.030	1000 sq ft	20
Bath Faucet Aerator	70	0.008	device	10
Kitchen Faucet Aerator	202	0.023	device	10
LED Lighting	29	0.003	per lamp	3
Low Flow Showerhead	326	0.026	device	10

Table 2-3 MEMD kWh and kW Savings per Measure

2.3.2 MEMD-Compliant Gross Impact Results

Table 2-4 and Table 2-5 below summarize the gross kWh and kW reduction savings associated with the Residential Home Weatherproofing Program for PY2021. Gross savings estimates account for the in-service rates discussed in Section 2.3.2.1.

2.3.2.1 Ex Post Gross kWh Savings and kW Reductions

Table 2-4 summarizes the ex ante and ex post gross kWh savings. Table 2-5 summarizes ex ante kW demand reductions and ex post gross kW reductions.

Findings relevant to measure-level gross realization rates include:

- For the single instance of the air infiltration reduction measure, given the applicable residence, HVAC equipment, and climate zone characteristics, the MEMD-consistent kWh savings per 1,000 square feet is 858 kWh. Ex ante energy savings applied the logic that given the applicable characteristics, savings per 1,000 square feet is 1,627 kWh.
- Faucet aerator and shower head ex ante energy savings did not account for applicable housing type, resulting in overestimation of kitchen faucet aerator savings.

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate
Air Infiltration Reduction	1,457	762	762	762	52%
Attic Insulation	744	740	740	740	99%
Bath Faucet Aerator	68	70	70	70	103%
Kitchen Faucet Aerator	279	202	202	202	72%
LED Lighting	29	29	29	29	100%
Low Flow Showerhead	334	326	326	326	98%
Total	2,910	2,128	2,128	2,128	73%

Table 2-4 Ex Post Gross kWh Savings Estimates

Table 2-5 Ex Post Gross kW Demand Reduction Estimates

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate
Air Infiltration Reduction	0.05	0.01	0.01	0.01	25%
Attic Insulation	0.03	0.03	0.03	0.03	100%
Bath Faucet Aerator	0.01	0.01	0.01	0.01	100%
Kitchen Faucet Aerator	0.03	0.02	0.02	0.02	72%
LED Lighting	0.00	0.00	0.00	0.00	100%
Low Flow Showerhead	0.03	0.03	0.03	0.03	96%
Total	0.15	0.10	0.10	0.10	68%

2.4 Estimation of Ex Post Net Savings

2.4.1 Methodology for Estimating Ex Post Net Savings

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

ADM estimated free ridership and participant spillover using survey responses from a sample of PY2020 program participants. The following sections outline the methodology that was used to develop those estimates.

2.4.1.1 Methodology for Estimating Free Ridership

2.4.1.1.1 Direct Install Measures

The calculation of free ridership 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.

Two different sets of questions were used to estimate saving resulting from the no-cost direct install measures and from the major, rebated measures (e.g., insulation, air sealing). The differences in the questions reflect differences in the two types of measures as well as the incentive strategy. The direct install free ridership questions do not incorporate the customer's financial ability to purchase and install the measures because the items are generally low cost. Additionally, free ridership for the direct install measures is not addressed because it is less likely that a respondent would have had long term plans to install these low-cost items.

The calculation of direct install measure free ridership was based on the responses to questions on the following topics:

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

Prior Experience

Because the program provides the measures at no cost to the customer and installs them in the customer's household as part of an energy assessment and potential larger efficiency project, the primary indicator of the likelihood that a participant is a free rider is whether or not he or she has previously purchased a similar measure. Previous experience is used as an indicator of whether or not the customer would have coincidently purchased a similar measure on their own.

Previous experience with the measure is assessed through the following question:

• DI_FR1: Thinking back to before you participated in the [PROGRAM], had you purchased and installed any of the following items in your home in the last three years?

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

Prior Plans and Intentions

Customers were asked as to any plans they had to purchase any of the measures. This is addressed in the following question:

 DI_FR2: Before you heard of the program, did you have specific plans to purchase the nocost [ALL_DI_MEASURES] installed in your residence? If so, which items did you have planned?

For LEDs, shower heads, and faucet aerators, customers that respond that they planned to install the measures were asked the following question:

• DI_FR3: How many of the [MEASURE COUNT] that you received did you plan to purchase?

Respondents who indicated that they had plans to purchase the measure on DI_FR2, were given a plans score of 1. The response to DI_FR3 was used to adjust the plans score to reflect the number of items the respondent planned to purchase. For example, if the respondent planned to purchase one of the two items received, the plans score was adjusted to 0.5.

Likelihood of Purchasing Measure

In the absence of specific plans to purchase and install the direct install items, it is possible that the event of learning about the program will sway their decision-making process to install these energy efficient measures in their homes. Additionally, the information and measures provided through the program may help to overcome existing barriers to energy efficiency improvements. To address this, participants receive the following questions to inform the Importance of Decision Making variable:

- DI_FR4: 42. 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?
- DI_FR5: [IF DI_FR4 > 0] Based on your response, there is some likelihood that you would have purchased [DI_MEASURE] in the next 12 months. Given that, we would like to know why you had not already purchased [DI_MEASURE] on your own.
- Had you not already purchased [DI_MEASURE] because 1) you didn't want to spend the money, 2) you had not gotten around to it, 3) you didn't know where to purchase [DI_MEASURE], 4) you didn't know enough about [DI_MEASURE], 5) (for lighting) you were waiting for a bulb to burn out, or 6) another reason?

Respondents who indicated in DI_FR4 that they had not already purchased a given measure because they did not want to spend the money, did not know where to purchase the measure, or did not know enough about the measure are considered to have had significant barriers to implementing these energy efficiency improvements and receive a score of 0% free ridership for the measure under this component. Otherwise, the likelihood of purchasing was scored as:

Likelihood of Purchasing $= DI_FR4/10$

Free Ridership Scoring – Direct Install Measures

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

2.4.1.1.2 Major (Rebated) Measures

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

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 implement the efficiency measure if they answer "no" to the question below (FR1):

• FR1: Would you have been able to afford to implement the [MEASURE] if the rebate was not available from the program?

The second indicator variable is related to whether or not the customer had plans to implement the efficiency measure. Respondents were considered to have had plans if they answer "yes" to the following question:

• FR3: Were you planning to implement the [MEASURE] before you learned of I&M's [PROGRAM] program?

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

Program Influence

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

- FR5: Using a scale where 0 is "not at all influential" and 10 is "very influential," how influential was the home energy assessment available through program in your decision to implement the [MEASURE]?
- FR6: Using the same scale, how influential were the rebates available through program in your decision to implement the [MEASURE]?
- FR7: Now we would like to know how likely you would have been to implement 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 implemented the same [MEASURE] if you had not received the rebate through the program?
- FR8: Using the same scale, how likely is it that you would have implemented the same [MEASURE] if you had not received the home energy assessment through the program?

A program influence score was developed based on these two responses in the following manner:

Program Influence = Average (MAX(FR5, FR6), (10 – MIN(FR7, FR8))) / 10

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 2-6.

Likely Timing of Project in Absence of the Program	Timing Score
Within 6 months	1
Between 6 months and 1 year	0.67
In more than 1 year to 2 years	0.33
In two years or more	0

Table 2-6 Timing Adjustment Score

Free Ridership Scoring – Major (Rebated) Measures

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. An overall project free ridership score was based by combining the scores described above using the following equation:

Free Ridership = (1- *Program Influence* * *Timing Score*)

2.4.1.1.3 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 or not 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 report implementing on one or more efficiency measures were then asked two questions for use in developing a spillover score:

- SO1: On a scale of 0 to 10, where 0 represents "not at all important" and 10 represents "extremely important", how important was your experience with [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 of the associated measure savings were considered attributable to the program if the resulting score was greater than 7.

2.4.1.1.4 Methodology for Estimating Non-Participant Spillover

Section 11.3 describes the methodology used to estimate non-participant spillover.

2.4.2 Results of Ex Post Net Savings Estimation

Table 2-7 summarizes the ex ante and ex post net kWh savings. Table 2-8 summarizes ex ante kW demand reductions and ex post net kW reductions.

The net-to-gross ratio exceeds 100% because of the inclusion of non-participant spillover. ADM estimated non-participant spillover for the portfolio based on responses to a survey of customers that did not participate in an I&M program. The total non-participant spillover was allocated in proportion to program expenditures (see section 11.3 for additional discussion of the non-participant spillover methodology). This process resulted in the allocation of 5,146 kWh and 0.59 kW in non-participant spillover to the program. Because the gross savings for the program was low, the added savings greatly increased the net-to-gross ratio beyond 100%.

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Complian t kWh Savings	Gross Verified MEMD- Compliant kWh Savings	Ex Post Gross MEMD- Complian t kWh Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kWh Savings	Net-to- Gross Ratio	Gross Verified Lifetime MEMD- Compliant kWh Savings
Air Infiltration Reduction	1,457	762	762	762	52%	2,604	342%	9,904
Attic Insulation	744	740	740	740	99%	2,529	342%	14,796
Bath Faucet Aerator	68	70	70	70	103%	224	320%	700
Kitchen Faucet Aerator	279	202	202	202	72%	646	320%	2,020
LED Lighting	29	29	29	29	100%	83	293%	86
Low Flow Showerhead	334	326	326	326	98%	1,114	342%	3,260
Total	2,910	2,128	2,128	2,128	73%	7,200	338%	30,765

Table 2-7 Ex Post Net kWh Savings Estimates

Table 2-8 Ex Post Net Peak Demand Reduction Estimates

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kW Savings	Net-to- Gross Ratio
Air Infiltration Reduction	0.05	0.01	0.01	0.01	25%	0.08	667%
Attic Insulation	0.03	0.03	0.03	0.03	100%	0.20	667%
Bath Faucet Aerator	0.01	0.01	0.01	0.01	100%	0.05	645%
Kitchen Faucet Aerator	0.03	0.02	0.02	0.02	72%	0.15	645%
LED Lighting	0.00	0.00	0.00	0.00	100%	0.02	618%

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kW Savings	Net-to- Gross Ratio
Low Flow Showerhead	0.03	0.03	0.03	0.03	96%	0.17	667%
Total	0.15	0.10	0.10	0.10	68%	0.68	659%

2.5 Process Evaluation

ADM did not complete a process evaluation of the PY2021 residential program.

2.6 Findings and Recommendations

The program energy savings gross realization rate is relatively low at 73%. Measures with low realization rates included air infiltration and kitchen faucet aerators.

• **Recommendation 1:** Accounting for housing type in estimation of hot water measure savings may result in more accurate estimation of savings.

3 Home New Construction

This chapter presents the results of both the impact and process evaluations of the 2021 Home New Construction 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:

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

3.1 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 recognized standards. To participate in the program, newly constructed homes must be all-electric and obtain a HERS score of 75 or below. Incentives are available for installing energy efficient 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.

In addition to paying cash incentives, this program also represents a market transformation program, aimed at reducing multiple barriers to this higher level of construction standards.

3.2 Data Collection

3.2.1 Engineering Reviews

ADM performed an evaluation of the single project, a multifamily project, that was completed through the program during PY2021.

ADM collected .xml files from the home energy rater (HER) for each unique floor plan, including field photos acquired from real estate listings and HER notes and model numbers included with .xml models.

3.2.2 Participating Builder Interview

ADM completed an interview with the builder that completed a project in 2022. This building completed a multifamily project and the discussion focused on the decision to implement the program qualifying energy efficiency features to receive the incentive.

3.3 Estimation of Ex Post Gross Savings

3.3.1 Methodology for Estimating MEMD-Compliant Savings

3.3.1.1 Procedures for Estimating Measure-Level MEMD-Compliant Savings

Per-Unit Energy and Demand Impacts

The measures implemented through the Home New Construction program each have energy savings and peak demand reduction values provided in the 2021 MEMD. For energy efficiency measures found in the MEMD:

- ADM referenced the applicable MEMD per unit kWh savings values to calculate ex post gross MEMD-compliant kWh savings for program-incented products.
- ADM referenced the applicable MEMD per unit coincident kW demand reduction values to calculate ex post gross MEMD-compliant kW savings for program-incented products.

Table 6-5 below shows the stipulated MEMD per-unit kWh savings, peak kW reductions, Effective Useful Life (EUL) for each efficient measure that was implemented through the Home New Construction program in 2021.

Measure	MEMD Per-unit kWh Savings	MEMD Per- unit kW Demand Reduction	Units	MEMD EUL
Wall Insulation	232	0.01	1,000sqft	25
Roof Insulation	262	0.01	1,000sqft	25
LED A-line 800-1099 Lumen output replacing Incandescent/Halogen	29	0.00	Lamp	3
Minisplit Cold Climate Heat pump SEER 20 HSPF 11 Elec Resistance base	2,734	0.10	Ton	15

Table 3-1 MEMD Per-unit kWh and kW Impacts for Efficient Products

MEMD-Compliant Gross Impact Results

3.3.2

3.3.2.1 Ex Post Gross kWh Savings

Table 3-3 below summarizes the annual energy savings by measure type. The largest contributor to savings was the ductless heat pumps.

The annual gross energy savings for the Home New Construction Program totaled 180,796 kWh with a gross realization rate of 61%.

ADM reviewed the ex ante savings calculation to understand the reason for the 61% realization rate for the ductless heat pumps. For the applicable baseline heating equipment, new equipment efficiency, and building type specified in tracking data, ex ante savings were 4,488 kWh per ton of new equipment heating capacity. The criteria referenced to determine ex ante savings provided

the same reference values for both electric resistance and air source heat pump heating baselines and are presented in Table 3-2.

SEER Criterion	HSPF Criterion	kWh / Ton
<=29	<=14	5,006
<=24	<=13	4,849
<=21	<=11	4,514
<=19	<=11	4,488
<=18	<=11	4,473
<=21	<=9.9	2,424
<=19	<=9.9	2,375
<=18	<=9.5	2,335

Table 3-2 Multi-Family MSHP Ex Ante kWh Savings Criteria

The highest kWh value from the above was referenced as ex ante kWh savings based on applicable new equipment efficiency characteristics found in program tracking data.

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD- Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate
LED Lamps	6,456	15,960	15,960	15,960	247%
Ductless Heat Pumps	258,509	157,456	157,456	157,456	61%
Wall Insulation	22 5422	5,146	5,146	5,146	220/
Roof Insulation	52,542-	2,233	2,233	2,233	23%
Total	297,507	180,796	180,796	180,796	61%

 Table 3-3 Ex Post Gross kWh Savings Estimates
 Description

As a sensitivity analysis, MEMD-consistent savings estimates were compared with those associated with REM/Rate energy simulations modeling baseline and as-built energy usage for the newly-constructed units. Table 3-4 compares the verified MEMD-compliant and REM/Rate model energy savings. The majority of the overall difference between the two estimates is associated with the ductless heat pumps. The full load heating/cooling hours associated with the REM/Rate models is lower than the full load heating/cooling hours associated with the applicable MEMD measure.

² Ex ante envelope savings were not broken out by measure type.

Measure	REM/Rate Model kWh Savings	Gross Verified MEMD- Compliant kWh Savings
LED Lamps	9,689	15,960
Ductless Heat Pumps	75,783	157,456
Insulation	14,260	7,379
Total	99,732	180,796

Table 3-4 Ex Post Gross kWh

3.3.2.2 Ex Post Gross kW Reductions

The total gross peak demand reduction for the Michigan Home New Construction Program was 0.18 kW.

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate
LED Lamps	-	1.90	1.90	1.90	N/A
Ductless Heat Pumps	-	(5.70)	(5.70)	(5.70)	N/A
Wall Insulation	_	0.17	0.17	0.17	N/A
Roof Insulation	_	0.18	0.18	0.18	N/A

Table 3-5 Ex Post Gross kW Demand Reduction Estimates

3.4 Estimation of Ex Post Net Savings

ADM interviewed the development director of the firm that participated in the program to discuss the 32-unit multifamily property that participated in I&M's New Construction program in 2021. At the time of the interview, the building construction was complete. It is an all-electric building and I&M provided incentives for LED lighting, building shell above code upgrades, and SEER 20.1/HSPF 11.5 ductless mini-split units.

ADM asked the contact a series of questions about how the program affected the decision to implement each of the three efficiency measures. ADM estimated the degree of free ridership associated with each of the measures for this project.

3.4.1 Methodology for Estimating Ex Post Net Savings

This section describes the data and conclusions associated with analysis of program free ridership and spillover.

3.4.1.1 Ductless Mini-Splits

The contact indicated that the I&M incentive influenced their decision to install ductless mini-split units at the property. If the incentive was not provided, they would not have been likely to install the ductless mini-split system. The director also indicated it is uncommon for multifamily properties to install ductless mini-split systems, but that he has used them in other properties, and it is a technology he is comfortable with. The estimated free ridership for the mini-splits is 10%.

3.4.1.2 LED

The program incentives did not influence the decision to install LED fixtures in the units. It is common practice for their company to install LED lighting throughout the properties they build.

The estimated free ridership for the LED lighting is 100%.

3.4.1.3 Building Shell

As part of the program participation, the building received a HERS rating score. The development director indicated that the property received a HERS score because of their participation in the program. Additionally, the company took extra steps to improve the building envelope for the multifamily property. The project included 1.5" rigid insulation outside the studs which is above-code. The director stated this was necessary to accommodate the ductless mini-split installation because of the additional demand for heating in the winter. The project also included extra air sealing. The program incentives influenced these enhancements.

The estimated free ridership for the building shell improvements 0%.

3.4.1.4 Estimation of Non-Participant Spillover

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

3.4.2 Results of Ex Post Net Savings Estimation

Table 3-6 summarizes the net ex post kWh savings of the Home New Construction Program. The annual net savings totaled 149,090 kWh. The net-to-gross ratio is 82%.

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD- Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kWh Savings	Net-to- Gross Ratio	Gross Verified Lifetime MEMD- Compliant kWh Savings
LED Lamps	6,456	15,960	15,960	15,960	247%	-	0%	47,880
Ductless Heat Pumps	258,509	157,456	157,456	157,456	61%	141,711	90%	2,361,845
Wall Insulation	22 5 4 2 3	5,146	5,146	5,146	220/	5,146	100%	128,649
Roof Insulation	52,542	2,233	2,233	2,233	2370	2,233	100%	55,837
Total	297,507	180,796	180,796	180,796	61%	149,090	82%	2,594,211

Table 3-7 summarizes the net ex post kW demand reduction of the Home New Construction Program. The net demand reduction equaled -4.78 kW.

³ Ex ante envelope savings were not broken out by measure type.

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kW Savings	Net-to- Gross Ratio
LED Lamps	-	1.90	1.90	1.90	N/A	-	0%
Ductless Heat Pumps	-	(5.70)	(5.70)	(5.70)	N/A	(5.13)	90%
Wall Insulation		0.17	0.17	0.17	N/A	0.17	100%
Roof Insulation	_	0.18	0.18	0.18	N/A	0.18	100%
Total	-	(3.44)	(3.44)	(3.44)	N/A	(4.78)	139%

Table 3-7 Ex Post Net kW Demand Reduction Estimates

3.5 Process Evaluation

ADM completed a process evaluation of the PY2021 program. The process evaluation activities included review of program documentation and the program database, and interviews and discussions with program staff to inform the understanding of the program design and operations. The builder that participated in the program was also interviewed. The focus of the interview as on understanding how the program may have influenced the project and the findings are discussed in section 3.4.

3.5.1 Process Evaluation Findings

3.5.1.1 Program Design and Operations

The I&M New Homes Construction Program is available to builders who build 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. At the time of the interview, the program coordinator had not received any feedback regarding the online application process. Additionally, an online rebate estimator tool was developed for builders to estimate the rebate amount per home or per unit. The tool is accessible on I&M's Electric Ideas website.

I&M indicated that the program had not received rebate applications for homes within the service territory. The program coordinator discussed the single project occurring in 2021, a large multi-family project which included 32 units with ductless heat pumps.

3.5.1.1.1 Builder Participation and Outreach

The program saw relatively little activity with one multifamily project completed during PY2021. This suggests that there are barriers for builders to participate in the New Homes Construction program. The New Homes Construction program added one new builder in 2021.

The I&M program coordinator has had limited opportunities for in-person networking with builders because of COVID 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 highlights the environmental benefits of building all-electric homes and the reduced costs of not installing gas lines in a subdivision.

3.5.1.1.2 Role of HERS Raters

HERS raters work directly with builders and do not have an immediate 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 trusted source of information about the benefits of building allelectric. Given the role that HERS raters have with builders, they are a resource for delivering additional education about the benefits of building all-electric homes and participating in the program. However, raters ability to influence a specific project may be limited, depending on if the builder engages with the raters prior to making decisions about running natural gas to the site.

3.5.1.1.3 Education and Marketing

The program coordinator expressed interest in increasing the educational opportunities for builders to increase their understanding the program and to increase participation. The program coordinator has made attempts to gather feedback from builders about the new program design but has not been successful.

I&M has sponsored golf events to increase awareness among builders and other stakeholders (e.g., home builder associations). Additionally, I&M ran radio ads to educate new home buyers about the benefits of owning an all-electric home. There has also been social media advertising and digital ads (e.g., Google searches).

3.5.1.1.4 Strengths and Opportunities

The I&M program coordinator discussed the factors that could motivate more builders to participate in the New Homes Construction Program. 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 (e.g., air source heat pumps and heat pump water heaters). The coordinator discussed how I&M is collaborating with three other utilities in Michigan to educate customers and contractors about air source heat pumps.

3.5.1.2 Nonparticipant Survey Findings: All-Electric Homes Beliefs

Surveyed customers who had not participated in an I&M program provided feedback on four statements related to all-electric homes (see Table 3-8). Seventy-four percent of surveyed nonparticipant respondents do not believe that all-electric homes are more energy efficient. More than half surveyed believe all-electric homes are expensive to buy and 81% believe they have higher utility costs. 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.

Statement	True	False
All-electric homes are more energy efficient ($n = 139$)	26%	74%
All-electric homes are expensive to buy $(n = 139)$	57%	43%
All-electric homes improve indoor and outdoor air quality $(n = 138)$	57%	43%
All-electric homes have higher utility costs $(n = 141)$	81%	19%

Table 3-8 Nor	<i>iparticipants</i>	' Beliefs	about	All-Elec	etric Homes
14010 5 0 1101	ipar ricipants	Denejs	about	IIII LICC	the montes

3.6 Findings and Recommendations

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

The realization rates for ductless heat pumps and envelope measures were low. The realization rates for the heat pumps and thermal envelope improvements were 61% and 23% respectively. For both measures, the ex post analysis referenced the applicable MEMD measures based on the measure specifications.

• **Recommendation 1**: Review savings assumptions for multifamily new construction minisplit heat pumps and thermal envelope improvements projects.

There may be potential educational opportunities to increase the awareness of energy savings and non-energy benefits of all-electric homes. I&M's program staff identified additional education about the benefits of electric heating to entice new home buyers to choose all-electric homes as an opportunity for the program. 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. Specifically, more than threequarters of respondents stated that all-electric homes are less energy efficient and have higher utility costs than other home types. Additionally, the nonparticipant survey responses 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.
4 Home Appliance Recycling

This chapter presents the results of the impact evaluations of the 2021 Home Appliance Recycling Program that Indiana Michigan Power (I&M) offered to its Michigan residential customers during the period of January 2021 through December 2021. A process evaluation was not completed for the program.

4.1 Program Description

The Home Appliance Recycling Program is designed to help customers reduce their energy consumption by removing old, working refrigerators and freezers from their homes for recycling. I&M benefits because the old appliances, which are generally inefficient, are permanently removed from the system. The environment also benefits from the recycling process through safe disposal of environmentally harmful material.

The goal of the program is to reduce the number of old, inefficient refrigerators and freezers that customers have moved to their garages or other locations such as basements and patios, and to do so in an environmentally sustainable manner. Many areas in which secondary units are placed are not space conditioned and appliances used in that environment operate under a heavy thermal load during the summer. Previous studies by the Environmental Protection Agency (EPA), the Department of Energy (DOE), and other utilities have determined that removing these appliances, and properly recycling them, performs an energy saving service.

I&M contracts with ARCA to implement the program, which is configured as a turnkey, standalone energy efficiency initiative. The program targets existing multi- and single-family households, renters and homeowners who have old, secondary inefficient refrigerators or freezers, preferably those older than 1993. The customer receives no-cost pick-up and removal services in addition to a \$40 rebate per recycled refrigerator or freezer. I&M and ARCA will perform marketing and outreach for this program via its website, email, direct mail, bill stuffers, umbrella marketing, and community event outreach efforts. To be eligible for the program, appliances to be recycled must be in working condition, plugged in and cooling at the time of pick-up. Additionally, the program limits residential customers to recycle a maximum of two units per household per calendar year.

Removing old, inefficient refrigerators and freezers prevents them from being resold or transferred to another I&M customer. The program provides annual electric energy savings for the remaining life of the unit by permanently removing the unit from service. As an added environmental benefit, 95% of the materials from these units are able to be recycled (metals, plastic, glass, oil, etc.) and disposed of in an environmentally responsible manner, thus preventing the materials from reaching landfills and contaminating the environment.

4.2 Data Collection

4.2.1 Participant Survey

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

- Program tracking data from the primary tracking database;
- Program summary data from the *I&M DSM EE Program Scorecard*;
- Program applications and supporting documentation;
- Participant survey data; and
- Data from relevant secondary sources.

ADM completed an online survey of program participants to collect data to:

- Verify that the recorded appliances were recycled and estimate gross savings;
- Estimate net savings; and
- Assess customers experience with the program.

For the program participant survey, ADM used stratified sampling to develop a sample of program participants to be surveyed as part of the impact evaluation effort. The sample was stratified by appliance type recycled (refrigerator or freezer). The sample size for verification surveys was calculated to meet 90% confidence and $\pm 10\%$ precision at the program level (90/10). Quotas were set based on the proportion of each appliance type in the program population to ensure the desired confidence and precision level was achieved.

The sample size to meet 90/10 requirements is calculated based on the coefficient of variation of savings for program participants. Coefficient of Variation (CV) is defined as:

$$CV(x) = rac{Standard Deviation(x)}{Mean(x)}$$

Where x is the kWh savings per participant. Without data to use as a basis for a higher value, it is typical to apply a CV of 0.5 in residential program evaluations. The achieved sample size and corresponding precision at the 90% confidence level is shown in Table 4-1 below.

Strata	Population Size	Survey Quota	Completed Surveys	Precision (90% CI)
Refrigerators	809	63	130	6.61%
Freezers	200	51	37	12.21%
Totals	1,009	114	167	5.88%

Table 4-1 Participant Survey Sample Design

ADM administered an online survey to a census of customers with available contact information who had recycled appliances. Ultimately, the survey effort resulted in 167 completed surveys (130 from participants who recycled refrigerators and 37 from participants who recycled freezers).

4.3 Estimation of MEMD-Compliant Savings

4.3.1 Methodology for Estimating MEMD-Compliant Savings

The M&V approach for the 2021 Home Appliance Recycling Program is aimed at determining the following:

- Numbers of refrigerators and freezers collected and recycled;
- Average annual kWh savings per collected appliance; and
- Average kW reduction per collected appliance.

Table 4-2 below summarizes the inputs needed for the savings calculations and the source of each input.

Table 4-2 Data Sources for Gross Impact Parameters – Appliance Recycling Program

Parameter	Source
Number of Units Recycled	Program Tracking Data, Participant Surveying
Unit Energy Consumption	Michigan Energy Measure Database (MEMD)
Net-to-Gross Ratio	Participant Survey Analysis

4.3.1.1 Verification of Units Recycled

An initial aspect of conducting measurements of program activity is to verify the number of refrigerators and freezers collected and recycled. ADM took several steps in verifying the number of refrigerators and freezers collected and recycled, which consist of the following:

- Validating program tracking data provided by ARCA by checking for duplicate or erroneous entries;
- Verifying that refrigerators and freezers are recycled according to the agreed-upon process between ARCA and I&M; and
- Conducting verification surveys with a statistically valid sample of program participants. The focus of these verification surveys is to verify that customers listed in the program tracking database did indeed participate and that the number of appliances claimed to be recycled was accurate. Additionally, survey respondents are asked a series of questions to verify the working condition of their recycled appliances; it is a program requirement that collected units be in working condition at the time of pick-up.

4.3.1.2 Review of Documentation

The program recycled 809 refrigerators and 200 freezers during the 2021 program year. ADM first examined the tracking database for systemic entry errors for each channel, i.e., duplicate entries and/or erroneous entries (such as data entered into improper columns). ADM confirmed that the tracking database included all necessary information to conduct the impact analysis, including

appliance and household characteristics. The review did not identify any duplicate or obviously erroneous entries.

4.3.1.3 Procedures for Estimating Measure-Level MEMD-Compliant Savings

After verifying the number of units recycled through the program, ADM calculated MEMDcompliant energy savings and peak demand reductions for the program in accordance with the 2021 MEMD. Specifically, the per unit kWh and coincident kW values associated with refrigerator and freezer recycling found in the MEMD were multiplied by the quantity of each type of appliance recycled through the program.

4.3.2 MEMD-Compliant Gross Impact Results

ADM estimated MEMD-Compliant energy savings and peak demand reductions through detailed analysis of program tracking data and participant survey data.

4.3.2.1 Verification of Units Recycled

As a first step toward estimating program level kWh and kW impacts, ADM reviewed program tracking data for accuracy. No duplicate entries were discovered. To verify that the number of units claimed in the program tracking database was accurate, ADM administered a survey with a sample of program participants.

For participating appliances to accrue energy savings by being taken out of service, the units must be in working condition at the time of pick-up. The verification rates calculated based on participant survey responses are shown in Table 4-3 for each appliance.

Appliance Type				
Refrigerator	Freezer			
96%	97%			

Table 4-3 Verification Rates by Appliance Type

Based on these verification rates, Table 4-4 reports the numbers of refrigerators and freezers recycled through the program during 2021 that were verified as being in working condition when recycled and therefore program-eligible.

Table 4-4 Recycled Appliances Verified to be in Working Condition

Unit Type	Quantity Reported as Recycled	Verification Rate	Quantity of Recycled Units Verified as Program Eligible
Refrigerator	809	96%	777
Freezer	200	97%	194

4.3.2.2 MEMD-Compliant kWh Savings

ADM calculated energy savings for the program in accordance with the MEMD. Specifically, the per unit kWh values associated with refrigerator and freezer recycling found in the MEMD were

multiplied by the verified quantity of each type of appliance recycled through the program. Table 4-5 below shows:

- The per-unit kWh savings stipulated in the MEMD for recycled refrigerators and freezers;
- The quantity of recycled appliances verified as program eligible; and
- The resulting program level gross annual kWh savings.

Unit Type	MEMD Per-Unit kWh	Quantity of Recycled Units Verified as Program Eligible	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD- Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate
Refrigerator	1,135	777	911,405	918,215	882,347	882,347	97%
Freezer	944	194	177,075	188,800	183,556	183,556	104%
Total		972	1,088,480	1,107,015	1,065,903	1,065,903	98%

Table 4-5 Calculation of Ex Post Gross kWh Savings

4.3.2.3 MEMD-Compliant kW Reductions

ADM calculated ex post gross coincident peak demand reductions for the program in accordance with the MEMD. Specifically, the per unit coincident peak kW values associated with refrigerator and freezer recycling found in the MEMD were multiplied by the verified quantity of each type of appliance recycled through the program. Table 4-6 below shows:

- The per-unit gross coincident peak kW savings stipulated in the MEMD for recycled refrigerators and freezers;
- The quantity of recycled appliances verified as program eligible; and,
- The resulting program level gross coincident peak kW savings.

Unit Type	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate
Refrigerator	105.19	105.98	101.84	101.84	97%
Freezer	21.76	23.20	22.56	22.56	104%
Totals	126.95	129.18	124.39	124.39	98%

Table 4-6 Calculation of Ex Post Gross Peak kW Savings

4.4 Estimation of Ex Post Net Savings

The methodology used for estimating net savings is described in this section.

4.4.1 Methodology for Estimating Ex Post Net Savings

The net savings methodology used in the evaluation of the Home Appliance Recycling program is that prescribed by the Uniform Methods Project (UMP) Refrigerator Recycling Evaluation Protocol.⁴ The two effects discussed in this section are free ridership and secondary market impacts. The UMP protocol used to recommend estimating a third effect, induced replacement, but no longer includes this recommendation due to the difficulty of estimating the affect and the small impact on savings overall.

Net savings are calculated relative to gross savings using the formula below.

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Net Savings = Gross Savings - Freeridership - Secondary Market Impacts
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Where:

Gross Savings = The evaluated UEC for the average recycled unit (MEMD Per-Unit kWh);

Free-ridership = Program savings from units that would have been destroyed even in the absence of the program;

Secondary Market Impacts = Program Savings that would have occurred in the absence of the program based on the estimated/assumed counterfactual actions of appliance acquirers.

The following sections detail more thoroughly the free-ridership and secondary market effects components of net savings. After each effect is discussed individually, a summary diagram is provided in Figure 4-1 to illustrate the complete net savings adjustment.

Free-ridership occurs when an appliance recycled through the program would have been taken off the grid even in the absence of the program. The first step of the free-ridership analysis was to ask participants if they had considered discarding the program appliance before learning about the program. If the participant indicated no previous consideration of unit disposal, they are categorized as non-free-riders and removed from the subsequent free-ridership analysis. Conceptually, this reflects the assumption that without prior consideration of disposal, the program induced the resulting decommissioning of the appliance.

Next, the remaining participants (i.e., those who had previously considered discarding the program appliance) were asked a series of questions to determine the distribution of program appliances that would have been kept within participant households versus those that would have been

⁴ Keeling, J.; Bruchs, D. (2017). Chapter 7: Refrigerator Recycling Evaluation Protocol. The Uniform Methods Project: Methods for Determining Energy-Efficiency Savings for Specific Measures. Golden, CO; National Renewable Energy Laboratory. NREL/SR-7A40-68563. http://www.nrel.gov/docs/fy17osti/68563.pdf.

discarded. If one considers the counterfactual scenario where there is no program intervention, there are essentially three outcomes for participating appliances:

- The appliance would have been kept in use by the participant household.⁵
- The appliance would have been discarded in such a way that it was transferred to another customer for continued use.
- The appliance would have been discarded in such a way that it would be taken out of service.

Of the three outcomes, one is indicative of free-ridership:

Discarded and taken out of service (destroyed)

This outcome is indicative of free-ridership because the units would have been removed from the grid even without program intervention.

The participant surveys were used to estimate the percentage of program appliances that fall into each category. Participants were asked a series of questions about what they would have done with the appliance in the absence of the program. The distribution of likely discard outcomes was then calculated as a weighted average of the participant responses.

Secondary market impacts refer to the effect the program has on would-be acquirers of program participating units. In the event that a program unit would have been transferred to another customer (sold, gifted, donated), the question then becomes what other appliance acquisition decisions are made by the would-be acquirer of the program unit now that it is decommissioned and unavailable. The would-be acquirer could:

- Not purchase/acquire another unit.
- Purchase/acquire a different non-program used appliance.
- Purchase a new appliance instead.

Absent the program, if we consider the options of would-be acquirers at the market level, there are a range of possibilities as described below:

- None of the would-be acquirers would find another unit: This reflects a scenario where program participation results in a one-for-one reduction in the total number of appliances on the grid. In this case, the total UEC of avoided transfers would represent energy savings achieved.
- All of the would-be acquirers would find another unit: This reflects a scenario where program participation has no effect on the total number of appliances operating on the grid. Without the program units available, all acquirers simply purchase non-program units (whether new or used).

⁵ Note that units kept by participant households but *not* used are accounted for in the estimation of part-use factors and therefore discounted from gross savings.

Some of the would-be acquirers would find another unit, while others would not: This possibility reflects the most likely possibility, where some would-be acquirers who were in the market for an appliance acquire a unit. Other would-be acquirers, who perhaps would have only taken the unit opportunistically (for example, taking a neighbor's discarded unit to use as a secondary garage unit), do not acquire a new unit because of program intervention.

Ultimately, the true market level outcome in the absence of the program is difficult to assess. As a result, this evaluation takes a midpoint approach, as recommended by the UMP protocols. That is, 50% of would-be acquirers of program avoided transfers are assumed to find an alternate unit. The next question of interest is whether the alternative units acquired would be used (similar to those recycled by the program) or new. Again, this market distribution is difficult to estimate with any certainty. This evaluation takes the UMP recommendation and assumes that 50% of the alternative units would be used and 50% would be new, standard efficiency units. Energy consumption for a standard efficiency new refrigerator is assumed to be 490 kWh based on sales-weighted appliance data from the Association of Home Appliance Manufactures (AHAM).⁶ Similarly, energy consumption for a standard new freezer is assumed to be 344 kWh.

Figure 4-1 summarizes the complete net-to-gross calculation used in this evaluation.



Figure 4-1 Net Savings Calculation Summary Diagram

4.4.2 Results of Ex Post Net Savings Estimation

Each component of the net savings calculation is described in Section 4.4.1 of this report. Spillover effects were not considered as part of the net savings analysis for this evaluation.

Net savings are essentially calculated using a decision tree. The decision tree is populated with estimated percentages of appliance disposition in the absence of the program based on responses

⁶ AHAM Energy Efficiency and Consumption Trends 2015

to the participant survey. In other words, participants' actions concerning discarded equipment are used to estimate savings values under all possible scenarios. The weighted average of savings under these scenarios is then used to calculate the net savings attributable to the program.

Participant survey respondents were first asked if they had considered discarding the program appliance before learning about the program. Respondent answers to this question are shown in Table 4-7.

	Measure	Response	Percent of Respondents (n=128(ref), 36 (frz))
Had you already considered disposing of the [refrigerator, freezer] before you heard about [Indiana Michigan Power]'s appliance recycling program?		Yes	68%
	Refrigerator	No	27%
		Don't know	5%
		Yes	72%
	Freezer	No	22%
		Don't know	6%

Table 4-7 Prior Consideration of Disposal

Respondents who indicated they had not considered disposal before learning about the program were considered non-free-riders. That is, for these respondents it was assumed they would have kept the appliance in use absent the program, since they had not considered disposal before learning about the program. Respondents who indicated they had considered disposal or "didn't know" if they had considered disposal were asked additional questions to determine whether the appliances they recycled were indicative of free-ridership.

Table 4-8 shows refrigerator disposition based on participant survey responses. Table 4-9 shows the same calculation for freezers.

Discard/Keep	Proportion of Participant Sample (n = 97)	Discard Scenario	Proportion of Discards	Overall Proportion
Discard	679/	Transfer	45%	30%
	0770	Destroy	55%	37%
Keep	33%			33%

Table 4-8 Refrigerator Discard/Keep Distribution

Discard/Keep	Proportion of Participant Sample (n = 36)	Discard Scenario	Proportion of Discards	Overall Proportion
Discol	720/	Transfer	54%	39%
Discard	/ 3 70	Destroy	46%	33%
Кеер	27%			27%

 Table 4-9 Freezer Discard/Keep Distribution

Secondary market impacts account for program effects on would-be acquirers of program units (since they are no longer available to acquire program units). Only units that would have been transferred absent the program are considered in the secondary market impact analysis. As detailed in Section 4.4.1, a midpoint approach is taken in this evaluation, based on the recommendation of the UMP protocols. That is, 50% of would-be acquirers of program avoided transfers are assumed to find an alternate unit. Of those who are assumed to find an alternative unit, 50% are assumed to find a similar used unit, while 50% are assumed to purchase a new unit.

ADM determined net savings as UMP gross savings less free-ridership, secondary market impacts, and including induced replacement. Figure 4-2 depicts the complete net-to-gross ratio calculation for refrigerators. Figure 4-3 shows the same calculation for freezers.



Figure 4-2 Net-to-Gross Ratio Calculation – Refrigerators



Figure 4-3 Net-to-Gross Ratio Calculation – Freezers



Table 4-10 Per-Unit Net Annual Energy Savings (kWh)

Measure	Per-Unit MEMD- Compliant kWh Savings	Net-to- Gross Ratio	Per-Unit Net Savings
Refrigerators	1,135	52%	592
Freezers	944	53%	502

Per-unit net peak demand reduction is calculated by multiplying the measure specific net-to-gross ratio estimates by gross savings, as shown in Table 4-11.

Table 4-11 Per-Unit Net Peak Demand Reduction (kW)

Measure	Per-Unit MEMD- Compliant kW Savings	Net-to- Gross Ratio	Per-Unit Net Peak Demand Reduction (kW)
Refrigerator	0.131	52%	0.068
Freezer	0.116	53%	0.062

4.4.2.1 Ex Post Net kWh Savings

Table 4-12 below shows measure-level and total net annual and gross verified lifetime kWh savings achieved by the program.

Appliance Type	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate	Ex Post Net MEMD - Compliant kWh Savings	Net-to- Gross Ratio	Gross Verified Lifetime MEMD- Compliant kWh Savings
Refrigerator	911,405	918,215	882,347	882,347	97%	460,560	52%	7,058,778
Freezer	177,075	188,800	183,556	183,556	104%	97,705	53%	1,468,444
Total	1,088,480	1,107,015	1,065,903	1,065,903	98%	558,265	52%	8,527,222

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Table 4-12 Home	Appliance	Recycling	Program	Energy	Savings

4.4.2.2 Ex Post Net kW Demand Reductions

Table 4-13 below shows the resulting measure-level and total net peak kW savings that result from the net-to-gross analysis.

Appliance Type	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD - Compliant kW Savings	Net-to- Gross Ratio
Refrigerator	105.19	105.98	101.84	101.84	97%	53.16	52%
Freezer	21.76	23.20	22.56	22.56	104%	12.01	53%
Total	126.95	129.18	124.39	124.39	98%	65.16	52%

Table 4-13 Home Appliance Recycling Program Peak Demand Impacts

4.5 Process Evaluation

ADM did not complete a process evaluation of the PY2021 program.

4.6 Findings and Recommendations

The gross realization rates indicate that estimated, ex ante savings accurately predicted realized savings.

The program net-to-gross ratio is 52%. The net-to-gross ratio for refrigerators is 52%, which is the same as in PY2020. The primary driver of the net-to-gross ratio is that 37% of participants reported they would have destroyed their units in the absence of the program – as such these units would have been removed from the grid without program support. Additionally, 39% reported they would have transferred the unit to another party. The net-to-gross ratio for freezers was 53%, an increase from the 37% net-to-gross ratio found in PY2020. Thirty-three percent of respondents said they would have destroyed their freezer if the program was unavailable and 39% reported they would have transferred the unit to another party.

There are no recommendations relating to the Home Appliance Recycling Program.

5 Income Qualified Weatherproofing

This chapter presents the results of the impact 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. A process evaluation was not completed for the program.

5.1 Program Description

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

The first step to participate in the program is for customers to sign up and receive a Home Energy Assessment. During the assessment, the auditor identifies energy efficiency improvements, conducts direct install of some measures, and records which additional weatherization measures need to be implemented.

The program also provided kits of four 9W LED bulbs to low-income customers. The bulbs were distributed through donations made by I&M to churches, senior centers, and other human service organizations. The program provided 3,128 of these kits during the program year.

5.2 Data Collection

ADM completed an online and telephone survey of program participants to collect data to verify that that the recorded measures were installed.

ADM also completed a survey with customers that received a donated kit of measures. The donated kit survey was administered using a QR code printed on the box.

Table 5-1 summarizes the data collection efforts.

Survey	Mode	Time Frame	Number of Contacts	Number of Completions
Income Qualified Weatherproofing Participant Survey	Online	January 2022	2	1
Income Qualified Weatherproofing Participant Survey	Telephone	January 2022	77	12
Income Qualified Weatherproofing Donated Kits Survey	QR Code on Kit Box	November 2021 - January 2022	NA	9

Table 5-1 Summary	of Data	Collection	for Income	Oualified	Weatherization
1 uoic 5 1 Summury (JDuiu	concenton.	joi meome	Qualifica	r cunci i2unon

5.3 Estimation of MEMD-Compliant Savings

The following section presents the methodology that was used for estimating the MEMD-Compliant energy and demand impacts resulting from the Income Qualified Weatherproofing Program in 2021.

5.3.1 Methodology for Estimating MEMD-Compliant Savings

The M&V approach for the Income Qualified Weatherproofing Program is aimed at determining the following:

- Numbers of weatherization measures installed;
- Average annual kWh savings per weatherization measure implemented; and
- Average kW reduction per weatherization measure implemented.

Table 5-2 below summarizes the inputs used for gross savings calculations and the source of each input.

Table 5-2 Data Sources for Gross Impact Parameters – Income Qualified Weatherproofing	
Program	

Parameter	Source		
Number of Participants	Program Tracking Data		
Participant Location	Program Tracking Data		
Participant HVAC Equipment Type	Program Tracking Data		
Home Square Footage	Program Tracking Data		
Pre-Post Insulation Values	Program Tracking Data		
HVAC efficiencies	Program Tracking Data		
Square Footage Insulated	Program Tracking Data		
Pre-Post Duct Leakage	Program Tracking Data		
Wattage of Efficient Lighting	Program Tracking Data		
Gallons per minute of low flow aerator/showerhead	Program Tracking Data		
Heat Pump Capacity	Program Tracking Data		
In-Service Rate	Participant Survey		

5.3.1.1 In-Service Rates

I&M distributed kits with energy saving measures to program participants who completed a virtual assessment. Table 5-3 summarizes the kit contents.

Measure	Quantity	Ex Ante kWh
Electric Water Hee	ater Kit	
LEDs	8	211
Nightlight	2	15
Showerheads	2	374
APS	1	51
Bath Faucet Aerator	2	88
Kitchen Aerator	1	200
Total		939
Gas Water Heate	er Kit	
LEDs	8	211
Nightlight	2	15
APS	1	51
		277

Table 5-3 Virtual Assessment Efficiency Kits

ADM applied the in-service rates developed from surveys of participants in the PY2021 Online Energy Checkup program. Because advanced power strips were not included in the PY2021 kits, ADM applied the in-service rate for the advanced power strips sold through the online energy marketplace discussed in section 6.

Table 5-4 below summarizes the in-service rate determined from the program participant survey results and review of program documentation.

Measure	In-Service Rate (ISR)
Standard LED	79%
Refrigerator	100%
Air Infiltration Reduction	100%
Attic Insulation	100%
ECM Fan Motor	100%
Insulation	100%
Kitchen Faucet Aerator	100%
Bathroom Faucet Aerator	100%
Showerhead	100%
Heat Pump Water Heater	100%
LED (Donation)	100%
Standard LED (Kit)	90%
Advanced Power Strip (Kit)	35%
Kitchen Faucet Aerator (Kit)	78%
Bathroom Faucet Aerator (Kit)	61%
Showerhead (Kit)	51%
LED Nightlight (Kit)	21%

Table 5-4 In-Service Rate - Survey Results by Measure

5.3.1.2 Review of Documentation

A first aspect of conducting measurements of program activity is to verify if participants of the program did participate in the program. ADM takes several steps in verifying the number of weatherization measures installed, which consists of the following:

- Validating program tracking data provided by I&M by checking for duplicate or erroneous entries; and
- Conducting verification surveys with a sample of program participants. The focus of these verification surveys is to verify that customers listed in the program tracking database did indeed participate and the number of measures installed was accurate.

5.3.1.3 Procedures for Estimating Measure-Level MEMD-Compliant Savings

Gross energy impacts and demand reductions for the Income Qualified Home Weatherproofing Program were calculated by measure using the 2021 MEMD. ADM referenced the weighted results section of the MEMD Weather Sensitive Workbook for applicable measures, including air infiltration reduction, insulation, duct sealing, and ductless heat pump measures. The MEMD master measure database was referenced for the remaining measure types. When applicable, ADM referenced multi-family and manufactured home specific MEMD measures. Table 5-5 below summarizes the savings and Estimated Useful Life (EUL) according to measure type.

Measure	Average Per Unit kWh Savings	Average Per Unit kW Savings	Unit	MEMD EUL
Standard LED	29	0.003	per lamp	3
Refrigerator	73	0.012	device	16
Air Infiltration Reduction	1328	0.027	1000 sq ft cond floor area	13
Attic Insulation	599	0.023	1000 sq ft	20
ECM Fan Motor	667	0.047	1000 sq ft cond floor area	18
Insulation	173	0.000	1000 sq ft wall area	20
Kitchen Faucet Aerator	202	0.023	device	10
Bathroom Faucet Aerator	70	0.008	device	10
Showerhead	326	0.026	per head	10
Heat Pump Water Heater	691	0.055	per heater	10
LED (Donation)	29	0.003	per lamp	3
Standard LED (Kit)	29	0.003	per lamp	3
Advanced Power Strip (Kit)	77	0.009	strip	5
Kitchen Faucet Aerator (Kit)	279	0.032	device	10
Bathroom Faucet Aerator (Kit)	68	0.008	device	10
Showerhead (Kit)	394	0.024	device	10
LED Nightlight (Kit)	22	0.000	per lamp	12

Table 5-5 kWh and kW Savings per Measure

For the first five years of refrigerator EUL, energy savings were calculated relative to estimated average energy usage of the pre-existing refrigerators. For the remainder of refrigerator EUL, energy savings were calculated relative to the applicable federal equipment, in line with the MEMD-specified per unit savings values.

5.3.2 MEMD-Compliant Gross Impact Results

Table 5-6 and Table 5-7 below summarize the gross kWh and kW reduction savings associated with the Residential Income Qualified Home Weatherproofing Program for PY2021. Gross savings estimates account for measure in-service rates.

5.3.2.1 Ex Post Gross kWh Savings and kW Reductions

Table 5-6 summarizes ex post kWh savings estimates and realization rates. The program-level kWh gross realization rate is 128%.

Findings relevant to measure-level gross realization rates include:

- Two of three water heaters incented during PY2021 were electric resistance water heaters that minimally met federal standard rather than heat pump water heaters, resulting in a low gross realization rate for the heat pump water heater measure.
- Ex ante energy savings for refrigerators did not account for incremental early replacement energy savings.
- Other significantly divergent measure gross realization rates including those for donation LEDs and virtual assessment efficiency kit LED nightlights and advanced power strips – appear to be related to in-service rates being higher or lower than anticipated.

- For virtual assessment efficiency kit measures, ex ante kW savings were very low compared with ex post kW savings.
- Ex post gross savings for the donated LEDs were higher than the ex ante savings. The ex post analysis referenced the MEMD savings value for an LED A-line with 800-1099 lumen output replacing Incandescent/Halogen. The program ex ante savings referenced the savings value for a 450-700 lumen bulb.

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate
Standard LED	11,058	11,058	8,770	8,770	79%
Refrigerator	1,795	3,193	3,193	3,193	178%
Air Infiltration Reduction	10,118	7,965	7,965	7,965	79%
Attic Insulation	4,888	4,794	4,794	4,794	98%
ECM Fan Motor	348	667	667	667	192%
Insulation	273	346	346	346	126%
Kitchen Faucet Aerator	4,743	3,434	3,434	3,434	72%
Bathroom Faucet Aerator	952	980	980	980	103%
Showerhead	2,672	2,608	2,608	2,608	98%
Heat Pump Water Heater	5,970	2,072	2,072	2,072	35%
LED (Donation)	226,477	329,232	329,232	329,232	145%
Standard LED (Kit)	24,846	26,904	24,275	24,275	98%
Advanced Power Strip (Kit)	6,065	9,086	3,148	3,148	52%
Kitchen Faucet Aerator (Kit)	15,370	20,482	15,930	15,930	104%
Bathroom Faucet Aerator (Kit)	6,794	10,524	6,443	6,443	95%
Showerhead (Kit)	28,804	51,228	26,148	26,148	91%
LED Nightlight (Kit)	1,824	5,192	1,087	1,087	60%
Total	352,999	489,765	441,093	441,093	125%

Table 5-6 Ex Post Gross kWh Savings Estimates

Table 5-7 summarizes the ex post gross kW demand reductions. The program-level kW gross realization rate is 139%.

Table 5-7 Ex Post Gross Peak Demand Reduction Estimates

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD-Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD-Compliant kW Savings	Gross Realization Rate
Standard LED	1.32	1.32	1.05	1.05	79%
Refrigerator	0.30	0.54	0.54	0.54	178%
Air Infiltration Reduction	0.58	0.16	0.16	0.16	28%
Attic Insulation	0.20	0.18	0.18	0.18	94%
ECM Fan Motor	0.03	0.05	0.05	0.05	157%
Insulation	-	-	-	-	N/A
Kitchen Faucet Aerator	0.54	0.39	0.39	0.39	72%
Bathroom Faucet Aerator	0.11	0.11	0.11	0.11	100%
Showerhead	0.22	0.21	0.21	0.21	97%

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD-Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD-Compliant kW Savings	Gross Realization Rate
Heat Pump Water Heater	0.48	0.17	0.17	0.17	35%
LED (Donation)	11.53	39.28	39.28	39.28	341%
Standard LED (Kit)	0.30	3.21	2.90	2.90	977%
Advanced Power Strip (Kit)	0.37	1.10	0.38	0.38	103%
Kitchen Faucet Aerator (Kit)	0.04	2.35	1.83	1.83	4106%
Bathroom Faucet Aerator (Kit)	0.03	1.23	0.75	0.75	2733%
Showerhead (Kit)	0.16	4.13	2.11	2.11	1323%
LED Nightlight (Kit)	-	-	-	-	N/A
Total	16.19	54.42	50.10	50.10	309%

5.4 Estimation of Ex Post Net Savings

The methodology used for estimating both gross and net savings is described in this section.

5.4.1 Methodology for Estimating Ex Post Net Savings

The NTG ratio for the Income Qualified Weatherproofing Program was assumed to be 1.0 in line with common practice for estimation of low-income program net savings.⁷

5.4.2 Results of Ex Post Net Savings Estimation

5.4.2.1 Ex Post Net kWh Savings and kW Demand Reduction

Table 5-8 presents PY2021 measure-level and total program energy savings.

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD- Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kWh Savings	Net-to- Gross Ratio	Gross Verified Lifetime MEMD- Compliant kWh Savings
Standard LED	11,058	11,058	8,770	8,770	79%	8,770	100%	26,310
Refrigerator	1,795	3,193	3,193	3,193	178%	3,193	100%	35,711
Air Infiltration Reduction	10,118	7,965	7,965	7,965	79%	7,965	100%	103,548
Attic Insulation	4,888	4,794	4,794	4,794	98%	4,794	100%	95,887
ECM Fan Motor	348	667	667	667	192%	667	100%	12,006
Insulation	273	346	346	346	126%	346	100%	7,710
Kitchen Faucet Aerator	4,743	3,434	3,434	3,434	72%	3,434	100%	34,340

Table 5-8 Ex Post Net kWh Savings Estimates

⁷ 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

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD- Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kWh Savings	Net-to- Gross Ratio	Gross Verified Lifetime MEMD- Compliant kWh Savings
Bathroom Faucet Aerator	952	980	980	980	103%	980	100%	9,800
Showerhead	2,672	2,608	2,608	2,608	98%	2,608	100%	26,080
Heat Pump Water Heater	5,970	2,072	2,072	2,072	35%	2,072	100%	20,720
LED (Donation)	226,477	329,232	329,232	329,232	145%	329,232	100%	987,696
Standard LED (Kit)	24,846	26,904	24,275	24,275	98%	24,275	100%	72,826
Advanced Power Strip (Kit)	6,065	9,086	3,148	3,148	52%	3,148	100%	15,740
Kitchen Faucet Aerator (Kit)	15,370	20,482	15,930	15,930	104%	15,930	100%	159,304
Bathroom Faucet Aerator (Kit)	6,794	10,524	6,443	6,443	95%	6,443	100%	64,433
Showerhead (Kit)	28,804	51,228	26,148	26,148	91%	26,148	100%	261,476
LED Nightlight (Kit)	1,824	5,192	1,087	1,087	60%	1,087	100%	13,043
Total	352,999	489,765	441,093	441,093	125%	441,093	100%	1,946,630

Energy savings associated with virtual assessment efficiency kits are presented by kit type in Table 5-9.

Table 5-9 Virtual Assessment Efficiency Kit Ex Post kWh Savings Estimates

Kit Type	Number of Kits	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate	Ex Post Net MEMD - Compliant kWh Savings	Net-to- Gross Ratio
Electric Water Heater	77	72,330	109,107	67,125	67,125	93%	67,125	100%
Gas Water Heater	41	11,374	14,309	9,906	9,906	87%	9,906	100%
Total	118	83,704	123,416	77,032	77,032	92%	77,032	100%

Table 5-10 presents PY2021 measure-level and total program peak demand reduction impacts.

Table 5-10 Ex Post Net Peak Demand Reduction Estimates

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD- Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kW Savings	Net-to- Gross Ratio
Standard LED	1.32	1.32	1.05	1.05	79%	1.05	100%
Refrigerator	0.30	0.54	0.54	0.54	178%	0.54	100%
Air Infiltration Reduction	0.58	0.16	0.16	0.16	28%	0.16	100%
Attic Insulation	0.20	0.18	0.18	0.18	94%	0.18	100%
ECM Fan Motor	0.03	0.05	0.05	0.05	157%	0.05	100%
Insulation	-	-	-	-	N/A	-	N/A

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD- Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kW Savings	Net-to- Gross Ratio
Kitchen Faucet Aerator	0.54	0.39	0.39	0.39	72%	0.39	100%
Bathroom Faucet Aerator	0.11	0.11	0.11	0.11	100%	0.11	100%
Showerhead	0.22	0.21	0.21	0.21	97%	0.21	100%
Heat Pump Water Heater	0.48	0.17	0.17	0.17	35%	0.17	100%
LED (Donation)	11.53	39.28	39.28	39.28	341%	39.28	100%
Standard LED (Kit)	0.30	3.21	2.90	2.90	977%	2.90	100%
Advanced Power Strip (Kit)	0.37	1.10	0.38	0.38	103%	0.38	100%
Kitchen Faucet Aerator (Kit)	0.04	2.35	1.83	1.83	4106%	1.83	100%
Bathroom Faucet Aerator (Kit)	0.03	1.23	0.75	0.75	2733%	0.75	100%
Showerhead (Kit)	0.16	4.13	2.11	2.11	1323%	2.11	100%
LED Nightlight (Kit)	-	-	-	-	N/A	-	N/A
Total	16.19	54.42	50.10	50.10	309%	50.10	100%

Peak demand impacts associated with virtual assessment efficiency kits are presented by kit type in Table 5-11.

Table 5-11 Virtual Assessment Efficiency Kit Ex Post Peak Demand Reduction Estimates

Kit Type	Number of Kits	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD - Compliant kW Savings	Net-to- Gross Ratio
Electric Water Heater	77	0.69	10.52	6.83	6.83	987%	6.83	100%
Gas Water Heater	41	0.20	1.50	1.14	1.14	557%	1.14	100%
Total	118	0.90	12.02	7.96	7.96	889%	7.96	100%

5.5 Process Evaluation

ADM did not complete a process evaluation of the PY2021 program.

5.6 Finding and Recommendations

Analysis revealed that the income qualified program achieved greater energy savings than originally projected. With a realization rate of 130% 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 kWh realization rate for refrigerators was particularly high at 768%. The ex ante savings appear to be based on the MEMD savings value for a new top freezer refrigerator and assumes a new refrigerator that meets the current appliance standard as the baseline equipment.

ADM assumed an early replacement baseline because it is probable that the existing refrigerator was operating and would continue to be used absent the program replacement.

• **Recommendation 1:** Accounting for the early replacement of low-income refrigerators will improve the ex ante savings estimate.

A low realization rate for heat pump water heaters was the result of a misclassification of electric resistance water heaters as heat pump water heaters. ADM reviewed the AHRI numbers for the three installed water heaters that were listed in the program data as heat pump water heaters and found that two of three water heaters were actually electric resistance water heaters.

• **Recommendation 2:** ADM recommends that program staff confirm the equipment type and efficiency information by reviewing AHRI numbers associated with space heating and cooling, and water heating equipment.

6 Home Energy Products – Product Component

This chapter presents the methodologies and findings for the impact evaluations of the 2021 Home Energy Products – Appliances program that Indiana Michigan Power (I&M) offered to its residential customers during the period of January 2021 through December 2021. ADM did not complete a process evaluation for the program.

6.1 Program Description

The Home Energy Products – Products Component Program will increase demand for energyefficient products through cash-back rebates and upstream incentives designed to cover a portion of the incremental cost of upgrading to efficient technologies. In addition, the program will educate 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.

In particular, the in-house efficient products component of the Home Energy Products- Product Component 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. Eligible measures incentivized include:

- Ductless Heat Pumps;
- Air Source Heat Pumps;
- Central Air Conditioning (CAC) systems;
- Wi-Fi Programmable Thermostats;
- Heat Pump Water Heaters;
- Dehumidifiers;
- Ceiling Fans;
- Electronically Commutated Furnace Fan Motors (ECMs); and
- Variable Speed Pool Pumps.

6.2 Data Collection

6.2.1 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 6-1 summarizes data collection activities for the Home Energy Products Program evaluation.

Table 6-1 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	Telephone and Online	November 2021 - January 2022	477	78
Home Energy Products – Online Marketplace Purchaser Survey	Online	December 2021	466	108
Home Energy Products – Products Component Contractor Survey	Online	January 2022	40	3

6.3 Estimation of MEMD-Compliant Savings

The following section presents the methodology that was used for estimating the MEMD-Compliant energy and demand impacts resulting from the Home Energy Products – Appliances program efficient products component in 2021.

6.3.1 Methodology for Estimating MEMD-Compliant Savings

The M&V approach for the Home Energy Products – Appliances program focused on determining the following:

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

6.3.1.1 Review Program M&V and Due Diligence Procedures

As a first step, ADM reviewed the participant tracking database associated with the program to ensure that the data provide sufficient information to perform verification activities and to calculate energy and demand impacts. 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 are not missing) and that the values are reasonable. ADM took several steps in verifying the number of measures rebated/discounted, which consisted of the following:

- Validated program tracking data by checking for duplicate or erroneous entries; and
- Conducted 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 measures claimed to be rebated/discounted is accurate, and that measures are rebated/discounted according to the process I&M has in place.

6.3.1.2 Procedures for Estimating Measure-Level MEMD-Compliant Savings

Per-Unit Energy and Demand Impacts

The energy efficient products incented through the Home Energy Products – Appliances program each have energy savings and peak demand reduction values provided in the 2021 MEMD. For energy efficiency measures found in the MEMD:

- ADM referenced the applicable MEMD per unit kWh savings values to calculate ex post gross MEMD-compliant kWh savings for program-incented products.
- ADM referenced the applicable MEMD per unit coincident kW demand reduction values to calculate ex post gross MEMD-compliant kW savings for program-incented products.

• Where applicable, for the first five years of measure EUL, ADM calculated additional, incremental savings associated with reference to an early replacement baseline.⁸

In estimating incremental early replacement savings, the baseline and pre-existing equipment efficiencies referenced in Table 6-2 were applied.

Table 6-2 Existing and Baseline Equipment Efficiencies Referenced in Calculation ofIncremental Early Replacement Savings

Measure	SEER_exist	SEER_base	HSPF_exist	HSPF_base
DHPDERCP: Ductless Heat Pump Displacement	11.15	14	3.41	3.41
Res-HVAC-ACCP: Central Air Conditioner	11.15	13		
Res-HVAC-ASHP-1CP: Air Source Heat Pump	11.15	14	7.7	8.2
DHPRHPCP: Ductless Heat Pump Replacement	11.15	14	7.7	8.2

Where applicable, incremental early replacement kWh savings were calculated as follows with heating terms omitted for A/C:

 $ER_kWh = ER_factor * (kWh_Cool + kWh_Heat)$

kWh_Cool = (EFLH_cool * btuh_cool / 1000 * (1/SEER_exist - 1/SEER_base))

kWh_Heat = (EFLH_heat * btuh_heat / 1000 * (1/HSPF_exist - 1/HSPF_base))

Where,

ER_factor = Applicable measure-specific value referenced in Table 6-2 above.

EFLH_cool = Variable based on climate zone, building vintage, and housing type. Derived from analysis of MEMD *Furnace/AC* measures.⁹

 $btuh_cool = Actual.$ $EFLH_heat = 1,427.^{10}$ $btuh\ heat = Actual.$

⁸ MEMD measure savings were premised on a normal replacement scenario, with the associated baseline established by the applicable federal efficiency standard. Incremental early replacement savings were separately calculated to account for measures for which an early replacement baseline was determined to be applicable. Where applicable, verified savings includes the sum of MEMD-specific savings and incremental early replacement savings.

⁹ For each *Furnace/AC* unweighted MEMD measure, EFLH_cool was calculated as follows based on the attributes of each unweighted measure: $EFLH_cool = MEMD_kWh_Savings / (1 * 12,000 * ((1/SEER_base) - (1/SEER_eff)) / 1000).$

¹⁰ Indiana TRM, South Bend climate zone.

Where applicable, MEMD-specified kWh and kW savings values were referenced as follows in calculating incremental early replacement kW savings:

 $ER_kW = ER_kWh * (MEMD_kW / MEMD_kWh)$

ADM used survey responses on the working condition and the age of the replaced equipment to determine the percentage of air conditioner and heat pump replacements that qualified as early replacements. Equipment was determined to be an early replacement if:

- The respondent stated the rebated equipment replaced equipment that was working at the time of the new installation; and
- The equipment age as reported by the respondent was 15 years old or younger.
- The age of the equipment was determined based on one of the following:
 - Respondents estimate of the age of equipment;
 - Respondents estimated age range of equipment, if they could not estimate the approximate age; or
 - Respondents reported age of the home if the replaced equipment was installed in a new home that they purchased.

ADM also used survey responses to establish the baseline equipment for ducted and ductless heat pump installations. Based on the responses provided to the questions, ADM categorized the baseline equipment into one of the types listed in Table 6-3.

Baseline Cooling Equipment Type	Baseline Heating Equipment Type
New installation	New installation
Central cooling	Electric furnace
Central cooling	Electric baseboard
Central cooling	Electric resistance - unspecified type
Central cooling	Air source heat pump
Central cooling	No heating equipment
Central cooling	Unknown heating equipment
Central cooling	Other heating
No cooling	Electric furnace
No cooling	Electric baseboard
No cooling	Electric resistance - unspecified type
No cooling	Air source heat pump
No cooling	No heating equipment
No cooling	Unknown heating equipment
No cooling	Other heating
Unknown cooling system type	Electric furnace
Unknown cooling system type	Electric baseboard
Unknown cooling system type	Electric resistance - unspecified type
Unknown cooling system type	No heating equipment
Unknown cooling system type	Unknown heating equipment
Unknown cooling system type	Other heating

Table 6-3 Heat Pump Baseline Equipment Classifications

Of the 22 respondents that completed the early replacement questions, none were identified as qualifying cases of early replacement (see Table 6-4) based on the working condition and age criteria described above.

Table 6-4 Share of Measures for which Early Replacement Baseline is Applicable

Measure Type	Percentage
Ductless Heat Pumps	0%
Central Air Conditioners	0%
Air Source Heat Pumps	0%

Table 6-5 below shows the stipulated MEMD per-unit kWh savings, peak kW reductions, Effective Useful Life (EUL) values and, where applicable, incremental per-unit kWh and kW savings associated with reference to an early replacement baseline for each efficient product that was incented through Home Energy Products – Appliances program in 2021.

Measure	MEMD Per-unit kWh Savings	MEMD Per-unit kW Demand Reduction	Early Replacement Incremental Per-unit kWh Savings	Early Replacement Incremental Per-unit kW Demand Reductions	Units	MEMD EUL
	Produc	ts Componen	t			
ASHP - SEER 16 - SEER 14 base	304.24	0.11	0.00	0.00	ton	15
ASHP - SEER 17 - SEER 14 base	314.57	0.12	0.00	0.00	ton	15
ASHP - SEER 18 - SEER 14 base	531.75	0.15	0.00	0.00	ton	15
ASHP - SEER 19 - SEER 14 base	593.82	0.18	0.00	0.00	ton	15
ASHP - SEER 20 - SEER 14 base	752.92	0.21	0.00	0.00	ton	15
ASHP - SEER 21 - SEER 14 base	752.18	0.23	0.00	0.00	ton	15
ECM Furnace	730.00	0.07			Furnace	10
Electric High Efficiency Water Heater (Non-	0.07	0.00			gallon	10
MEMD) ENERGY STAR Heat Pump Water Heaters in Semi-Conditioned Space, <= 55 gallons UEF >= 3.0	2,072.00	0.17			per heater	10
ENERGY STAR Heat Pump Water Heaters in Semi-Conditioned Space, <= 55 gallons UEF >= 3.5	2,225.00	0.18			per heater	10
ENERGY STAR Portable Dehumidifier	236.80	0.15			device	12
Furnace/AC - SEER 16	142.18	0.08			ton	15
Furnace/AC - SEER 17	156.25	0.11			ton	15
Furnace/AC - SEER 18	170.82	0.13			ton	15
Furnace/AC - SEER 19	128.45	0.11			ton	15
Furnace/AC - SEER 20	216.56	0.18			ton	15
Furnace/AC - SEER 21	229.44	0.19			ton	15
GSHP - variable speed EER 22 ASHP Base	2,706.74	0.31			ton	15
Minisplit Cold Climate Heat pump SEER 18 HSPF 11 Elec Resistance base	5,769.94	-0.46	0.00	0.00	ton	15
Minisplit Cold Climate Heat pump SEER 19 HSPF 11 Elec Resistance base	5,513.11	-0.41	0.00	0.00	ton	15
Minisplit Cold Climate Heat pump SEER 20 HSPF 11 Elec Resistance base	5,018.78	-0.33	0.00	0.00	ton	15
Minisplit Cold Climate Heat pump SEER 21 HSPF 11 Elec Resistance base	5,056.13	-0.33	0.00	0.00	ton	15
Minisplit Heat pump SEER 18 HSPF 9 Elec Resistance base	4,426.86	-0.38	0.00	0.00	ton	15
Minisplit Heat pump SEER 19 HSPF 9 Elec Resistance base	4,210.10	-0.34	0.00	0.00	ton	15
Minisplit Heat pump SEER 20 HSPF 10 ASHP base	2,032.98	0.30	0.00	0.00	ton	15
Minisplit Heat pump SEER 20 HSPF 10 Elec Resistance base	5,079.95	-0.36	0.00	0.00	ton	15
Minisplit Heat pump SEER 21 HSPF 10 Elec Resistance base	4,656.70	-0.33	0.00	0.00	ton	15
Pump and Motor Single Speed	694.00	0.36			motor	10
Pump and motor w auto controls - multi speed	1,081.00	0.80			motor	10

Measure	MEMD Per-unit kWh Savings	MEMD Per-unit kW Demand Reduction	Early Replacement Incremental Per-unit kWh Savings	Early Replacement Incremental Per-unit kW Demand Reductions	Units	MEMD EUL
Setback thermostat - moderate setback	67.83	0.00			1000 sq ft cond floor area	9
	Online Mark	etplace Comp	ponent			
Advanced Power Strip Tier 1 AV Systems	77.00	0.01			strip	5
LED A-line 1100-1599 Lumen output replacing Incandescent/Halogen	34.60	0.00			per lamp	3
LED A-line 1600-1999 Lumen output replacing Incandescent/Halogen	47.20	0.01			per lamp	3
LED A-line 450-799 Lumen output replacing Incandescent/Halogen	19.60	0.00			per lamp	3
LED A-line 800-1099 Lumen output replacing Incandescent/Halogen	28.50	0.00			per lamp	3
LED Candelabra <= 5W	23.70	0.00			per lamp	4
LED fixtures downlights	44.00	0.01			per fixture	15
LED Globe <= 8W	27.00	0.00			per lamp	4
LED PAR/R/BR <= 15.5W	54.00	0.01			per lamp	4
Low Flow Bathroom Faucet Aerators - 1.0 gpm electric water heater	68.53	0.01			device	10
Low Flow Kitchen Faucet Aerators - 1.5 gpm electric water heater	272.58	0.03			device	10
Low Flow Showerheads 1.5 gpm electric water heater	331.54	0.03			device	10
Outdoor LED PAR/Flood <= 15.5W	276.40	0.00			per lamp	4
Setback thermostat - moderate setback	44.79	0.00			1000 sq ft cond floor area	9

In-Service Rate

ADM calculated ex post gross kWh savings and ex post gross kW reduction by applying estimated measure-level installation rates of program-incented products to the pertinent MEMD and incremental early replacement per unit kWh savings and kW reduction values. The estimates were based on the 186 survey responses obtained from program participants, of which 108 received Online Marketplace measures.

Table 6-6 below displays the quantity of program-incented products and their associated installation rates.

Measure	Quantity of Products Incented	In-Service Rate Estimate	Quantity of Products Verified
Products Component			
ASHP - SEER 16 - SEER 14 base	4	100%	4

Table 6-6 Efficient Product Measure Counts and In-Service Rates

Measure	Quantity of Products Incented	In-Service Rate Estimate	Quantity of Products Verified
ASHP - SEER 17 - SEER 14 base	6	100%	6
ASHP - SEER 18 - SEER 14 base	4	100%	4
ASHP - SEER 19 - SEER 14 base	2	100%	2
ASHP - SEER 20 - SEER 14 base	3	100%	3
ASHP - SEER 21 - SEER 14 base	2	100%	2
ECM Furnace	1	100%	1
Electric High Efficiency Water Heater (Non-MEMD)	97	100%	97
ENERGY STAR Heat Pump Water Heaters in Semi-Conditioned Space, <= 55 gallons UEF >= 3.0	4	100%	4
ENERGY STAR Heat Pump Water Heaters in Semi-Conditioned Space, <= 55 gallons UEF >= 3.5	17	100%	17
ENERGY STAR Portable Dehumidifier	55	100%	55
Furnace/AC - SEER 16	39	100%	39
Furnace/AC - SEER 17	14	100%	14
Furnace/AC - SEER 18	8	100%	8
Furnace/AC - SEER 19	1	100%	1
Furnace/AC - SEER 20	1	100%	1
Furnace/AC - SEER 21	2	100%	2
GSHP - variable speed EER 22 ASHP Base	1	100%	1
Minisplit Cold Climate Heat pump SEER 18 HSPF 11 Elec Resistance base	5	100%	5
Minisplit Cold Climate Heat pump SEER 19 HSPF 11 Elec Resistance base	16	100%	16
Minisplit Cold Climate Heat pump SEER 20 HSPF 11 Elec Resistance base	21	100%	21
Minisplit Cold Climate Heat pump SEER 21 HSPF 11 Elec Resistance base	30	100%	30
Minisplit Heat pump SEER 18 HSPF 9 Elec Resistance base	9	100%	9
Minisplit Heat pump SEER 19 HSPF 9 Elec Resistance base	6	100%	6
Minisplit Heat pump SEER 20 HSPF 10 ASHP base	1	100%	1
Minisplit Heat pump SEER 20 HSPF 10 Elec Resistance base	6	100%	6
Minisplit Heat pump SEER 21 HSPF 10 Elec Resistance base	14	100%	14
Pump and Motor Single Speed	2	100%	2
Pump and motor w auto controls - multi speed	4	100%	4
Setback thermostat - moderate setback	318	100%	318
Online Marketplace Compone	ent		
Advanced Power Strip Tier 1 AV Systems	656	35%	227
LED A-line 1100-1599 Lumen output replacing Incandescent/Halogen	425	65%	276
LED A-line 1600-1999 Lumen output replacing Incandescent/Halogen	259	65%	168
LED A-line 450-799 Lumen output replacing Incandescent/Halogen	218	65%	142
LED A-line 800-1099 Lumen output replacing Incandescent/Halogen	541	65%	351

Measure	Quantity of Products Incented	In-Service Rate Estimate	Quantity of Products Verified
LED Candelabra <= 5W	106	65%	69
LED fixtures downlights	45	65%	29
LED Globe <= 8W	46	65%	30
LED PAR/R/BR ≤ 15.5 W	88	65%	57
Low Flow Bathroom Faucet Aerators - 1.0 gpm electric water heater	15	100%	15
Low Flow Kitchen Faucet Aerators - 1.5 gpm electric water heater	12	100%	12
Low Flow Showerheads 1.5 gpm electric water heater	13	50%	7
Outdoor LED PAR/Flood <= 15.5W	157	65%	102
Setback thermostat - moderate setback	41	100%	41

Table 6-7 and Table 6-8 provide additional information on the in-service rates for the advanced power strips sold through the online marketplace. For advanced power strips, ADM considered them in use if equipment was plugged into both the control and switch outlets.

Installation Status	Installation Status Definitions	Percent of Advanced Power Strips (n = 127)*
In use		35%
Audio/visual/entertainment	Audio/visual/entertainment equipment is installed in the control and switched outlets.	16%
Computer	Computer equipment is plugged into the control and switched outlets.	4%
Other Equipment	Other equipment is plugged into the control and switched outlet.	15%
Not in use		65%
Not currently used	Reported that they were not currently using the power strip.	51%
Nothing in control outlet	Reported that nothing was installed in the control outlet.	5%
Nothing in switched outlet	Reported that nothing was installed in the switched outlet	9%

Table 6-7 Advanced Power Strips In-Service Rates

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

Table 6-8 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 1.6 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.

Number of APS Purchased	Number of Respondents	Average Number of APS in Use	In use
1	14	0.71	71%
2	13	1.23	62%
3	5	1.40	47%
4	18	1.61	40%

Table 6-8 APS ISR by Number Produced

6.3.2 MEMD-Compliant Gross Impact Results

The energy savings and peak demand reductions resulting from the efficient products component of the 2021 Home Energy Products – Appliances Program are reported in the following sections.

6.3.2.1 MEMD-Compliant kWh Savings

Table 6-11 below presents measure-level ex ante annual kWh savings reported in the main program tracking database, the annual gross audited and verified kWh savings, and the ex post annual gross kWh savings resulting from the program. The ex post annual gross kWh savings are inclusive of the MEMD per-unit kWh savings values, the appropriate verified measure quantity, the applicable unit factor (tonnage for weather-sensitive HVAC measures or 1,000 square feet conditioned floor area for smart thermostat measures), and the in-service rate estimates developed from the collected survey data. The overall kWh savings gross realization rate is 111%.

Findings relevant to measure-level gross realization rates include:

- The gross realization rate of electric resistance water heaters is extremely low because the per unit ex ante energy savings of 2,414 kWh would be more appropriate for heat pump water heaters.
- For air source heat pumps and central air conditioners incented during PY2021, the criteria presented in Table 6-9 were applied in the estimation of ex ante kWh savings:

Measure	SEER Ran AS	nge of New HP	Per Unit Ex Ante kWh	
	Minimum	Maximum	Savings	
	N/A	<16	492	
	>=16	<17	591	
	>=17	<18	593	
Air Source Heat Pumps	>=18	<19	769	
	>=19	<20	863	
	>=20	<21	1,014	
	>=21	N/A	1,001	
	N/A	<17	230	
	>=17	<18	233	
Central Air	>=18	<19	253	
Conditioners	>=19	<20	279	
	>=20	<21	289	
	>=21	N/A	556	

Table 6-9 Air Source Heat Pump and Central Air Conditioner Ex Ante kWh Savings Criteria

These estimates do not account for unit capacity and are not consistent with the MEMD, significantly underestimating realized energy savings.

• For the large majority of minisplit heat pumps incented during PY2021, the criteria presented in Table 6-10 were applied in the estimation of ex ante kWh savings:

SEER Range	Per Ton Ex	
Minimum	Maximum	Savings
N/A	<18	1,165
>=18	<19	1,345
>=19	<20	1,612
>=20	<21	1,877
>=21	N/A	4,236

Table 6-10 Minisplit Heat Pump Ex Ante kWh Savings Criteria

The large majority of minisplit heat pumps were rebated for displacement of electric resistance heating and met the criteria of cold climate units, for which per ton savings were significantly higher than the values shown in Table 6-10.

- For pool pumps, ex ante energy savings were set equal to 1,081 kWh if multi-speed and 694 kWh if variable speed. The ex ante estimates should be reversed to be consistent with the MEMD 694 kWh if multi-speed and 1,081 kWh if variable speed.
- Other significantly divergent measure gross realization rates including Online Marketplace measures, in particular – appear to be related to in-service rates being higher or lower than anticipated.

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate
Pi	roducts Con	<i>iponent</i>	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	8	
ASHP - SEER 16 - SEER 14 base	2,074	2,895	2,895	2,895	140%
ASHP - SEER 17 - SEER 14 base	3,560	6,084	6,084	6,084	171%
ASHP - SEER 18 - SEER 14 base	3,076	6,913	6,913	6,913	225%
ASHP - SEER 19 - SEER 14 base	1,728	3,909	3,909	3,909	226%
ASHP - SEER 20 - SEER 14 base	3,045	6,839	6,839	6,839	225%
ASHP - SEER 21 - SEER 14 base	1,504	6,519	6,519	6,519	433%
ECM Furnace	730	730	730	730	100%
Electric High Efficiency Water Heater (Non- MEMD)	234,206	1,319	1,319	1,319	1%
ENERGY STAR Heat Pump Water Heaters in Semi-Conditioned Space, <= 55 gallons UEF >= 3.0	5,232	8,288	8,288	8,288	158%
ENERGY STAR Heat Pump Water Heaters in Semi-Conditioned Space, <= 55 gallons UEF >= 3.5	22,236	37,825	37,825	37,825	170%
ENERGY STAR Portable Dehumidifier	11,109	13,024	13,024	13,024	117%
Furnace/AC - SEER 16	8,511	16,439	16,439	16,439	193%
Furnace/AC - SEER 17	3,178	6,495	6,495	6,495	204%
Furnace/AC - SEER 18	2,020	3,919	3,919	3,919	194%
Furnace/AC - SEER 19	279	514	514	514	184%
Furnace/AC - SEER 20	289	635	635	635	220%
Furnace/AC - SEER 21	1,111	1,117	1,117	1,117	100%
GSHP - variable speed EER 22 ASHP Base	4,893	10,376	10,376	10,376	212%
Minisplit Cold Climate Heat pump SEER 18 HSPF 11 Elec Resistance base	15,224	68,278	68,278	68,278	448%
Minisplit Cold Climate Heat pump SEER 19 HSPF 11 Elec Resistance base	58,638	209,498	209,498	209,498	357%
Minisplit Cold Climate Heat pump SEER 20 HSPF 11 Elec Resistance base	90,161	239,730	239,730	239,730	266%
Minisplit Cold Climate Heat pump SEER 21 HSPF 11 Elec Resistance base	290,390	344,744	344,744	344,744	119%
Minisplit Heat pump SEER 18 HSPF 9 Elec Resistance base	25,817	88,537	88,537	88,537	343%
Minisplit Heat pump SEER 19 HSPF 9 Elec Resistance base	20,145	52,626	52,626	52,626	261%
Minisplit Heat pump SEER 20 HSPF 10 ASHP base	2,096	4,235	4,235	4,235	202%
Minisplit Heat pump SEER 20 HSPF 10 Elec Resistance base	24,932	69,426	69,426	69,426	278%
Minisplit Heat pump SEER 21 HSPF 10 Elec Resistance base	105,681	116,185	116,185	116,185	110%
Pump and Motor Single Speed	2,162	1,388	1,388	1,388	64%
Pump and motor w auto controls - multi speed	2,776	4,324	4,324	4,324	156%
Setback thermostat - moderate setback	165,443	40,943	40,943	40,943	25%

Table 6-11 MEMI	D-Compliant kWh	Savings – Efficient	Products
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Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate
Online Marketplace Component					
Advanced Power Strip Tier 1 AV Systems	101,257	50,512	17,500	17,500	17%
LED A-line 1100-1599 Lumen output replacing Incandescent/Halogen	22,979	14,705	9,548	9,548	42%
LED A-line 1600-1999 Lumen output replacing Incandescent/Halogen	18,686	12,225	7,937	7,937	42%
LED A-line 450-799 Lumen output replacing Incandescent/Halogen	7,597	4,273	2,774	2,774	37%
LED A-line 800-1099 Lumen output replacing Incandescent/Halogen	23,419	15,419	10,011	10,011	43%
LED Candelabra <= 5W	3,211	2,512	1,631	1,631	51%
LED fixtures downlights	3,323	1,980	1,286	1,286	39%
LED Globe <= 8W	1,327	1,242	806	806	61%
LED PAR/R/BR <= 15.5W	3,884	4,752	3,085	3,085	79%
Low Flow Bathroom Faucet Aerators - 1.0 gpm electric water heater	529	1,028	1,028	1,028	194%
Low Flow Kitchen Faucet Aerators - 1.5 gpm electric water heater	2,790	3,271	3,271	3,271	117%
Low Flow Showerheads 1.5 gpm electric water heater	4,642	4,310	2,155	2,155	46%
Outdoor LED PAR/Flood <= 15.5W	9,225	43,395	28,176	28,176	305%
Setback thermostat - moderate setback	4,735	3,469	3,469	3,469	73%
Total	1,319,848	1,536,846	1,466,432	1,466,432	111%

6.3.2.2 MEMD-Compliant kW Reduction

Table 6-12 below shows the ex ante kW reduction reported in the main program tracking database, the gross audited and verified peak kW reduction, and the ex post gross coincident kW reductions resulting from the program. The ex post gross coincident kW reductions are inclusive of the MEMD per-unit kW savings values, the appropriate verified measure quantity, the applicable unit factor (tonnage for weather-sensitive HVAC measures), and the in-service rate estimates developed from the collected survey data. The program-level kW savings gross realization rate is -34%. Aggregate program-level ex post gross coincident kW reduction was negative due to minisplit heat pumps for which there was no existing central air conditioning prior to installation.

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate
	Prod	lucts Componer	nt		
ASHP - SEER 16 - SEER 14 base	0.70	1.08	1.08	1.08	154%
ASHP - SEER 17 - SEER 14 base	1.44	2.39	2.39	2.39	166%

Table 6-12 MEMD-Compliant kW Reduction – Efficient Products
Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate
ASHP - SEER 18 - SEER 14 base	0.96	2.00	2.00	2.00	208%
ASHP - SEER 19 - SEER 14 base	0.52	1.20	1.20	1.20	230%
ASHP - SEER 20 - SEER 14 base	0.84	1.89	1.89	1.89	225%
ASHP - SEER 21 - SEER 14 base	0.46	1.99	1.99	1.99	434%
ECM Furnace	0.07	0.07	0.07	0.07	94%
Electric High Efficiency Water Heater (Non-MEMD)	42.25	0.11	0.11	0.11	0%
ENERGY STAR Heat Pump Water Heaters in Semi-Conditioned Space, <= 55 gallons UEF >= 3.0	0.44	0.66	0.66	0.66	151%
ENERGY STAR Heat Pump Water Heaters in Semi-Conditioned Space, <= 55 gallons UEF >= 3.5	1.87	3.03	3.03	3.03	162%
ENERGY STAR Portable Dehumidifier	6.57	7.97	7.97	7.97	121%
Furnace/AC - SEER 16	5.17	9.76	9.76	9.76	189%
Furnace/AC - SEER 17	2.18	4.72	4.72	4.72	216%
Furnace/AC - SEER 18	1.60	3.06	3.06	3.06	191%
Furnace/AC - SEER 19	0.24	0.42	0.42	0.42	175%
Furnace/AC - SEER 20	0.27	0.52	0.52	0.52	193%
Furnace/AC - SEER 21	1.00	0.94	0.94	0.94	94%
GSHP - variable speed EER 22 ASHP Base	0.68	1.20	1.20	1.20	177%
Minisplit Cold Climate Heat pump SEER 18 HSPF 11 Elec Resistance base	-	(5.44)	(5.44)	(5.44)	N/A
Minisplit Cold Climate Heat pump SEER 19 HSPF 11 Elec Resistance base	-	(15.44)	(15.44)	(15.44)	N/A
Minisplit Cold Climate Heat pump SEER 20 HSPF 11 Elec Resistance base	-	(15.93)	(15.93)	(15.93)	N/A
Minisplit Cold Climate Heat pump SEER 21 HSPF 11 Elec Resistance base	-	(22.34)	(22.34)	(22.34)	N/A
Minisplit Heat pump SEER 18 HSPF 9 Elec Resistance base	-	(7.54)	(7.54)	(7.54)	N/A
Minisplit Heat pump SEER 19 HSPF 9 Elec Resistance base	-	(4.27)	(4.27)	(4.27)	N/A
Minisplit Heat pump SEER 20 HSPF 10 ASHP base	0.17	0.63	0.63	0.63	376%
Minisplit Heat pump SEER 20 HSPF 10 Elec Resistance base	0.17	(4.95)	(4.95)	(4.95)	-2944%
Minisplit Heat pump SEER 21 HSPF 10 Elec Resistance base	-	(8.17)	(8.17)	(8.17)	N/A
Pump and Motor Single Speed	1.60	0.71	0.71	0.71	45%
Pump and motor w auto controls - multi speed	1.44	3.18	3.18	3.18	221%
Setback thermostat - moderate setback	-	-	-	-	N/A
	Online Me	arketplace Com	ponent		
Advanced Power Strip Tier 1 AV Systems	11.45	6.10	2.11	2.11	18%

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate
LED A-line 1100-1599 Lumen output replacing Incandescent/Halogen	0.97	1.74	1.13	1.13	117%
LED A-line 1600-1999 Lumen output replacing Incandescent/Halogen	0.79	1.45	0.94	0.94	120%
LED A-line 450-799 Lumen output replacing Incandescent/Halogen	0.32	0.50	0.33	0.33	102%
LED A-line 800-1099 Lumen output replacing Incandescent/Halogen	0.99	1.84	1.19	1.19	121%
LED Candelabra <= 5W	0.14	0.30	0.19	0.19	142%
LED fixtures downlights	0.14	0.24	0.15	0.15	110%
LED Globe <= 8W	0.06	0.15	0.10	0.10	171%
LED PAR/R/BR <= 15.5W	0.16	0.56	0.37	0.37	223%
Low Flow Bathroom Faucet Aerators - 1.0 gpm electric water heater	0.05	0.12	0.12	0.12	236%
Low Flow Kitchen Faucet Aerators - 1.5 gpm electric water heater	0.32	0.38	0.38	0.38	117%
Low Flow Showerheads 1.5 gpm electric water heater	0.20	0.35	0.17	0.17	86%
Outdoor LED PAR/Flood <= 15.5W	0.39	-	-	-	0%
Setback thermostat - moderate setback	-	-	-	-	N/A
Total	86.60	(22.84)	(29.38)	(29.38)	-34%

6.4 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 – Appliances Program.

6.4.1 Methodology for Estimating Ex Post Net Savings

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

6.4.1.1 Methodology for Estimating Free Ridership

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; and
- 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.

6.4.1.1.1 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.

6.4.1.1.2 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:

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 the contractor that they worked with. 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 6-13.

Table 6-13	Calculation	of Trade	Ally	Influence S	core
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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

6.4.1.1.3 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 6-14.

Likely Timing of Project in Absence of the Program	Timing Score
Within 6 months	1
Between 6 months and 1 year	0.67
In more than 1 year to 2 years	0.33
In two years or more	0

Table 6-14 Timing Adjustment Score

6.4.1.1.4 Free Ridership Scoring

For respondents that did not have prior plans or intentions to purchase efficient measures, an overall free ridership score was developed based on the program influence score and timing score. An overall project free ridership score is based by combining the scores described above using the following equation:

Free Ridership = Program Influence * Timing Score

6.4.1.2 Methodology for Estimating Free Ridership for Online Marketplace Sales

6.4.1.2.1 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.

6.4.1.2.2 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]

6.4.1.2.3 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 6-14 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.

6.4.1.2.4 Free Ridership Scoring

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

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

6.4.1.3 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 report implementing one or more efficiency measures are then asked two questions for use in developing a spillover score:

- SO1: On a scale of 0 to 10, where 0 represents "not at all important" and 10 represents "extremely important", how important was your experience with [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:

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

6.4.1.4 Methodology for Estimating Non-Participant Spillover

Section 11.3 describes the methodology used to estimate non-participant spillover.

6.4.2 Results of Ex Post Net Savings Estimation

6.4.2.1 Free Ridership Results

Table 6-15 summarizes the number of survey responses and average free-ridership scores by measure for the Home Energy Products – Appliances Program.

Table 6-15 Survey Response Count and Average Free Ridership Score by Measure

Measure	Survey Response Count	Average Free Ridership
High efficiency water heater	14	58%
Wi-fi smart thermostat	33	51%
High efficiency ductless heat pump	10	41%
Central air conditioner	9	59%
Air source heat pump	2	0%
ENERGY STAR dehumidifier	5	98%
High efficiency heat pump water heater	6	77%

6.4.2.2 Non-Participant Spillover Results

The total non-participant spillover was allocated to the program in proportion to its share of the 2020 expenditures. The non-participant spillover allocated to the program was 107,616 kWh and 12.25 kW.

6.4.2.3 Ex Post Net kWh Savings

Table 6-16 summarizes the ex post annual net kWh savings of the Home Energy Products – Appliances Program. The annual net savings totaled 987,567 kWh, and the kWh net-to-gross ratio is 67%.

Program Component	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate	Ex Post Net MEMD - Compliant kWh Savings	Net- to- Gross Ratio	Gross Verified Lifetime MEMD - Compliant kWh Savings
Products	1,112,244	1,373,754	1,373,754	1,373,754	124%	896,383	65%	20,052,216
Online Marketplace	207,604	163,092	92,678	92,678	45%	91,184	98%	428,152
Total	1,319,848	1,536,846	1,466,432	1,466,432	111%	987,567	67%	20,480,368

Table 6-16 Summary of Ex Post Net kWh Savings

6.4.2.4 Ex Post Net kW Demand Reductions

Table 6-17 summarizes the ex post net kW demand reduction of the Home Energy Products – Appliances program. The net demand reduction totaled -6.63 kW.

Program Component	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD - Compliant kW Savings	Net-to- Gross Ratio
Products	70.63	(36.56)	(36.56)	(36.56)	-52%	(10.44)	29%
Online Marketplace	15.97	13.72	7.18	7.18	45%	3.81	53%
Total	86.60	(22.84)	(29.38)	(29.38)	-34%	(6.63)	23%

Table 6-17 Net kW Demand Savings

6.5 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 LED light bulbs (75%), followed by advanced power strips (45%).

Customer Satisfaction

Customers who purchased efficient products from the marketplace were generally satisfied with their experience, with 88% indicating they were very or somewhat satisfied. Among those that were dissatisfied with their experience, associated shipping charges, not being able to order more from the website, better descriptions of efficient products, and shipping times were cited as ways to improve the purchase experience.

Figure 6-1 provides details about satisfaction with the measures purchased. All respondents were satisfied with the smart thermostat purchase, all were somewhat satisfied with their bathroom faucet aerator, 74% were satisfied with their advanced power strip purchase, and 86% were satisfied with their LED light bulb purchases.



Figure 6-1 Customer Satisfaction with Purchased Measures

Net Promoter Score

The net promoter score for the efficient product online marketplace was 54%¹¹. Sixty-five percent of the survey respondents were considered promoters of the program (see Figure 6-2).

Figure 6-2 Net Promoter Score



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.

6.6 Findings and Recommendations

The overall realization rate for the efficient products component was high at 111%, although realization rates differed substantially from 100% for some measures.

- **Recommendation 1:** Review ex ante savings estimates for the following measures:
 - Electric resistance water heaters had a low realization rate. The ex ante savings estimates is high and more in-line with what would be expected for a heat pump water heater.
 - Ex ante estimates for air source heat pumps and central air conditioners were low. The estimates did not account for unit capacity and were not consistent with the MEMD.
 - The ex ante estimates for multi speed pool pumps referenced the MEMD savings value for variable speed pool pumps and the ex ante savings for the variable speed pool pumps referenced the MEMD savings for multi speed pool pumps.

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 1.6 of them.

• **Recommendation 2:** Consider limiting customers to the purchase of no more than two advanced power strips.

Most customers (88%) were satisfied with their online marketplace purchase experience, and two-thirds were considered net promoters. About one in ten respondents were detractors¹² of the program suggesting there may still be some opportunity to improve customer's experience with the online marketplace.

¹² 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.

7 Home Energy Products - Lighting

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

7.1 Program Description

The residential lighting component of the Home Energy Products Program will increase customer awareness and uptake for energy-efficient lighting products through upstream incentives designed to cover a portion of the incremental cost of efficient lighting.

The objectives of the lighting component 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 an incentive through the program.

The residential lighting component of the Home Energy Products Program focuses on providing midstream incentives to buy down or mark down the incremental cost of LEDs and other efficient lighting fixtures and control systems. Incentives will be provided for the following efficient lighting categories:

- Standard LEDs; and
- Specialty LEDs.

7.2 Data Collection

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

- Program tracking data from the primary tracking database;
- Program summary data from the *I&M DSM EE Program Scorecard*;
- Results of the general population survey completed in December 2018 to estimate inservice rates and free ridership; and
- Manufacturer/retailer invoices and supporting documentation

7.3 Estimation of MEMD-Compliant Savings

The following section presents the methodology that was used for estimating the MEMD-Compliant energy and demand impacts resulting from the Home Energy Products Program efficient lighting component in 2021.

7.3.1 Methodology for Estimating MEMD-Compliant Savings

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

• Number of bulbs discounted and sold through the program;

- Average annual kWh savings per purchased bulb type; and
- Average kW reduction per purchased bulb type.

7.3.1.1 Review of Documentation

As a first step, ADM reviewed data tracking systems associated with the program to ensure that the data provided sufficient information to conduct surveying efforts and to calculate energy and demand impacts in accordance with the MEMD. ADM further reviewed the program data to verify required fields were populated (i.e., the data are not missing) and that the program measures were appropriately categorized according to measure types specified in the MEMD. Finally, the program tracking data and the associated summary data provided in the I&M DSM EE Program Scorecard were reviewed for consistency and duplicate or erroneous entries.

ADM's review of the program data tracking data found that there was sufficient information to estimate energy and demand impacts in accordance with the MEMD. The data included details of the bulb types and wattages discounted through the program, information on retail pricing and program discounts, manufacturer and retailer information, and ex ante savings and demand reductions. ADM reviewed the bulb types and wattages and compared them to the MEMD measure categories they were assigned. No changes were made based on this review, as ADM agreed with all measure categorization choices made.

7.3.1.2 Procedures for Estimating Measure-Level MEMD-Compliant Savings

MEMD Per-Unit Energy and Demand Impacts

The discounted lighting products incented through the Home Energy Products Program each have stipulated energy savings and peak demand reduction values in the 2021 MEMD. In line with common practice in Michigan, for energy efficiency measures found in the MEMD:

- ADM referenced the appropriate MEMD per unit kWh savings values to calculate ex post gross MEMD-compliant kWh savings for program-discounted bulbs.
- ADM referenced the appropriate MEMD per unit coincident kW demand reduction values to calculate ex post gross MEMD-compliant kW savings for program-discounted bulbs.

Table 7-1 below presents the applicable MEMD per-unit kWh savings, per-unit kW demand reduction, and Effective Useful Life (EUL) values for each type of lighting product that was incented through the Home Energy Products Program in 2021.

MEMD Measure Name	MEMD Per-unit kWh Savings	MEMD Per-unit kW Demand Reduction	Units	MEMD EUL
LED A-line 1100-1599 Lumen output replacing Incandescent/Halogen	34.6	0.0041	per lamp	3
LED A-line 1600-1999 Lumen output replacing Incandescent/Halogen	47.2	0.0056	per lamp	3

Table 7-1 MEMD Per-Unit kWh and kW Impacts for Lighting Products

MEMD Measure Name	MEMD Per-unit kWh Savings	MEMD Per-unit kW Demand Reduction	Units	MEMD EUL
LED A-line 450-799 Lumen output replacing Incandescent/Halogen	19.6	0.0023	per lamp	3
LED A-line 800-1099 Lumen output replacing Incandescent/Halogen	28.5	0.0034	per lamp	3
LED Candelabra <= 5W	23.7	0.0028	per lamp	4
LED fixtures downlights	44	0.0053	per fixture	15
LED Globe <= 8W	27	0.0032	per lamp	4
LED PAR/R/BR <= 15.5W	54	0.0064	per lamp	4

In-Service Rate

Ex post kWh savings and kW reductions were adjusted by applying first-year in-service rates to the savings estimates.

The in-service rate applied to lamps sold in stores is 88% and was based on survey responses collected from a general population survey performed in December 2018.

Table 7-2 below displays the quantity of program-discounted bulbs and installation rates by bulb type.

Measure	Expected Quantity of Discounted Bulbs	First- Year ISR	Verified Quantity of Discounted Bulbs
Standard LED	116,330	88%	102,370
Specialty LED	48,900	88%	43,032
Total	165,230	88%	145,402

Table 7-2 In-Service Rates by Bulb Type

7.3.2 MEMD-Compliant Gross Impact Results

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

7.3.2.1 Ex Post Gross kWh Savings

Table 7-3 below shows the ex ante annual kWh savings reported in the main program tracking database and the ex post annual gross kWh savings resulting from the program. The ex post annual gross kWh savings are inclusive of the MEMD per-unit kWh savings and the estimated first-year in-service rate of program-discounted bulbs. The overall gross kWh realization rate for the program is 96%.

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD - Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD - Compliant kWh Savings	Gross Realization Rate
Standard LED	3,186,180	3,659,289	3,220,174	3,220,174	101%
Specialty LED	2,005,992	2,006,208	1,765,463	1,765,463	88%
Total	5,192,172	5,665,497	4,985,637	4,985,637	96%

Table 7-3	Ex Post	Gross	kWh	Savings –	Efficient	Lighting
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7.3.2.2 Ex Post Gross kW Demand Reduction

Table 7-4 below shows the ex ante kW reduction reported in both the main program tracking database, the gross audited and verified peak kW reduction, and the ex post gross MEMD-compliant coincident kW reductions resulting from the program. The ex post gross kW demand reductions are inclusive of the MEMD per-unit kW demand reduction values adjusted by the estimated first-year in-service rate of program-discounted bulbs. The program-level kW savings gross realization rate is 89%.

Table 7-4 Ex Post Gross kW Demand Reduction -	- Efficient	Lighting
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Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate
Standard LED	383.48	435.03	382.83	382.83	100%
Specialty LED	282.13	238.03	209.47	209.47	88%
Total	665.61	673.06	592.30	592.30	89%

7.4 Estimation of Ex Post Net Savings

7.4.1 Methodology for Estimating Ex Post Net Savings

ADM estimated free ridership using a consumer demand modeling approach based on sales of discounted lighting through the program.

In addition to accounting for free ridership, the net impact estimates account for an adjustment for non-participant spillover.

7.4.1.1 Free Ridership: Price-Response Model Methodology

ADM also estimated free ridership using a price-response modelling approach using PY2021 records of program discounted bulb sales. This approach estimated sales in response to changes in pricing of the bulbs. ADM developed a regression model to estimate the relationship between price and quantity sold. ADM used a negative binomial model to account for the right-skewed relationship between prices and quantities. The dependent variable was number of packages sold

by the program. Independent variables used to predict sales included, month, program price, and a dummy variable for each model type.

Model types were defined as a combination of bulb type (i.e. specialty LED vs. standard LED), bulb shape (i.e. A19 vs BR40), wattage range (i.e. 0-5, 5-10, etc...), and the number of bulbs per package. Quantities of bulbs sold in the absence of the program were then predicted using preprogram prices and the price-response model, and program quantities were also predicted using program prices and the model coefficients. The final price response model is used to estimate free ridership as described in the equation below:

$$Free \ ridership \ ratio = \frac{\sum_{i}^{n} (E[Bulbs_{NoProgram_{i}}])}{\sum_{i}^{n} (E[Bulbs_{Program_{i}}])}$$

Where:

 $E[Bulbs_{NoProgram_i}]$ = the expected number of bulbs of type, *i*, purchased given original retail pricing (as predicted by the model).

 $E[Bulbs_{Program_i}]$ = the expected number of bulbs of type, *i*, given program discounted pricing (as predicted by the model).

The price-response modeling approach is advantageous in that it is built upon actual sales data from participating retailers (as opposed to relying on consumer self-report surveys). There are, however, a number of limitations to this approach. Most importantly, non-program sales data is unavailable for inclusion in the model. As a result, the modeling of price impacts may fit program sales data well, but it is uncertain whether those price effects apply well to prices outside of program ranges. Additionally, there are likely variables that affect sales of LEDs that are not captured by the program tracking data; thus, there is a risk of omitted variable bias in addition to the inherent amount of error from statistical modeling.

7.4.1.2 Methodology for Estimating Non-Participant Spillover

Section 11.3 describes the methodology used to estimate non-participant spillover.

7.4.2 Results of Ex Post Net Savings Estimation

The results of the ex post net savings analysis for the 2021 Home Energy Products Program efficient lighting component are reported in the following sections.

7.4.2.1 Free Ridership: Price-Response Model Results

ADM estimated the overall free ridership rate for upstream LEDs to be 54% for standard LEDs and 94% for specialty LEDs using the price response model as reported in Table 7-5 below. ADM ran separate models for each bulb type (i.e. LED Standard and LED Specialty).

Bulb Type	Free Ridership %
Standard LED	54%
Specialty LED	94%

Table 7-5 Free Ridership: Price-response Model Results

As shown in Table 7-5, free ridership is considerably higher for specialty LEDs than it is for standard LEDs. This difference is likely a function of the relatively smaller discounts provided for specialty LEDs as shown below in Table 7-6. To assess the impact of the discount on the free ridership, ADM re-ran the price response model with dropping all specialty LEDs with a discount of 15% or less. The result was that free ridership decreased from 94% for specialty LEDs to 83%.

Table 7-6 Average Discounts for Standard and Specialty LEDs

Bulb Type	Average Retail Price	Average Promo Price	Average Discount
Standard	11.69	4.40	-62%
Specialty	11.77	5.99	-49%

Table 7-7 summarizes the free ridership results based on the price response modeling for the current program year and the three prior program years. As shown there has been variation in the results but the general trend has been towards higher levels of free ridership. This likely reflects the changing market conditions for LED bulbs.

Lamp Type	PY2018	PY2019	PY2020	PY2021
Standard	39%	50%	62%	54%
Specialty	43%	78%	72%	94%

Table 7-7 Price-Response Model Free Ridership Estimates Over Time

The model coefficients are shown in the Table 7-8 (specialty LED lamps) and Table 7-9 (standard LED lamps) below. The key finding presented in the tables is that the coefficients for program price are negative (the expected direction) and statistically significant at the 99% level. This indicates that as expected purchases of LEDs declines as the price increases. The other coefficients shown pertain to the other variables included in the model to control for other factors that affect the sold quantity (i.e., the model and the month of the year. The tables present a coefficient for as single LED model type to save space.

 Table 7-8 Price-Response Model Final Specification (Specialty Lamps)

Coefficient	Estimate	Std Err	Statistic	p.value	CI-low	CI-high
(Intercept)						
	1.52	0.17	8.73	<.001	1.18	1.86
model.numSpecialty LED_Bulged						
Reflector_10-15_1000-1500_1	0.77	0.17	4.39	<.001	0.42	1.11
August 2021	0.00	0.04	0.10	0.92	-0.08	0.09
December 2021	0.07	0.06	1.10	0.27	-0.05	0.18
February 2021	0.08	0.04	1.82	0.07	-0.01	0.17

Coefficient	Estimate	Std Err	Statistic	p.value	CI-low	CI-high
January 2021	0.07	0.04	1.62	0.11	-0.02	0.16
July 2021	0.25	0.04	5.93	<.001	0.17	0.33
June 2021	0.06	0.04	1.32	0.19	-0.03	0.14
March 2021	0.15	0.04	3.73	<.001	0.07	0.23
May 2021	0.08	0.04	1.92	0.06	0.00	0.16
November 2021	-0.21	0.05	-4.68	<.001	-0.30	-0.12
October 2021	0.06	0.04	1.41	0.16	-0.02	0.15
September 2021	0.04	0.04	1.01	0.31	-0.04	0.13
ProPrice	-0.01	0.00	-3.46	<.001	-0.02	-0.01

Table 7-9 Price-Response Model Final Specification (Standard Lamps)

Coefficient	Estimate	Std Err	Statistic	p.value	CI-low	CI-high
(Intercept)	2.02	0.92	2.21	0.03	0.22	3.82
model.numStandard LED_A-Line_0-5_0- 500_2	-1.69	1.12	-1.50	0.13	-3.88	0.51
August 2021	-0.07	0.06	-1.21	0.23	-0.18	0.04
December 2021	-0.26	0.18	-1.44	0.15	-0.62	0.09
February 2021	0.10	0.06	1.64	0.10	-0.02	0.21
January 2021	-0.05	0.06	-0.91	0.36	-0.17	0.06
July 2021	0.03	0.06	0.54	0.59	-0.08	0.14
June 2021	0.00	0.06	-0.01	0.99	-0.12	0.11
March 2021	0.13	0.06	2.26	0.02	0.02	0.24
May 2021	0.02	0.06	0.32	0.75	-0.09	0.13
November 2021	-0.04	0.10	-0.41	0.68	-0.23	0.15
October 2021	-0.07	0.09	-0.77	0.44	-0.24	0.10
September 2021	-0.15	0.06	-2.53	0.01	-0.27	-0.03
ProPrice	-0.10	0.00	-19.84	<.001	-0.11	-0.09

7.4.2.2 Non-Participant Spillover Results

The total non-participant spillover was allocated to the program in proportion to its share of the 2021 expenditures. Program non-participant spillover energy savings are 200,306 kWh.

The evaluation team assumed a flat load shape for non-participant spillover energy savings and calculated non-participant spillover peak kW savings as equal to non-participant kWh spillover savings divided by 8,760.

7.4.2.3 Ex Post Net kWh Savings

Table 7-10 below presents the ex post annual net kWh savings and the gross verified lifetime kWh savings resulting from the program. The ex post annual net kWh savings totaled 1,799,679 kWh, and the program-level kWh net-to-gross ratio is 36%.

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD - Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD - Compliant kWh Savings	Gross Realizatio n Rate	Ex Post Net MEMD - Compliant kWh Savings	Net-to- Gross Ratio	Gross Verified Lifetime MEMD - Compliant kWh Savings
Standard LED	3,186,180	3,659,289	3,220,174	3,220,174	101%	1,620,527	50%	9,660,523
Specialty LED	2,005,992	2,006,208	1,765,463	1,765,463	88%	179,152	10%	8,988,287
Total	5,192,172	5,665,497	4,985,637	4,985,637	96%	1,799,679	36%	18,648,810

Table 7-10 Ex Post Annual Net kWh Savings – Efficient Lighting

7.4.2.4 Ex Post Net kW Demand Reduction

Table 7-11 below presents the ex post net kW demand reductions resulting from the program. The ex post net demand reduction totaled 212.98 kW and the program-level kW net-to-gross ratio is 36%.

Table 7-11 Ex Post Peak Net kW Demand Reduction – Efficient Lighting

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD - Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD - Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD - Compliant kW Savings	Net-to- Gross Ratio
Standard LED	383.48	435.03	382.83	382.83	100%	192.05	50%
Specialty LED	282.13	238.03	209.47	209.47	88%	20.93	10%
Total	665.61	673.06	592.30	592.30	89%	212.98	36%

7.5 Process Evaluation

ADM did not complete a process evaluation of the PY2021 program.

7.6 Findings and Recommendations

The net-to-gross ratio for LED bulbs was 36%. Free ridership for specialty bulbs was higher than for standard LEDs (94% vs. 54%) A review of the amount of the discount provided found that the average discount was 49% for specialty LEDs as compared to 62% for standard LEDs. The relatively lower discount may be driving the higher free ridership for the specialty bulbs. Analysis of free ridership that excluded specialty LEDs with a discount of 15% or less (i.e., smaller discounts) resulted in an 11-percentage point decrease in free ridership (i.e., net savings increased).

• **Recommendation 1:** Review discounted prices for LEDs and remove those with discounts that are small relative to the retail price from the program.

8 Home Energy Engagement

This chapter presents the results of both the impact and process evaluations of the 2021 Home Energy Engagement Program that Indiana Michigan Power (I&M) offered to its residential customers during the period of January 2021 through December 2021. ADM completed a process evaluation of the Residential AMI Portal Component, but not the Home Energy Reports or Online Energy Checkup components.

8.1 Program Description

The Home Energy Engagement Program consists of three components:

- Online Energy Checkup;
- Home Energy Reports; and
- Residential AMI Portal.

8.1.1 Online Energy Checkup

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

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

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

Energy efficient kits for participants with gas water heaters included:

- Three (3) 9W LEDs;
- Two (2) 0.5W LED night lights; and
- One (1) Digital thermometer.

Energy efficient kits for participants with electric water heaters included:

- Three (3) 9W LEDs;
- One (1) 1.5 GPM Kitchen faucet aerator;
- Two (2) 1.0 GPM Bathroom faucet aerators;
- Two (2) 1.5 GPM High-efficiency showerheads; and

• One (1) Digital thermometer.

8.1.2 Home Energy Reports

The Home Energy Reports (HER) program provides enrolled I&M customers a monthly electronic report that contains information pertaining to their energy consumption, along with recommendations on how they might reduce energy consumption. This service provides tailored information intended to equip the residential customer with the knowledge necessary to implement energy efficient measures and/or improvements relevant to their home. The implementation of these measures will produce energy savings because the focus is to encourage, and support engaged customers in changing their electric energy consuming behaviors and habits. Reports sent to customers will also cross promote other I&M energy efficiency programs to help further engage customers in support of their energy consumption reduction behavior. Additionally, customers will receive access to a special web portal with additional information and resources pertaining to energy conservation.

The Home Energy Reports Program is run on behalf of I&M by Oracle, a technology company who runs many similar "behavioral" energy conservation programs in other jurisdictions.

8.1.3 Residential AMI Portal

The Residential AMI Portal service provides residential customers, with AMI meters, detailed information on their energy usage. Customers may log on to their account to view and explore their energy use over time alongside relevant comparisons based on weather, neighbors, and prior usage. The portal also provides a bill forecast tool that shows customers their current usage or cost to date in the billing period, their projected usage or cost for the billing period, and their typical usage or cost for the period, based on their past usage. The portal provides customers with historical data on their energy usage and costs, information on energy usage and weather trends. In addition to the portal, customers may:

- Receive high bill alerts when their bill is 30% higher compared to the same month during the previous year;
- A weekly energy report, if the customer opts to receive it.

8.2 Data Collection

8.2.1 Participant Surveys

Table 8-1 summarizes the participant data collection undertaken for the evaluation of the Home Energy Engagement Program.

Survey	Mode	Time Frame	Number of Contacts	Number of Completions
Residential AMI Portal Participant Survey	Online	January 2022	214	9
Home Energy Engagement - Online Energy Checkup Participant	Online	October and December 2021	1,543	117

Table 8-1 Summary of Data Collection Activities for the Home Energy Engagement Program

8.2.2 Staff Interviews

ADM interviewed the I&M energy efficiency residential accounts manager and the program coordinator to gain additional insights into the Residential AMI Portal. The residential accounts manager's role includes overseeing the team who manages AMI and the vendor who maintains the portal. The program coordinator manages the program and oversee customer enrollment.

8.3 Estimation of MEMD-Compliant Savings

The following section presents the methodology that will be used for estimating the gross and net MEMD-compliant energy and demand impacts resulting from the HER and OEC components in 2021.

8.3.1 Methodology for Estimating MEMD-Compliant Savings

8.3.1.1 Review Program M&V and Due Diligence Procedures

As a first step, ADM reviewed the primary tracking database associated with the program to ensure that the data provide sufficient information to identify unique program participants.

Following this review, ADM developed recommendations for the quality assurance/quality control (QA/QC) and due diligence procedures for I&M with the goal of minimizing the variance between ex ante and ex post energy impacts.

As applicable, ADM presented recommendations relating to program-level QA/QC, inspection and due diligence procedures in ad hoc reports to I&M or as part of the regular updates on impact and process evaluation findings.

8.3.1.2 Data Collection

Data used to support the impact evaluation of the HER component included:

- Program data on enrolled customers and control group customers; and
- Consumption data for enrolled and control group customers for all of 2021.

Data used to support the impact evaluation of the OEC component included:

- Program summary data from the *I&M DSM EE Program Scorecard*;
- Program tracking data indicating the type of kit received, the customer name, account number, and contact information;

- The specifications for the measures included in the kits; and
- Participant survey data.

8.3.1.3 Calculation of Ex Post Gross MEMD-Compliant Savings

8.3.1.3.1 Online Energy Check-up

For measures in the Residential Online Energy Check-up Program, total ex post gross MEMDcompliant kWh savings and MEMD-compliant coincident kW reduction for each measure were calculated as the product of the number of measures verified as program-eligible/installed and the appropriate MEMD per-unit kWh and coincident kW savings value, respectively.

The energy efficient products incented through the OEC component each have energy savings and peak demand reduction values provided in the 2021 MEMD. For energy efficiency measures found in the MEMD:

- ADM referenced the applicable MEMD per unit kWh savings values to calculate ex post gross MEMD-compliant kWh savings for program-incented products.
- ADM referenced the applicable MEMD per unit coincident kW demand reduction values to calculate ex post gross MEMD-compliant kW savings for program-incented products.
- Where applicable, for the first five years of measure EUL, ADM calculated additional, incremental savings associated with reference to an early replacement baseline.

Table 8-2 below presents the average applicable MEMD per-unit kWh savings, peak kW reductions, and Effective Useful Life (EUL) values that were referenced for each kit measure included in the 2021 OEC kits.

Measure	MEMD Per-unit kWh Savings	MEMD Per- unit kW Demand Reduction	Units	MEMD EUL
9W LED	28.5	0.0034	per lamp	3
1.5 GPM Kitchen aerator	272.6	0.0313	per device	10
1.0 GPM Bathroom aerator	68.2	0.0080	per device	10
1.5 GPM Showerhead	333.3	0.0269	per device	10
0.5W LED night light	22.0	0.0000	per lamp	12

Table 8-2 MEMD Per-unit kWh and kW Impacts for OEC Kit Measures

The total number and type of OEC kits mailed and installed at participant homes in PY2021 is determined by (1) reviewing the program tracking system and associated documentation from I&M and (2) administering a survey with program participants. Specifically, the tracking system is checked to assure that (1) duplicate shipments to the same account number do not exist (2) the ex-ante kWh savings are reasonable and (3) appropriate kits types are sent to customers. The energy efficiency kits are mailed to Michigan addresses on record for customers that complete the online energy audit questionnaire.

The program relies on direct install by the participant, and some of the items may have been uninstalled or perhaps were never installed upon receiving the kit. Survey results were used to determine the in-service rate for the kit measures. Ex post kWh savings and kW reductions resulting from the Online Energy Check-up Program were adjusted by applying the estimated measure-level installation rates of kit measures to the MEMD per unit kWh savings and kW reduction values.

Table 8-3 below displays the installation rates developed from the collected survey data. The planned installation in service rate was used to estimate ex post gross program impacts.

Measure	2021 In-Service Rate	2021 In-Service Rate with Planned Install in Next 6 Months
Bathroom Aerator	44%	61%
9W LED	73%	90%
LED Nightlight*	19%	21%
Kitchen Aerator	60%	78%
Showerhead	36%	51%

 Table 8-3 In-Service Rates per OEC Measure

* The in-service rate for nightlights is lower because 76% of the installed nightlights were reported to have been installed in an empty socket rather than replaced an existing nightlight.

8.3.1.3.2 Home Energy Reports

For the Home Energy Reports Program, gross and net savings were calculating according to the method outlined below in section 8.4.1.1.

8.3.1.3.3 Residential AMI Portal

Gross and net Residential AMI Portal savings were calculated using the econometric analysis approach described in section 8.4.1.2.1 on page 84.

8.3.2 MEMD-Compliant Gross Impact Results

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

8.3.2.1 Ex Post Gross kWh Savings

Table 8-4 below shows the annual audited, verified, and ex post gross MEMD-compliant kWh savings resulting from each component of the Home Energy Engagement Program.

Program Component	Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate
	9w LED	146,325	158,432	142,953	142,953	98%
Onling	1.5 GPM Kitchen aerator	180,450	252,216	196,168	196,168	109%
Energy	1.0 GPM Bathroom aerator	79,770	122,944	75,272	75,272	94%
Cheek up	1.5 GPM Showerhead	338,173	712,352	363,596	363,596	108%
Check-up	0.5w LED night light	22,969	41,756	8,741	8,741	38%
	Total	767,686	1,287,700	786,730	786,730	102%
Home Energy Reports - Total		1,258,024	1,580,993	1,580,993	1,580,993	126%
Residential AMI Portal - Total		-	-	-	-	-
Grand Total		2,025,711	2,868,693	2,367,723	2,367,723	117%

Table 8-4 Ex Post Gross kWh Savings – Home Energy Engagement

8.3.2.2 Ex Post Gross kW Demand Reduction

Table 8-5 below shows the gross audited, verified, and ex post gross MEMD-compliant coincident kW reductions resulting from each component of the Home Energy Engagement Program.

Program Component	Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate
	9w LED	17.34	18.90	17.05	17.05	98%
	1.5 GPM Kitchen aerator	20.73	28.93	22.50	22.50	109%
Online	1.0 GPM Bathroom aerator	9.41	14.46	8.86	8.86	94%
Check-up	1.5 GPM Showerhead	27.34	43.03	21.96	21.96	80%
	0.5w LED night light	-	-	-	-	N/A
	Total	74.82	105.32	70.37	70.37	94%
Home Energy Reports - Total		159.80	392.48	392.48	392.48	246%
Residential AMI Portal - Total		-	-	-	-	N/A
Grand Total		234.62	497.80	462.85	462.85	197%

Table 8-5 Ex Post Gross kW Demand Reduction – Home Energy Engagement

8.4 Estimation of Ex Post Net Savings

8.4.1 Methodology for Estimating Ex Post Net Savings

8.4.1.1 Online Energy Check-up

8.4.1.1.1 Methodology for Estimating Free Ridership

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

- Prior experience with similar energy saving equipment;
- Prior planning to purchase energy efficiency measures provided through the program; and

• Likelihood of installing similar equipment without the program.

Prior Experience

The program is designed to encourage customers to use efficiency measures that they previously did not have experience with by providing them at no cost to the customer. As such, a primary indicator of the likelihood that a participant is a free rider, is whether he or she has previously purchased a similar measure. Previous experience is used as an indicator of whether the customer would have coincidently purchased a similar measure on their own.

Prior experience is assessed through the following question:

• FR1: Thinking back to before you completed the Online Energy Check-up, had you purchased and installed any of the following items in your home in the last three years?

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

Prior Plans and Intentions

Customers were asked as to any plans they had to purchase any of the measures. This is addressed in the following question:

- FR2: Before you heard of the program, did you have specific plans to purchase any of these kit items that were sent to you? If so, which items did you plan to purchase?
- For LEDs, night lights, shower heads, and bathroom faucet aerators, customers that respond that they planned to install the measures are asked the following question:
- FR3: Of the [MEASURE COUNT] [MEAUSRE] provided in the kit, how many did you plan to purchase on your own?

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

Likelihood of Purchasing Measure

Once customers learn of the program, it is possible that this knowledge will sway their decisionmaking process to install these energy efficient measures in their homes. Additionally, the information and measures provided through the program may help to overcome existing barriers to energy efficiency improvements. To address this, participants were asked the following questions:

• FR4: Using a scale where 0 means "not at all likely" and 10 means "very likely", if you had not completed the Online Energy Check-up or received the energy conservation kit,

how likely would you have been to purchase any of the following items on your own within 12 months of when you received them?

FR5: [IF FR4 > 0] Based on your response, there is some likelihood that you would have purchased some of the kit items in the next 12 months. Given that, we would like to know why you had not already purchased the items on your own. Had you not already purchased [MEASURE] because 1) you didn't want to spend the money, 2) you had not gotten around to it, 3) you didn't know where to purchase [MEASURE], 4) you didn't know enough about [MEASURE], or 6) another reason?

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

Likelihood of Purchasing = FR4/10

Free Ridership Scoring

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

Table 8-6 summarizes the number of survey responses and average free-ridership scores by measure for the Residential Online Energy Check-up Program.

Measure	Survey Response Count	Average Free Ridership Score
9w LED	117	15%
1.5 GPM Kitchen aerator	49	0%
1.0 GPM Bathroom aerator	49	0%
1.5 GPM Showerhead	49	2%
0.5w LED night light	68	5%

Table 8-6 Survey Response Count and Average Free Ridership Score by Measure

8.4.1.1.2 Methodology for Estimating Spillover

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

To assess participant spillover savings, survey respondents were asked whether they implemented any additional energy saving measures for which they did not receive a program incentive. Respondents 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 then asked two questions for use in developing a spillover score:

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

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

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

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

8.4.1.1.3 Methodology for Estimating Non-Participant Spillover

Section 11.3 describes the methodology used to estimate non-participant spillover.

8.4.1.2 Home Energy Reports

ADM preliminarily calculated ex post net MEMD-compliant electric energy savings and MEMDcompliant coincident demand reduction for the program in accordance with the Behavioral Resource Manual (BRM). Specifically, to obtain the participant-level MEMD-compliant electric energy savings, ADM multiplied the BRM per-unit kWh factor by each participant's annual home energy usage. To obtain the participant-level MEMD-compliant coincident demand reduction, ADM multiplied the BRM per-unit kW factor by each participant's annual home energy usage and then divided by 8,760 hours per year.

ADM calculated program-level ex post gross MEMD-compliant electric energy savings and MEMD-compliant coincident demand reduction by aggregating all participant-level electric ex post gross MEMD-compliant energy savings and all participant-level ex post gross MEMD-compliant coincident demand reduction, respectively.

The Michigan Public Service Commission ("MPSC") order in Case No. U-20374 limits behavior energy savings to 15% of residential portfolio energy savings. The Home Energy Reports Program accounts for all behavioral energy savings associated with the Energy Waste Reduction (EWR) portfolio. To ensure compliance with the limitation of behavioral savings, BRM-consistent energy savings were compared with the applicable behavioral energy savings cap.

As shown in Table 8-7, uncapped gross verified, ex post gross, and ex post net savings exceed the cap on behavioral energy savings, so the capped value is referenced as verified, ex post gross, and ex post net savings.

Program / Category	Gross Verified MEMD- Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Ex Post Net MEMD- Compliant kWh Savings
Home Appliance Recycling	1,065,903	1,065,903	558,265
Home Energy Products - Appliances	1,466,432	1,466,432	987,567
Home Energy Products - Lighting	4,985,637	4,985,637	1,799,679
Home New Construction	180,796	180,796	149,090
Home Weatherproofing	2,128	2,128	7,200
Residential Income Qualified Weatherproofing	441,093	441,093	441,093
Residential Online Energy Check-up	726,440	726,440	749,528
Schools Energy Education	83,237	83,237	91,282
Heat Pump Clothes Dryer Pilot	64,479	64,479	64,479
Residential Mid-Stream Pilot	209,510	209,510	209,510
Non-Behavioral Residential EWR Portfolio Total	9,225,654	9,225,654	5,057,692
Behavioral Savings Cap ¹	1,628,057	1,628,057	892,534
Home Energy Reports (Uncapped)	2,292,065	2,292,065	2,292,065
Home Energy Reports (Capped) ²	1,628,057	1,628,057	892,534
Residential EWR Portfolio - Total	10,853,710	10,853,710	5,950,226

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Table 8-7 Application	of Rehavioral Eneroy	Savings Limitation
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8.4.1.2.1 Ancillary HER Econometric Analysis Results

ADM also performed an ancillary econometric analysis of Home Energy Reports Program energy savings to conform with the following stipulation in the BRM:

The BRM utilized a Deem-but-Verify approach, meaning the per-unit savings for all existing BRM measures are deemed, but must be verified on an annual basis. Verification results were compared with existing deemed savings values to determine whether a calibration study is warranted to update deemed savings values as part of the annual "Existing Measure Review and Calibration Process" as outlined in the Michigan Energy Measure Database Overview and Maintenance Process Manual.¹³

The mixed effects panel regression model¹⁴ that was used during the analysis is specified as follows:

¹³ Michigan Energy Waste Reduction (EWR) Collaborative (Ed.). (n.d.). Michigan Behavioral Reference Manual (1.0 ed.). Retrieved from <u>https://www.michigan.gov/documents/mpsc/Behavior_Resource_Manual_-</u> <u>Published 2018.11.27 639300 7.docx</u>

¹⁴ This was implemented in R using the lme4 package. The syntax used for model specification is $lmer(avg.kw \sim 1 + hdd + cdd + post + hdd + post * cdd + treat * post + (1 | ACCOUNT_NUMBER), data=dataset)$

$$kWh_{i,t} = \beta_1 HDD65_{i,t} + \beta_2 CDD75_{i,t} + \beta_3 Post_{i,t} + \beta_4 (Post_{i,t} * HDD65_t) + \beta_5 (Post_{i,t} * CDD75_t)$$

 $+ \beta_6 (Post_{i,t} * Treatment_i) + \alpha_i Customer_i + \varepsilon_{i,t}$

Where T(i) represents the number of bills available for *i*. The model is defined as "mixed effects" because the model decomposes its parameters into fixed-effects (i.e. *HDD65*, *CDD75*, *Post*, *Treat*, and its various interactions) and random effects (i.e. the individual customer's base usage). Put simply, a fixed effect was assumed to be constant and independent of the sample, while random effects were assumed to be sources of variation (other than natural measurement error) that are uncorrelated with the fixed effects. The approach is similar to others that treat the individual customer as a fixed-effect but is more computationally efficient as the number of individuals in the sample becomes very large.

While the results of this model are expected to be consistent with a pooled regression (which ignores the individual customer effect), controlling for the individual effect will achieve some improvement in the model's fit to the data. The variables included in the regression models are specified in Table 8-8 below.

Variable	Description
Customer random intercept	Unique identifier for each customer to control for any customer specific differences.
Heating Degree Days (HDD)	Average Heating Degree Days per day within each billing period. This will be calculated by summing up the number of heating degree hours per day, and then averaging over the number of days in the billing period.
Cooling Degree Days (CDD)	Average Cooling Degree Days per day within each billing period. This will be calculated by summing up the number of cooling degree hours per day, and then averaging over the number of days in the billing period.
Post	Indicator if an observation is post audit (=1 if post, =0 otherwise).
kWh	The average daily kWh usage for account during billing period.
Post * Treatment	Indicator that adjusts for the interactive effect between whether customer i 's monthly billing data in period t in the pre or post period and whether customer i was in the treatment or control group during period t .

Table 8-8 Description of Variables Used in the Regression Model

The HDD and CDD was calculated on a daily basis so they could be applied to each customer's billing period, however long that may be. It is rare that a customer's billing dates are on the first

of each month, so this ensures that no estimation of usage must occur to match weather data with the billing data.

The coefficient estimate on $\beta 6$ from the regression model output was used to provide the alternative estimate of program-level kWh savings. This was done by multiplying by the number of program participants (including customers that opted out of the program and excluding customers whose accounts closed) to arrive at a program level kWh energy savings and kW peak reduction numbers.

Under the ancillary econometric analysis performed according to the method outlined above, the annual energy savings are estimated to be 2,404,840 kWh, which is equal to 105% of the BRM-consistent, uncapped ex post gross kWh savings.

8.4.1.3 Residential AMI Portal

The econometric analysis approach described above in section 8.4.1.2.1 was applied for the purpose of calculating savings attributable to the Residential AMI Portal. Since no energy savings were calculated based on the econometric analysis, the behavior savings cap referenced in section 8.4.1.2 was exclusively applied in the calculation of Home Energy Reports savings.

8.4.2 Results of Ex Post Net Savings Estimation

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

8.4.2.1 Ex Post Net kWh Savings

Table 8-9 below shows the annual audited, verified, ex post gross, and ex post net MEMD-compliant kWh savings resulting from each component of the program.

Program Component	Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate	Ex Post Net MEMD - Compliant kWh Savings	Net-to- Gross Ratio	Gross Verified Lifetime MEMD - Compliant kWh Savings
	9w LED	146,325	158,432	142,953	142,953	98%	131,578	92%	428,858
	1.5 GPM Kitchen aerator	180,450	246,441	191,676	191,676	106%	204,700	107%	1,916,763
Online	1.0 GPM Bathroom aerator	79,770	123,244	75,456	75,456	95%	80,582	107%	754,555
Check-up	1.5 GPM Showerhead	338,173	602,672	307,614	307,614	91%	323,729	105%	3,076,138
	0.5w LED night light	22,969	41,756	8,741	8,741	38%	8,939	102%	104,896
	Total	767,686	1,172,545	726,440	726,440	95%	749,528	103%	6,281,210
Home Energy	Reports - Total	1,258,024	1,628,057	1,628,057	1,628,057	129%	892,534	55%	1,628,057
Residential A	MI Portal - Total	-	-	-	-	N/A	-	N/A	-
Grand Total		2,025,711	2,800,601	2,354,496	2,354,496	116%	1,642,062	70%	7,909,267

Table 8-9 Ex Post Net kWh Savings – Home Energy Engagement

Below, Table 8-10 presents annual audited, verified, ex post gross, and ex post net MEMDcompliant kWh savings of the Online Energy Checkup program component by kit type.

Kit Type	Kit Quantity	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate	Ex Post Net MEMD - Compliant kWh Savings	Net-to-Gross Ratio	Gross Verified Lifetime MEMD- Compliant kWh Savings
Electric	904	669,774	1,049,649	644,486	644,486	96%	673,203	104%	5,956,678
Gas	949	97,913	122,896	81,953	81,953	84%	76,325	93%	324,532
Total	1,853	767,686	1,172,545	726,440	726,440	95%	749,528	103%	6,281,210

Table 8-10 Ex Post Net kWh Savings by Kit Type – Online Energy Checkup

8.4.2.2 Ex Post Net kW Demand Reduction

Table 8-11 below shows the gross audited, verified, ex post gross, and ex post net MEMD-compliant coincident kW reductions resulting from each component of the program.

Program Component	Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kW Savings	Net-to- Gross Ratio
	9w LED	17.34	18.90	17.05	17.05	98%	15.86	93%
	1.5 GPM Kitchen aerator	20.73	28.25	21.97	21.97	106%	23.67	108%
Online	1.0 GPM Bathroom aerator	9.41	14.46	8.86	8.86	94%	9.54	108%
Check-up	1.5 GPM Showerhead	27.34	48.67	24.84	24.84	91%	26.37	106%
	0.5w LED night light	-	-	-	-	N/A	-	N/A
	Total	74.82	110.28	72.72	72.72	97%	75.44	104%
Home Energy	Home Energy Reports - Total		392.48	392.48	392.48	246%	392.48	100%
Residential Al	MI Portal - Total	-	-	-	-	N/A	-	N/A
Grand Total		234.62	502.76	465.20	465.20	198%	467.92	101%

Table 8-11 Ex Post Net kW Demand Reduction – Home Energy Engagement

Below, Table 8-12 presents annual audited, verified, ex post gross, and ex post net MEMDcompliant coincident kW reductions of the Online Energy Checkup program component by kit type.

Kit Type	Kit Quantity	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate	Ex Post Net MEMD - Compliant kWh Savings	Net-to- Gross Ratio
Electric	904	65.90	100.60	63.99	63.99	97%	67.32	105%
Gas	949	8.92	9.68	8.73	8.73	98%	8.12	93%
Total	1,853	74.82	110.28	72.72	72.72	97%	75.44	104%

8.5 Process Evaluation

ADM completed a process evaluation of the Residential AMI Portal component of the Home Energy Engagement Program.

8.5.1 Process Evaluation Findings

The following sections summarize findings on program operations and design based on interviews and discussions with program staff and review of program documents.

ADM interviewed the I&M energy efficiency residential accounts manager and the program coordinator to gain additional insights into the Residential AMI Portal. The residential account manager's role includes overseeing the team who manages AMI and the vendor who maintains the portal. The program coordinator manages the program and oversees customer enrollment.

8.5.1.1 Customer Engagement

I&M conducted numerous outreach activities in 2021 to inform customers about the Residential AMI Portal. Customers receive a postcard 60 days prior to installation of the meter and an opt-out informational letter 30 days prior to installation. After this initial communication, customers receive additional emails about the AMI meter installation.

After the installation of the AMI meter, Opower sends customers a welcome letter to educate them about the meter and the online portal. Customers do not need to enroll into the portal, they have access automatically 90 days after the installation of the AMI meter. If a customer has a technical issue with the portal, the I&M call center can help access their account.

Prior to the pandemic, I&M canvassed neighborhoods to educate customers about AMI meters. Additionally, they attended outreach events (e.g., home and garden show) or did community presentation. Currently, however, in-person outreach is on hold due to COVID restrictions. I&M indicated in-person events were a great way to showcase the tools and widgets available to customers on the portal. There is a short video that highlights the AMI portal, but it does not explain all the widgets and tools available for customer use.

8.5.1.2 AMI Energy Management Tools

Residential customers who have an AMI meter installed at their home automatically have access to the AMI Energy Management Tools. I&M staff described the platform as a tool for customers to make informed decisions about their energy use. It provides customers the ability to monitor their monthly and hourly usage and to understand how their bill is calculated. The AMI Energy Management Tools is comprised of a web portal and multiple communications, as discussed below.

The AMI system allows the platform to deliver information based on daily and hourly patterns of consumption that is not possible in the legacy monthly energy use data. This granularity of data allows for more nuanced insights into energy use and energy saving tips. Figure 8-1 provides an example of how AMI data can provide greater insight into weekly energy use patterns and Figure 8-2 provides an example of how the data can provide greater insight into hourly energy use patterns. The granularity of AMI data also allows the AMI Energy Management Tools to deliver more specific and actual energy saving recommendations and tips, an example of which is shown in Figure 8-3.







Figure 8-2 Hourly Energy Use Insights Enabled by AMI Data

Figure 8-3 Energy Saving Tips Enabled by AMI Data



The following sections describe the various ways that I&M is communicating with customers about the AMI data and how customers can interact with that data.

8.5.1.3 Web Portal

Customers can access the portal through their online account or through a mobile app on a phone or tablet. Widgets with information about energy usage in their home are available to customers through the portal. The portal provides all information to customers in one place. Customers can view granular level data (e.g., 15-minute interval data), weather data on bar graphs, neighbor comparisons, and historical data. Users can view kWh used or dollars spent and switch between weekly and monthly views. Another component of the portal is a bill forecast tool that shows customers their current costs today and their projected usage cost for the period.

I&M would like customers to view the AMI portal at least monthly but ideally, they envision customers logging in more frequently because of the granularity of the data available to customers. I&M would like customers to use the information on the portal to learn more about energy saving actions and tips that are based on their usage data. I&M also indicated that they encourage customers to complete their home profile. Completing the home profile assists the development of neighbor comparisons by providing more accurate information about energy usage.

Customers enrolled in the AMI portal service also receive usage alerts and can opt in to receive weekly AMI messaging.

8.5.1.3.1 Participation Experience Communication

Three months after customers have their smart meter installed, they receive a participation experience communication. This communication informs the customer of what they can learn from their smart meter. It also provides the customer information on their electricity usage, including the time of day when they use the most energy and day of week that they use the most energy.

8.5.1.4 High Bill Alerts

The high bill alerts use the AMI interval data to provide notification to customers when they are heading towards having a higher-than-average bill. A higher-than-average bill is defined as 30% higher than the bill for the month in the preceding year, although the customer can set a different threshold for triggering the alert. The alert provides information on the time of day when the customer uses the most electricity and tips on saving energy.

8.5.1.5 Weekly Energy Update

Weekly energy updates provide a weekly summary of the customers' energy use, including a comparison of usage during the current week with the previous week and information on the day of the week the customer used the most energy. Customers must opt-in to receive the weekly energy update.

8.5.1.6 Tracking Systems

Data on customer access and use of the portal is tracked in the Opower platform. I&M staff can access the Opower platform to analyze portal data. For example, staff can examine which customers have logged onto the portal and where they spend time.

8.5.1.7 Residential AMI Portal Survey Findings

Customer feedback on the AMI portal is summarized below.

Awareness of Smart Meter Insight Tools

Mailers and email were the main channels that customers learned of the AMI portal. More than half of surveyed customers learned about the smart meter insight tools through a mailer sent from I&M and 33% learned about the tools through an email from I&M. Among the features offered to customers through the insight tools, many were interested in seeing how much energy their household uses at different times of the day followed by receiving high usage alerts (Table 8-13).

Response	Percentage of Respondents (n = 9)
Seeing how much energy my household uses at different times of day	78%
Getting high usage alerts	67%
Getting a monthly energy report	56%
Being able to analyze energy cost and usage trends on the web portal	56%
Seeing a weekly energy update report	33%
Getting tips on how to save energy	33%

Table 8-13 Aspects of Insight Tools that Interested Customers

Most surveyed customers have never logged onto the portal. Most survey respondents (78%) had not logged on to the web-based portal that displays information about energy usage in the past month, while 22% reported logging on about once a week. Among seven respondents who indicated they had not logged on in the past month, 71% reported never logging into the portal.

Customers viewed monthly bill comparisons, energy saving tips, historical data, and bill forecasts when they utilized the smart meter insight tools portal (Figure 8-4).
Figure 8-4 Information Viewed by Customers on the Smart Meter Insight Tools Portal



Survey respondents found the portal moderately useful in understanding various aspects of their household energy usage. Most survey respondents reported the portal was moderately useful in understanding household energy uses, how to reduce energy use, and how to reduce energy use during certain times of the day (Table 8-14). Customers provided suggestions to make information more useful on the portal. One respondent suggested providing information on rate changes throughout the day and another suggested providing information on where in the home energy is being used.

Response	Understanding Household Energy Uses	Understanding How to Reduce Household Energy Use	Understanding how to Reduce Household Energy Use During Certain Times of the Day
	Percentage of Respondents (n = 3)	Percentage of Respondents (n = 4)	Percentage of Respondents (n = 4)
Very useful	0%	0%	0%
Moderately useful	67%	50%	50%
Slightly useful	33%	0%	0%
Not at all useful	0%	50%	50%

Table 8-14 Aspects of Insight Tools that Interested Customers

Customers took energy saving actions after reviewing information on the AMI portal. More than half of customers (56%) reported taking action to reduce their energy use because of the information they received through the smart meter portal. Eighty percent of those who reported taking action cited making changes in their behavior to reduce energy use and 20% replaced existing equipment with new equipment that uses less energy. Additionally, respondents reported replacing light bulbs, turning off lights in unused rooms, and using a hot water timer to reduce household energy usage. Sixty percent of respondents said the actions taken were intended to reduce energy use in general (Table 8-15).

Table 8-15 Actions Taken Intended to Reduce Energy Use at Specific Times or In General

Response	Percentage of Respondents (n = 5)
Intended to reduce energy during certain times of the day	20%
Intended to reduce energy use in general	60%
Both were intended	20%

Satisfaction and Net Promoter Score

Generally, surveyed customers were satisfied with the smart meter insight tool (Figure 8-5).

Figure 8-5 Satisfaction with the Smart Meter Insight Tools Service

Overall, how satisfied are you with the smart meter insight tools service? 11% 44% (n = 9)0% 20% 40% 60% 80% 100% 1 -Very dissatisfied 5 - Very satisfied 2 **3** 4

The net promoter score for the smart meter insight tools service was $0\%^{15}$. Thirty-three percent of the survey respondents were considered promoters of the program, while another 33% were detractors (see Figure 8-6).





¹⁵ ¹⁵ 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.

8.6 Findings and Recommendations

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

8.6.1 Online Energy Checkup

Ex Post Gross MEMD-Compliant kWh Savings for OEC are near 100% of the ex ante savings for most measures. Nightlights had a lower realization rate which is largely a function of customers primarily installing the nightlights as a new installation instead of as a replacement of an existing nightlight.

8.6.2 Home Energy Reports

BRM-consistent kWh savings are less than the ancillary econometric analysis savings. Under the ancillary econometric analysis performed according to the method outlined above, the annual energy savings are estimated to be 2,404,840 kWh, which is equal to 105% of the BRM-consistent, uncapped ex post gross kWh savings.

8.6.3 Residential AMI Portal

No energy savings were calculated for the Residential AMI Portal service. The lack of calculated savings impact may have been a function of the relatively small number of customers with access to the AMI portal at this time. The potential for evaluable savings will increase as more customers gain access to the AMI data portal.

I&M has taken multiple steps to inform customers of the availability of the service. Multiple communications are provided to customers about the availability of the AMI Energy Management Tools. Customers receive a post card about their planned AMI meter installation 60 days prior to installation, and a letter that allows them to opt-out of the AMI meter installation 30 days prior to installation. Once the meter is installed, Opower sends a welcome letter with information about the smart meter. Three months later, customers receive a participation experience communication that provides information about the types of energy use information available for their account.

• Recommendation 1: Consider following up with inactive customers. While I&M has taken multiple steps to inform customers of the portal, periodic communications to customers who have not accessed the web platform or opted in to send a weekly communication may be helpful to remind them of the availability of the services.

The program has a mix of "passive" information and active customer communications. The web portal is available to all customers, and it requires that the customer seek out the information on their energy consumption. The program also delivers information on energy consumption through communications in the form of high usage alert emails (which are an opt-out service) and weekly energy use email reports (which are an opt-in service).

• Recommendation 2: Consider offering additional opt-out services. If it is possible within the service contract with Opower, I&M should consider an additional opt-out communication such as a monthly energy report to increase the active engagement of

customers with the service. The current opt-in weekly communication may be too frequent of an interval that may negatively affect customer relations.

9 School Energy Education

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

9.1 Program Description

The School Energy Education Program is an educational offering targeting $3^{rd} - 6^{th}$ grade elementary school students, their teachers, and parents/guardians of teachers in the I&M service territory.

The initial program model provided schoolteachers with an online course called Earthwise Adventure. Students and their families that participate through the student classroom receive a coupon that can be redeemed for a free energy efficiency kit on the I&M Marketplace website. The energy conservation kits contain a variety of low-cost energy efficiency measures, as follows:

- Four (4) 9W LEDs;
- One (1) 0.5W LED night light;
- One (1) 1.5 GPM Kitchen faucet aerator;
- Two (2) 1.0 GPM Bathroom faucet aerator;
- Two (2) 1.5 GPM High-efficiency showerhead; and
- One (1) Filter Tone Alarm.

However, the program made a design change during the year to increase participation. With the design change, the program returned to a paper-based educational program that I&M marketed directly to parents. With this approach, parents could request a kit through the online marketplace.

9.2 Data Collection

9.2.1 Participant Survey

Table 9-1 summarizes the participant survey data collection effort. As shown, few surveys of participants in the school program channel were completed. Consequently, ADM applied inservice rates obtained from participants in the PY2020 School Energy Education Program. Additionally, the net-to-gross ratios used in PY2020, based on a literature review, were also used with the PY2021 program. The tabulated survey responses are presented in Volume II of this report.

Table 9-1	Summarv	of Participant	Survey Data	Collection
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Survey	Mode	Time Frame	Number of Contacts	Number of Completions
School Energy Education Participant Survey	Online	December 2021	207	7

9.2.2 Staff Interviews

ADM interviewed the I&M program manager and staff from AM Conservation to gain insight and perspectives on the School Energy Education program for PY2021. The interviewed staff from I&M and AM Conservation have been involved with the program since April 2021.

9.3 Estimation of MEMD-Compliant Savings

The following section presents the methodology that was used for estimating the MEMD-Compliant energy and demand impacts resulting from the School Energy Education Program in 2020.

9.3.1 Methodology for Estimating MEMD-Compliant Savings

The M&V approach for the impact evaluation of the School Energy Education Program focused on determining the following:

- Numbers of kits distributed;
- Percent of kit components installed;
- Percent of homes with electric water heater; and
- Average annual kWh savings and kW reduction per kit measure.

9.3.1.1 Review of Documentation

The first aspect of conducting measurements of program activity was to verify that the tracking system associated with the program was accurate and that it included data required to calculate energy and demand impacts. ADM further reviewed the program data to verify that the fields required for performing the evaluation were tracked and populated (i.e., the data are not missing) and that the values were reasonable. ADM also validated program tracking data by checking for duplicate or erroneous entries took several steps in its verification efforts.

9.3.1.2 Procedures for Estimating Measure-Level MEMD-Compliant Savings

MEMD Per-Unit Energy and Demand Impacts

ADM calculated ex post gross electric energy savings and demand reductions for the program in accordance with the 2021 MEMD. In line with common practice in Michigan, for energy efficiency measures found in the MEMD:

• ADM referenced the appropriate MEMD per unit kWh savings values to calculate ex post gross MEMD-compliant kWh savings for each measure included in the SEE kits; and

 ADM referenced the appropriate MEMD per unit coincident kW demand reduction values to calculate ex post gross MEMD-compliant kW savings for each measure included in the SEE kits.

Table 9-2 below shows the average MEMD per-unit kWh savings, kW demand reductions, and Effective Useful Life (EUL) values that were referenced for each kit measure included in the 2021 SEE kits.

Measure	MEMD Per-unit kWh Savings	MEMD Per-unit kW Demand Reduction	Units	MEMD EUL
9W LED	28.5	0.003	per lamp	3
1.5 GPM Kitchen aerator	274.5	0.032	per device	10
1.0 GPM Bathroom aerator	109.1	0.013	per device	10
1.5 GPM Showerhead	491	0.039	per device	10
0.5W LED night light	22.0	0.000	per lamp	12
Filter Tone Alarm ¹⁶	22.1	0.053	per device	14

Table 9-2 MEMD Per-unit kWh and kW Impacts for SEE Kit Measures

Number of Kits Mailed

The total number of kits distributed during PY2021 is determined by (1) reviewing the main program tracking system and related documentation from I&M and (2) examining the parent/guardian survey data collected by the implementation contractor during 2021.

Based on the review of the main program tracking system and all related documentation from I&M and the implementation contractor, ADM determined the total number of kits distributed to students during PY2021 was 221.

In-Service Rate

Ex post kWh savings and kW reductions resulting from the School Energy Education Program were further adjusted by applying the estimated measure-level installation rates to the MEMD per unit kWh savings and kW reduction values.

The program relies on participant installation of measures and not all measures may be installed or remain installed. In the development of measure-level in-service rates for the program, ADM referenced survey data provided by the implementation contractor as part of the PY2020 program evaluation. ADM referenced data from the prior evaluation because we obtained few survey responses (n =7) from customers who received the efficiency measures in PY2021. Table 9-3 below displays the installation rates developed from the collected survey data.

¹⁶ The MEMD does not provide deemed savings values for filter tone alarm measures. A deemed savings value based on the Indiana Technical Reference Manual v2.2 is applied.

Measure	Installation Rate	%ElecWH Adjustment	ISR × %ElecWH Adjustment
9W LED	74%	100%	74%
1.5 GPM Kitchen aerator	38%	38%	14%
1.0 GPM Bathroom aerator	38%	38%	14%
1.5 GPM Showerhead	53%	38%	20%
0.5W LED night light	84%	100%	84%
Filter Tone Alarm	38%	100%	38%

Table 9-3 In-Service Rates per SEE Measure

9.3.2 MEMD-Compliant Gross Impact Results

The ex post annual gross energy savings and ex post gross demand reductions resulting from the 2020 School Energy Education Program are reported in the following sections.

9.3.2.1 Ex Post Gross kWh Savings

Table 9-4 below shows the ex ante annual kWh savings reported in the main program tracking database, the annual gross audited and verified kWh savings, and the ex post annual gross kWh savings resulting from the program. The ex post annual gross kWh savings are inclusive of the MEMD per-unit kWh savings values adjusted by the pertinent in-service rates developed from the collected survey data. ADM also factored the ex post annual gross kWh savings for faucet aerators and high-efficiency showerheads by the estimated percentage of participants with electric hot water heating in their homes.¹⁷ The overall gross kWh realization rate for the program is 90%.

Findings relevant to measure-level gross realization rates include:

- Per unit ex ante energy savings for kitchen aerators and showerheads were premised on overestimates of measure in-service rate.
- Per unit ex ante energy savings for bathroom aerators were premised on an underestimate of measure in-service rate.

¹⁷ ADM referenced the parent/guardian survey data collected by AM Conservation Group to estimate the percentage of program participants that have electric hot water heating in their homes at 38%.

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD - Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate
9W LED	18,158	25,194	18,622	18,622	103%
1.5 GPM Kitchen aerator	12,856	60,658	8,607	8,607	67%
1.0 GPM Bathroom aerator	5,753	48,226	6,990	6,990	122%
1.5 GPM Showerhead	49,732	217,022	43,111	43,111	87%
0.5w LED night light	3,848	4,862	4,071	4,071	106%
Filter Alarm	1,828	4,880	1,837	1,837	101%
Total	92,173	360,841	83,237	83,237	90%

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9.3.2.2 Ex Post Gross kW Demand Reduction

Table 9-5 below shows the ex ante peak kW reduction reported in the main program tracking database, the gross audited and verified peak kW reduction, and the ex post peak kW reduction resulting from the program. The ex post gross kW demand reduction is inclusive of the MEMD per-unit kW reduction values adjusted by the pertinent in-service rates developed from the collected survey data. ADM also factored the ex post gross kW demand reductions for faucet aerators and high-efficiency showerheads by the estimated percentage of participants with electric hot water heating in their homes. The overall gross kW realization rate for the program is 94%.

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD - Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate
9W LED	2.16	3.01	2.22	2.22	103%
1.5 GPM Kitchen aerator	1.48	6.96	0.99	0.99	67%
1.0 GPM Bathroom aerator	0.68	5.51	0.80	0.80	117%
1.5 GPM Showerhead	3.95	17.24	3.42	3.42	87%
0.5w LED night light	0.00	0.00	0.00	0.00	N/A
Filter Alarm	4.41	11.77	4.43	4.43	101%
Total	12.68	44.48	11.86	11.86	94%

Table 9-5 Ex Post Gross kW Demand Reduction – School Energy Education

9.4 Estimation of Ex Post Net Savings

9.4.1 Methodology for Estimating Ex Post Net Savings

The net savings analysis is used to determine what part of the gross energy savings achieved by program participants can be attributed to the effects of the program. The net savings attributable to program participants are the gross savings less free ridership, plus spillover. ADM estimated net savings for the I&M School Energy Education Program by performing a literature review of secondary net-to-gross values for other similar Energy Efficient School kit programs. Table 9-6 summarizes the studies reviewed. ADM reviewed the 2016 I&M Indiana School Energy Education

evaluation results as well as five other evaluations of programs operating in the South and Midwest.

Utility	State	Year
Ameren Missouri	Missouri	2016
Duke Energy	North and South Carolina	2015
ComEd	Illinois	2017
I&M	Indiana	2016
Duke	Kentucky	2015
Energy New Orleans	Louisiana	2015

Table 9-6 Summary of Evaluations Reviewed

Figure 9-1 summarizes the findings of the review of program measure net-to-gross ratios. As shown, the findings were reasonably consistent across studies for most measures. LED light bulbs were the exception. For this measure, two net-to-gross ratios were found: 55% and 119%. The latter value was the finding of the 2016 I&M Indiana SEE evaluation. It is worth noting that this estimate was based on a small sample size due to the limited availability of contact information and the response rate.





ADM applied the average net-to-gross ratio found across studies for use in estimating the net savings of the I&M Michigan School Energy Education Program. Table 9-7 presents the measure-level net-to-gross ratios that were referenced.

Program Measure	Number of Studies	Average Value
LED light bulbs	2	87%
LED night lights	4	98%
Faucet Aerators	6	98%
High-efficiency showerheads	6	95%
Filter tone alarm	2	97%

Tahle	9-7	Measure_	Level	Net-to-	Gross	Ratios
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9.4.1.1 Methodology for Estimating Non-Participant Spillover

Section 11.3 describes the methodology used to estimate non-participant.

9.4.2 Results of Ex Post Net Savings Estimation

The ex post annual net energy savings and ex post net demand reductions resulting from the 2021 School Energy Education Program are presented in the following sections.

9.4.2.1 Non-Participant Spillover Results

The total non-participant spillover was allocated to the program in proportion to its share of the 2021 expenditures. Program non-participant spillover energy savings are 12,941 kWh.

9.4.2.2 Ex Post Net kWh Savings

Table 9-8 below shows the ex post annual net and gross verified lifetime kWh savings resulting from the 2021 School Energy Education Program. The net-to-gross ratios are based on applying the average values cited in Table 9-7 and adding non-participant spillover savings. The program-level ex post annual net savings are 91,282 kWh, and the net-to-gross ratio is 110%

Measure	Ex Ante Gross kWh Savings	Gross Audited MEMD- Compliant kWh Savings	Gross Verified MEMD- Compliant kWh Savings	Ex Post Gross MEMD- Compliant kWh Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kWh Savings	Net-to- Gross Ratio	Gross Verified Lifetime MEMD- Compliant kWh Savings
9W LED	18,158	25,194	18,622	18,622	103%	19,096	103%	55,865
1.5 GPM Kitchen aerator	12,856	60,658	8,607	8,607	67%	9,771	114%	86,069
1.0 GPM Bathroom aerator	5,753	48,226	6,990	6,990	122%	7,935	114%	69,896
1.5 GPM Showerhead	49,732	217,022	43,111	43,111	87%	47,802	111%	431,111
0.5w LED night light	3,848	4,862	4,071	4,071	106%	4,607	113%	48,846
Filter Alarm	1,828	4,880	1,837	1,837	101%	2,071	113%	25,724
Total	92,173	360,841	83,237	83,237	90%	91,282	110%	717,511

Table 9-8 Ex Post Net kWh Savings -	School Energy Education
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9.4.2.3 Ex Post Net kW Demand Reduction

Table 9-9 below presents the ex post net kW reduction resulting from the 2021 School Energy Education Program. The program-level kW net-to-gross ratio is 107%

Measure	Ex Ante Gross kW Savings	Gross Audited MEMD- Compliant kW Savings	Gross Verified MEMD- Compliant kW Savings	Ex Post Gross MEMD- Compliant kW Savings	Gross Realization Rate	Ex Post Net MEMD- Compliant kW Savings	Net-to- Gross Ratio
9W LED	2.16	3.01	2.22	2.22	103%	2.21	99%
1.5 GPM Kitchen aerator	1.48	6.96	0.99	0.99	67%	1.09	110%
1.0 GPM Bathroom aerator	0.68	5.51	0.80	0.80	117%	0.88	110%
1.5 GPM Showerhead	3.95	17.24	3.42	3.42	87%	3.69	108%
0.5w LED night light	0.00	0.00	0.00	0.00	N/A	0.00	N/A
Filter Alarm	4.41	11.77	4.43	4.43	101%	4.86	110%
Total	12.68	44.48	11.86	11.86	94%	12.73	107%

Table 9-9 Ex Post Net kW Demand Reduction – School Energy Education

9.5 Process Evaluation

ADM completed a limited process evaluation of the PY2021 program. The limited process evaluation documented notable program changes and developments.

9.5.1 Process Evaluation Findings

9.5.1.1 Program Operations Perspective

ADM interviewed the I&M program manager and staff from AM Conservation to gain insight and perspectives on the School Energy Education program for PY2021.

9.5.1.1.1 Program Design and Operations

Program staff made substantial changes to the School Energy Education (now known as Energy Education for Students) program design in PY2021. In the first two quarters of the year, the program utilized a digital platform, Earthwise Adventure, to deliver educational content. The online platform provided education on energy efficiency and renewable resources. Program staff believed this digital platform would alleviate the burden put on teachers during COVID and allowed students to engage with the educational content from home. With the online platform, students received a coupon to redeem a kit online after completing the online curriculum. However, because few students redeemed kits, program staff changed the design back to a paper-based educational program that is marketed directly to parents. With this approach, parents could request a kit through the online marketplace.

I&M staff were somewhat concerned about the lower volume of kit distribution this program year compared to the previous year. Over 150 kits had been redeemed at the time of the interview (mid-October 2021) and program staff anticipated increased uptake based on a recent email campaign that will bring them closer to the target of sending 500 kits during PY2021. The program delivered 221 kits by the end of the year and it will not continue in 2022.

9.5.1.1.2 Data Collection and Tracking

AM Conservation oversaw data collection and tracking for the School Energy Education program. AM Conservation managed the I&M online marketplace and collects data from the marketplace. Data that was collected includes information about what school the student attends, customer utility account numbers, customer names, contact information, and the date the kit was requested.

The Earthwise Adventure online software provided staff with feedback and data from teachers. Program staff could review information about how many educational modules were completed, field trips, and satisfaction with various aspects of the software.

The primary quality assurance and control procedures included verification of account number to create an online marketplace account. The energy kits were prebuilt and underwent quality control procedures prior to being shipped from North Carolina.

9.5.1.1.3 Marketing and Outreach

Since the School Energy Education program no longer relied on schools and teachers to deliver the curriculum, the primary outreach tool was direct to customer email campaigns. The program used Axiom data to identify customers who may have children in the home attending school between 3rd and 5th grades. The program used email campaigns for outreach and recruitment. There have been monthly email campaigns that had started in July. An account number was included in the email solicitation to ease the process on the marketplace. Additionally, the program has been cross promoted in other programs, the newsletter, and on the online marketplace.

9.6 Findings and Recommendations

Program staff made design changes to adjust to lower than anticipated participated in the online program. In the first two quarters of 2021, the program utilized a digital platform to deliver educational content on energy efficiency and renewable resources. With the online platform, students received a coupon to redeem a kit online after completing the online curriculum. However, because few students redeemed kits, program staff changed the design back to a paper-based educational program that was marketed directly to parents. With this approach, parents could request a kit through the online marketplace.

10 Residential Pilots

This chapter presents the MEMD-compliant kWh savings achieved by the Indiana Michigan Power (I&M) residential pilots during the period of January 2021 through December 2021.

I&M ran two residential pilots in PY2021: the Heat Pump Clothes Dryer Pilot and the Residential Mid-Stream Pilot.

Residential pilot kWh savings were calculated as the minimum of:

- Pilot kWh Energy Savings Goals
- Sector-Level kWh Savings Target * Pilot Costs (\$) / Sector-Level Spending Cap (\$)

Table 10-1 presents the energy savings calculation inputs applicable to the residential pilots and the MEMD-compliant kWh Savings achieved by the pilots for PY2021.

Table 10-1 Calculation of Residential Pilot Ex Post Gross MEMD-Compliant kWh Savings

Variable Name	Variable Value	Source
(a) Sector-Level kWh Savings Target	11,967,088	EWR Minimum Target updated for 2020 Actual WN kWh Sales
(b) Sector-Level Spending Cap (\$)	\$3,143,573	Res. Spending Cap in Exhibit IM-4 (JCW-4) Case No. U-20374 based on 2019 revenue
(c) Residential Pilot kWh Savings Cap = 5% * (a)	598,354	Calculated value
(d) Residential Pilot Spend Limit = 5% * (b)	\$157,179	Calculated value
(e) Residential Pilot Costs (\$)	\$71,973	December 2021 Scorecard
(f) Residential Pilot Performance = e * a / b	273,989	Calculated value
Audited MEMD-Compliant kWh Savings = lesser of (c) or (f)	273,989	Calculated value
Gross Verified MEMD-Compliant kWh Savings	273,989	Calculated value

There were no residential pilot MEMD-compliant coincident kW savings achieved for PY2021.

As shown in Table 10-2, total residential pilot energy savings were attributable to the Heat Pump Clothes Dryer Pilot and he Residential Mid-Stream Pilot.

Table 10-2 Calculation of Residential Pilot Ex Post Gross MEMD-Compliant kWh Savings

Pilot Name	Pilot PY2021 Cost	Gross Verified MEMD- Compliant kWh Savings	
Heat Pump Clothes Dryer Pilot	\$16,938	64,479	
Residential Mid-Stream Pilot	\$55,035	209,510	

11 Non-Participant Survey

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

11.1 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.

11.2 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, 145 customers completed the survey.

Table 11-1 Summary of Residential Non-participant Survey Response

Survey	Mode	Time Frame	Number of Contacts	Number of Completions
Residential Non-participant Survey	Online	December 2021	9,984	145

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.

11.3 Estimation on Non-Participant Spillover

11.3.1 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 are based on a series of questions administered to participants. The questions are intended to:

- Identify efficiency measures implemented by program nonparticipants;
- Collect measure specific information for use in estimating saving due to the measure; and
- Collect information used to substantiate attributi3on 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 is 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 are calculated using the Indiana TRM or using other credible sources if needed. To the extent practicable, ADM will make conservative assumptions about the installed equipment or baseline conditions in cases where the information on measure inputs is missing or otherwise insufficient.

Spillover savings were estimated for:

- LED light bulbs
- 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 used to collect information to determine if the savings associated with the measures reported are 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 are 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. The spillover score is calculated as follows:

Spillover Score = Average(SO2, 10-SO3)

11.3.2 Extrapolation of Residential Spillover Savings

Total non-participant spillover (NPSO) savings will be extrapolated to the population as follows:

NPSO kWh = (Survey Spillover / Survey Usage) * Population Usage

Where,

Survey Spillover = Total kWh Survey Sample Usage = Total 12 month kWh Population Usage = Total 12 month kWh

NPSO peak demand reduction will be estimated by applying a flat load shape to the NPSO kWh estimate (NPSO kW = NPSO kWh / 8760).

The total non-participant spillover was allocated to individual programs in proportion to the programs share of the 2021 expenditures.

The total non-participant spillover will be allocated to the following programs:

- Home Weatherproofing
- Home Energy Products Products and Lighting
- Home Energy Engagement
- School Energy Education

11.3.3 NPSO Results

Table 11-2 summarizes the NPSO savings estimates for the sample and the population of I&M Customers. The total NPSO kWh savings were allocated to the residential programs based on program expenditures. The allocated NPSO kWh savings and peak kW demand reductions are summarized in Table 11-3.

Sample NPSO kWh Savings	Population NPSO kWh Savings
1,059	360,062

Table 11-3 Allocation of NPSO to Programs					
Programs that should receive Spillover (Michigan)	Allocation Factor	Allocated kWh	Allocated kW		
Home Weatherproofing	1%	5,146	0.59		
Home Energy Products – Products	30%	107,616	12.28		
Home Energy Products –Lighting	56%	200,306	22.87		
Home Energy Engagement (OEC Kits)	9%	34,053	3.89		
Schools Energy Education	4%	12 941	1 48		

Table 11-2 Non-Participant Spillover (NPSO) Estimates

11.4 Nonparticipant Survey Results

Program Awareness

Most residential nonparticipants surveyed (79%) 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, insulation/air sealing, appliance recycling, home energy assessments, pool pumps, dehumidifiers, and geothermal heat pumps were the services they recalled. Bill inserts, the I&M website, and home energy reports were the most common way that residential nonparticipants learned about I&M rebates and services (see Figure 11-1).



Figure 11-1 How Nonparticipants Learned about I&M Rebates and Services

Smart Thermostats and Electric Vehicles

Residential nonparticipant respondents were not likely to have a Wi-Fi connected smart thermostat, with 14% indicating they have one installed in their home. One respondent indicated they or a member of their household owns or leases a plug-in electric vehicle. This individual reported having a plug-in hybrid and that they charge this vehicle at home. Sixty-one percent of respondents indicated they or a member of their household park a vehicle within about 20 feet of an electric outlet. Twelve percent of surveyed nonparticipants indicated there was a 220/240-volt outlet within 20 feet of where a vehicle is parked in their household, which would allow for potential level two charging.

2021 Michigan Residential Portfolio EM&V Report

Volume II of II

Prepared for:

Indiana Michigan Power

April 2022

Prepared by:



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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 Appliance Recycling Survey Instrument
- Chapter 3: Residential Income Qualified Weatherproofing Survey Instrument
- Chapter 4: Donated Kits Survey Instrument
- Chapter 5: Home Energy Products Appliances Participant Survey Instrument
- Chapter 6: Home Energy Products Online Marketplace Survey Instrument
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- Chapter 9: School Energy Education Survey Instrument
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- Chapter 13: Home Energy Products Appliances Survey Results
- Chapter 14: Home Energy Products Online Marketplace Survey Results
- Chapter 15: Home Energy Engagement Online Energy Checkup Survey Results
- Chapter 16: Home Energy Engagement Residential AMI Survey Results
- Chapter 17: School Energy Education Survey Results
- Chapter 18: Residential Non-Participant Survey Results

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

2. Home Appliance Recycling Survey Instrument

INTRODUCTION AND SCREENING

VERIFICATION

1. Our program records indicate that you had [DESCRIPTION] picked up for recycling through the Appliance Recycling program around [DATE]. Is that correct?

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

AWARENESS

- 2. How did you first learn about I&M's appliance pick-up and recycling 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

APPLIANCE DESCRIPTION AND RECYCLING DECISION

The next questions are about the [RECYCLED_APPLIANCE] that was picked up and recycled.

[DISPLAY TEXT IF QUANTY_RECYCLED > 1]

Because you had more than one [RECYCLED_APPLIANCE] picked up, please think of one of these two units you recycled and keep that unit in mind when answering the following questions.

- 3. How old was your [RECYCLED_APPLIANCE]?
 - 1. (Years)
 - 98. Don't know

4. Was the old [RECYCLED_APPLIANCE] your primary or secondary (spare, auxiliary) unit?

- 1. Primary
- 2. Secondary
- 98. Don't know

5. Did you replace the old [RECYCLED_APPLIANCE] with a new unit?

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

[DISPLAY Q6 IF Q5 = 1]

6. Which of the following best describes the [RECYCLED_APPLIANCE] that replaced the old unit?

- 1. You bought the replacement New
- 2. You bought the replacement Used
- 3. You moved the replacement from somewhere else in the house
- 4. You moved the replacement from another home, or
- 5. You received the replacement from someone else?
- 98. Don't know

[DISPLAY Q7 IF Q6 = 1]

- 7. Is the new unit that you installed an ENERGY STAR unit?
 - 1. Yes
 - 2. No
 - 98. Don't know

[DISPLAY Q8 IF Q5=1]

8. Would you have purchased a replacement [RECYCLED_APPLIANCE] even if I&M's recycling program had not been offered?

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

[DISPLAY Q9 IF Q8=1]

9. To confirm, do you mean that you chose to purchase a new appliance because of the appliance recycling program, or are you saying that you would have purchased the new [RECYCLED APPLIANCE] regardless of the program?

1. Would have purchased a new appliance regardless of the program

- 2. Purchased new appliance because of the program
- 98. Don't know

10. For the majority of 2019, where within your home was the [RECYCLED_APPLIANCE] that you recycled located?

- 1. Kitchen
- 2. Garage
- 3. Porch/patio
- 4. Basement
- 5. Living room
- 6. Family room
- 7. Bedroom
- 8. Hallway
- 9. Other (Please specify)
- 98. Don't know

11. Thinking about the year prior to recycling the [RECYCLED_APPLIANCE], how often was it plugged in and running ...

- 1. All the time
- 2. For special occasions only
- 3. During certain months of the year only, or
- 4. Never plugged in or running
- 98. Don't know

[DISPLAY Q12 IF Q11 = 2 OR 3]

12. If you were to add up the total amount of time it was running in the year prior to being picked up, how many months would that be? Your best estimate is okay.

- 1. (Number of Months)
- 2. All the time
- 98. Don't know

13. Was the [RECYCLED_APPLIANCE] still in working condition when it was picked up? By working condition, we mean that the unit maintained a cold temperature.

- 1. Yes
- 2. No
- 3. It worked but had some problems
- 98. Don't know

[DISPLAY Q14 IF Q13 = 2 OR 3]

- 14. What was wrong with the unit?
 - 1. Wouldn't turn on

- 2. Wouldn't keep food/room cold enough
- 3. Wouldn't keep food/room cold at all
- 4. Too loud
- 5. Other (Please specify)
- 98. Don't know

[DISPLAY Q15 IF Q14 = 5 OR 98]

- 15. Did the unit produce cold air?
 - 1. Yes
 - 2. No
 - 98. Don't know

16. Had you already considered disposing of the [RECYCLED_APPLIANCE] before you heard about I&M's appliance recycling program? For example, getting the appliance out of your home by any means including selling it, giving it away, having someone pick it up, or taking it to the dump or a recycling center yourself.

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

17. What would you have most likely done with the [RECYCLED_APPLIANCE] if I&M's program had not been available? [RANDOMIZE ORDER OF 1 -10]

- 1. Sold it to a private party
- 2. Sold it to a used appliance dealer
- 3. Kept it and continued to use it
- 4. Kept it and stored it unplugged
- 5. Given it away to a private party, such as a friend or a neighbor
- 6. Given it away to a charity organization, such as Goodwill Industries or a church
- 7. Put it on a curb with a "Free" sign on it

8. Had it removed by the dealer you got your new or replacement [RECYCLED_APPLIANCE] from

- 9. Taken it to a dump or recycling center
 - 1. Hired someone to take it to a dump or recycling center
 - 2. Gotten rid of it some other way (Please specify)
 - 98. Don't know

[DISPLAY Q18 IF Q17= 8 OR 9 OR 10]

18. When do you think you would have [Q17 RESPONSE] if the program had not been available?

- 1. At the same time that the appliance was actually picked up
- 2. In less than six months
- 3. In less than one year
- 4. In less than three years
- 5. In more than three years
- 98. Don't know

19. What is the MAIN reason you chose to get rid of your [RECYCLED_APPLIANCE] through I&M's program over other methods of disposing of your appliance?

If there was more than one reason why you recycled it through the program, please select the main reason.

[RANDOMIZE 1 - 8]

- 1. Cash/incentive payment
- 2. Free pick-up service/others don't pick up/don't have to take it myself
- 3. Environmentally safe disposal/recycled/good for environment
- 4. Recommendation of a friend/relative
- 5. Recommendation of retailer/dealer
- 6. Utility sponsorship of the program
- 7. Easy way/convenient
- 8. Never heard of any others/only one I know of
- 9. Other (Please specify)
- 98. Don't know

[DISPLAY REPLACEMENT UNIT SECTION IF Q5 = 1]

REPLACEMENT UNIT SECTION

The next few questions are about the [RECYCLED_APPLIANCE] that replaced the unit you recycled.

Please think about the [RECYCLED_APPLIANCE] that replaced the one that was removed.

[DISPLAY Q20 IF Q6 = 1, 2, 4, OR 5]

20. Did you acquire the replacement [RECYCLED_APPLIANCE] before or after the old [RECYCLED_APPLIANCE] was picked up?

- 1. Before
- 2. After

- 3. Got it the same day
- 98. Don't know

[DISPLAY Q21 IF Q20 = 1 OR 2]

21. How long [Q20 RESPONSE] the old one was picked-up did you get the replacement [RECYCLED_APPLIANCE]?

- 1. Within one to two weeks
- 2. Over two weeks, but less than two months
- 3. Within two to three months
- 4. Within four to six months
- 5. Within seven to twelve months (one year)
- 6. More than twelve months (one year)
- 7. Other (Please specify)
- 98. Don't know

[DISPLAY Q22 IF Q6 = 2 - 5]

22. How old is this replacement [RECYCLED_APPLIANCE]?

- 1. (Number of years old)
- 98. Don't know

[DISPLAY Q23 IF RECYCLED_APPLIANCE= REFRIGERATOR]

23. Thinking about the refrigerator that replaced the recycled unit, does this replacement refrigerator have ...

- 1. A single door, with a freezer compartment inside
- 2. Two doors, side by side, with a freezer on one side
- 3. Two doors, top and bottom, with a freezer on the top
- 4. Two doors, top and bottom, with a freezer on the bottom
- 5. Three doors with a freezer door on the bottom
- 6. Other (Please specify)
- 98. Don't know

[DISPLAY Q24 IF RECYCLED_APPLIANCE = FREEZER]

24. Thinking about the freezer that replaced the recycled freezer, is this replacement freezer...

- 1. A chest freezer
- 2. An upright freezer

- 3. Other (Please specify)
- 98. Don't know
- 25. Is the replacement [RECYCLED_APPLIANCE] frost-free or manual defrost?
 - 1. Frost free
 - 2. Manual defrost
 - 3. Other (Please specify)
 - 98. Don't know

26. Is your replacement [RECYCLED_APPLIANCE] larger, smaller or about the same size as the one that the program removed for you?

- 1. Larger
- 2. Smaller
- 3. About the Same Size
- 98. Don't know

PROGRAM SIGN-UP PROCESS SECTION

27. The next questions about your experience with the program sign-up process.

Once you decided to participate, the first step was signing up for the program. Are you the one that signed up, or did someone else in your household sign up?

- 1. I signed up
- 2. Someone else signed up
- 98. Don't know

[DISPLAY Q28 IF Q27 = 1]

- 28. Did you sign up online or on the phone?
 - 1. Telephone
 - 2. Online
 - 98. Don't know

[DISPLAY ONLINE SIGNUP SECTION IF Q28 = 2]

ONLINE SIGNUP SECTION

- 29. Was it easy to find the sign up screen on the I&M website?
 - 1. Yes
 - 2. No
 - 98. Don't know

- 30. Did the website answer all your questions about the appliance recycling program?
 - 1. Yes
 - 2. No
 - 3. Not applicable
 - 98. Don't know
- 31. Did you receive confirmation that your online sign up had been successful?
 - 1. Yes
 - 2. No
 - 3. Not applicable
 - 98. Don't know

[DISPLAY Q32 IF Q31 = 1]

- 32. Did the confirmation include the date of the scheduled appliance pickup?
 - 1. Yes
 - 2. No
 - 3. Not applicable
 - 98. Don't know
- 33. Did you contact a program representative after signing up for the recycling online?
 - 1. Yes
 - 2. No
 - 98. Don't know

[DISPLAY Q34 IF Q33 = 1]

- 34. What did you contact them about?
 - 1. Cancel or reschedule an appointment
 - 2. Confirm appointment date/time
 - 3. Other (Please specify)
 - 98. Don't know
- 35. Do you have any suggestions for improving the online sign-up process?

[DISPLAY PHONE SIGNUP SECTION IF Q28 = 1]

PHONE SIGNUP SECTION

36. Were you aware that you could have signed up for the appliance recycling using the program website?

- 1. Yes
- 2. No

98. Don't know

[DISPLAY Q37 IF Q36 = 1]

- 37. Why did you choose to sign up by telephone instead of using the online website?
 - 1. Don't have access to a computer/internet
 - 2. Had questions you wanted to ask before signing up
 - 3. More convenient/prefer phone
 - 4. Website problem prevented online sign up
 - 5. Other (Please specify)
 - 98. Don't know
- 38. Was the representative you spoke to on the telephone courteous?
 - 1. Yes
 - 2. No
 - 98. Don't know
- 39. Did the representative answer all your questions about the program?
 - 1. Yes
 - 2. No (Please specify)
 - 98. Don't know
- 40. Did you have to call more than once?
 - 1. Yes
 - 2. No
 - 98. Don't know

[DISPLAY Q41 IF Q40 = 1]

- 41. Why did you need to call more than once?
- 42. Do you have any suggestions for improving the phone sign-up process?

APPLIANCE PICK UP INTRO

[DISPLAY Q43 IF Q27 = 1]

- 43. Were you able to schedule a pick-up date and time that was convenient for you?
 - 1. Yes
 - 2. No

- 98. Don't know
- 44. Did you have any interaction with the people that collected your old appliance?
 - 1. Yes
 - 2. No, someone else at my home interacted them
 - 3. No, I left the appliance outside for pickup
 - 98. Don't know

[DISPLAY APPLIANCE PICK UP SECTION IF Q44 = 1]

APPLIANCE PICK UP SECTION

- 45. Were the people who collected the old appliance professional?
 - 1. Yes
 - 2. No
 - 98. Don't know
- 46. Was the appliance plugged in at the time of pick-up?
 - 1. Yes
 - 2. No
 - 98. Don't know
- 47. Did the people who collected the old appliance check to see that it still worked?
 - 1. Yes
 - 2. No
 - 98. Don't know

48. Did you see the people who collected the old appliance disable it, such as cutting its cord or breaking the unit, at the time of pick up?

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

PROGRAM SATISFACTION SECTION

49. The next questions about your satisfaction with your participation in the program.

From the time you had the appliance(s) picked up, about how many weeks did it take to receive your rebate?

- 1. Less than 2 weeks
- 2. 2-4 weeks
- $3. \qquad 4-6 \text{ weeks}$
- 4. 6-8 weeks
- 5. More than 8 weeks
- 98. Don't know

50. Using a scale where 1 means "very dissatisfied" and 5 means "very satisfied", please rate how dissatisfied or satisfied you are with each of the following:

[SCALE: 1 = 1 (Very dissatisfied) 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very satisfied), 98 = Don't know]

- a. [DISPLAY IF Q49 <> 98] The time it took to receive your rebate check
- b. [DISPLAY IF Q27 = 1] Scheduling to pick-up your old appliance
- c. [DISPLAY IF Q44 = 1 The actual pick-up of your old appliance
- d. The program overall

[DISPLAY Q51 IF ANY IN Q50 < 3]

51. Why were you dissatisfied?

52. Using the same scale, 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]

53. Do you have any suggestions to improve I&M's Appliance Recycling program?

DEMOGRAPHICS /HOUSEHOLD CHARACTERISTICS SECTION

"There are 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."

54. Do you own the home where the appliances were recycled, 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. I prefer not to state

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

- 1. Manufactured home
- 2. Single-family house detached from any other house
- 3. Single family house attached to one or more other houses, for example, duplex, row house, or townhome
- 4. Apartment in a building with 2 to 3 units
- 5. Apartment in a building with 4 or more units
- 6. Other (Please specify)
- 98. Don't know
- 99. I prefer not to state
- 56. When was your home built?
 - 1. Before 1950
 - 2. 1950 to 1959
 - 3. 1960 to 1969
 - 4. 1970 to 1979
 - 5. 1980 to 1989
 - 6. 1990 to 1999
 - 7. 2000 to 2009
 - 8. 2010 or later
 - 98. Don't know
 - 99. I prefer not to state
- 57. What is the approximate square footage of your home? Your best estimate is fine.
 - 1. (Square feet)
 - 98. Don't know
 - 99. I prefer not to state
- 58. What is the main fuel used for heating your home?
 - 1. Electricity
 - 2. Natural Gas
 - 3. Propane
 - 4. Something else (Please specify)
 - 5. Don't heat home
 - 98. Don't know
 - 99. I prefer not to state

59. What fuel does your main water heater use?

- 1. Electricity
- 2. Natural Gas
- 3. Propane
- 4. Something else (Please specify)
- Don't heat home 5.
- 98. Don't know
- 99. I prefer not to state

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

- 1 1.
- 2. 2
- 3 3.
- 4. 4 5
- 5.
- 6.
- 7. 7
- 8. 8 or more 98.

6

- Don't know
- 99. I prefer not to state

Including all money earned from wages, salaries, tips, commissions, workers' 61. 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
- \$40,000 to less than \$50,000 5.
- \$50,000 to less than \$75,000 6.
- 7. \$75,000 to less than \$100,000
- \$100,000 to less than \$150,000 8.
- 9. \$150,000 to less than \$200,000
- \$200.000 or more 10.
- 98. Don't know
- 99. I prefer not to state

62. 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?

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!

3. Residential Income Qualified Weatherproofing Participant 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?

Yes
 No
 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

4. Donated Kits Survey Instrument

1. Thank you for taking this quick survey about the four energy efficient LED bulbs you received from Indiana Michigan Power (I&M).

I&M would like some feedback on the LED bulbs you received so they can continue to offer programs like this.

If you complete this survey, you will be entered into a raffle for one of four \$50 Amazon gift cards.

To confirm, did you receive a set of four LED bulbs?

- 1. Yes
- 2. No (TERMINATE SURVEY)
- 98. Not sure (TERMINATE SURVEY)

[TERMINATION STATEMENT]

Thank you. Unfortunately, you do not qualify for this survey.

- 2. Is your home located in Michigan?
 - Yes
 No (TERMINATE SURVEY)

[DISPLAY Q3 IF Q2 = 1]

3. Does your home receive electricity service from Indiana Michigan Power (I&M)?

Yes
 No (TERMINATE SURVEY)
 Not sure (TERMINATE SURVEY)

[TERMINATION STATEMENT]

Thank you. Unfortunately, you do not qualify for this survey.

- 4. What type of organization did you receive the LED bulbs from?
 - 1. A community action agency
 - 2. Food bank / food pantry
 - 3. A housing / apartment complex
 - 4. A church or other religious organization
 - 5. School
 - 6. City government
 - 98. Don't recall

INSTALLATION

- 5. How many of the LED bulbs have you installed in your home?
 - 0. 0
 - 1.
 - 2.
 - 3.
 - 4. 4
 - 98. Don't know

1

23

[DISPLAY Q6 IF Q5 = 0, 1, 2, 3] [DISPLAYS QUESTION IF FEWER THAN ALL 4 BULBS INSTALLED]

6. You indicated you still have [4- Q5 RESPONSE] LED bulb(s) left to install. How many of those will you install in your home in the next 6 months?

- 0. 0 [DISPLAY IF Q5 = 0 OR 1 OR 2 OR 3]
- 1. 1 [DISPLAY IF Q5 = 0 OR 1 OR 2 OR 3]
- 2. 2 [DISPLAY IF Q5 = 0 OR 1 OR 2]
- 3. 3 [DISPLAY IF Q5 = 0 OR 1]
- 4. 4 [DISPLAY IF Q5 = 0]
- 98. Don't know

[DISPLAY Q7 IF Q5 = 0, 1, 2, 3] [DISPLAYS QUESTION IF FEWER THAN ALL 4 BULBS INSTALLED]

7. Why are some of the LED bulbs not installed in your home? (Select all that apply) [RANDOMIZE 2-7, FIX 1, 8, AND 98]

- 1. I installed them somewhere else
- 2. I did not receive 4 bulbs
- 3. I have not had the time to install them
- 4. I am not interested in installing them
- 5. I am waiting for other light bulbs to burn out before replacing them
- 6. I don't like them
- 7. They broke or were not working
- 8. Other (Please specify)
- 98. Don't know

8. Before you received the LED bulbs, what percent of the light bulbs in your home were LED? Your best guess is fine.

- 1. None
- 2. Some but less than 25%
- 3. Between 25% and 50%
- 4. Between 50% and 75%
- 5. More than 75%
- 98. Don't know

FREE RIDERSHIP

9. Thinking back to before you received these LED bulbs, had you or another member of your household purchased LED bulbs in the last three years?

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

[DISPLAY Q10 IF Q9 = 2]

- 10. Why have you not purchased LED bulbs before? (Select all that apply)
 - 1. They cost too much
 - 2. Didn't know where to purchase LED bulbs
 - 3. Didn't know enough about LED bulbs
 - 4. Don't like their appearance or the quality of light
 - 5. For other reasons
 - 98. Don't know

[DISPLAY Q11 IF Q10 = 5]

11. What were the other reasons you had not previously purchased LED bulbs?

12. Before receiving these LED light bulbs, did you have plans to purchase LED bulbs the next time you bought light bulbs for your home?

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

[DISPLAY Q13 IF Q12 = 1]

13. How many LED bulbs do you think you would have purchased in the next 12 months if you had not received the free bulbs from I&M? Your best guess is fine.

0.	0 (None of them)
1.	1
2.	2
3.	3
4.	4
5.	More than 4
98.	Don't know

14. Using a scale where 0 means "not at all likely" and 10 means "very likely", if you had not received these free LED bulbs, how likely would you have been to purchase four LED bulbs within the next 12 months? [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]

SATISFACTION

15. Using the scale below, how satisfied are you with the LED bulbs that you received? [SCALE: 1 = 1 (Very dissatisfied), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very satisfied), 98 = Don't know]

[DISPLAY Q16 IF Q15 < 3]

16. Why are you dissatisfied with the LED light bulbs?

[TEXT BOX]

17. 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]

DEMOGRAPHICS/HOME CHARACTERISTICS

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

18. Do you own your home or rent it?

- 2. Rent
- 98. Don't know
- 99. Prefer not to answer

- 19. Which of the following best describes your home? Is it a...
 - 1. Manufactured home
 - 2. Single-family house detached from any other house
 - 3. Single family house attached to one or more other houses, for example, duplex,

row house, or townhome

- 4. Apartment in a building with 2 to 3 units
- 5. Apartment in a building with 4 or more units
- 6. Other (Please Specify)
- 98. Don't know
- 99. Prefer not to answer
- 20. Including yourself, how many people currently live in your home year-round?
 - 1.
 1

 2.
 2

 3.
 3
 - 4. 4
 - 5. 5
 - 6. 6
 - 7. 7
 - 8. 8 or more
 - 99. Prefer not to answer

21. Was your total annual household income in 2019 more or less than the amount shown below? [RESPONSE OPTIONS: 1 = Less than the amount shown, 2 = More than the amount shown, 98 = Don't know, 99 = Prefer not to answer]

[Note to reviewer, the amounts shown below are 200% of federal poverty level.]

- a. [DISPLAY IF Q20= 1] \$24,980
- b. [DISPLAY IF Q20 = 2] \$33,820
- c. [DISPLAY IF Q20 = 3] \$42,660
- d. [DISPLAY IF Q20 = 4] \$51,500
- e. [DISPLAY IF Q20 = 5] \$60,340
- f. [DISPLAY IF Q20 = 6] \$69,180
- g. [DISPLAY IF Q20 = 7] \$78,020
- h. [DISPLAY IF Q20 = 8] \$86,860
- 22. Do you have any other comments that you would like to relay to I&M?

23. Please provide your name and address if you would like to be entered into the raffle for one of four Amazon \$50 gift cards. If you are selected to receive the gift card, you will be contacted in 4 to 6 weeks. The gift card will be mailed to you.

Name: Street address: City: State: Zip Code:

5. 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?

Yes (How old was it?)
 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?

Yes (How old was it?)
 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.

You bought the house new and the unit was original equipment when you bought it.
 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?

Yes (How old was it?)
 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.

You bought the house new and the unit was original equipment when you bought it.
 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?

Yes (How old was it?)
 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:

More than 20 years old
 15 - 20 years old
 10 - 15 years old
 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

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

Yes
 No
 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?

6. 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?

Television
Computer
Other (Please describe)
Nothing
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?

Yes
[DISPLAY IF SHOWER_QUANT > 1] Some are
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.
 - 3. 3
 - 4. 4
 - 5. 5
 - 6. 6
 - 7. 7
 - 8. 8 or more

2

- 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

7. Home Energy Engagement – Online Energy Checkup Survey Instrument

1. Our records indicate that your household participated in I&M's Online Energy Checkup Survey program and received a kit in the mail that contained energy efficient items for installation in your home. Is that correct?

- 1. Yes
- 2. No (TERMINATE SURVEY)
- 98. Don't know (TERMINATE SURVEY)

[DISPLAY Q2 IF Q1 = 1]

- 2. Were you the person that completed the online energy checkup survey?
 - 1. Yes
 - 2. No (TERMINATE SURVEY)
 - 98. Don't know (TERMINATE SURVEY)

3. How did you first learn about I&M's Online Energy Checkup program? [RANDOMIZE ORDER OF 1 – 10]

- 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. 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 (Please Specify)
- 98. Don't know

4. Why did you decide to complete the online energy checkup survey and receive the energy efficiency kit?

- 1. To learn about ways to save money on energy bill(s)
- 2. Environmental reasons
- 3. The items were provided free of charge
- 4. Other (Please Specify)
- 98. Don't know

INSTALLATION

5. We would like to know if you have had a chance to install any of the kit items and how many of the items are currently installed.

How many of the three LED lightbulbs are currently installed?

0. 0 1. 1 2. 2 3. 3 98. Don't know

[DISPLAY Q6 IF Q5 = 0, 1, 2]

6. You indicated that you have not installed [3- Q5 RESPONSE] LED bulb(s). How many of those do you think you will install in the next 6 months?

- 0. 0 [DISPLAY IF Q5 = 0 OR 1 OR 2]
- 1. 1 [DISPLAY IF Q5 = 0 OR 1 OR 2]
- 2. 2 [DISPLAY IF Q5 = 0 OR 1]
- 3. 3 [DISPLAY IF Q5 = 0]
- 98. Don't know

[DISPLAY Q7 IF Q5 = 0, 1, 2]

- 7. Why have you not installed all three of the LED bulbs yet? (Select all that apply)
 - 1. I did not receive 3 bulbs
 - 2. I have not had the time to install them
 - 3. I am not interested in installing them
 - 4. I am waiting for light bulbs to burn out before replacing them
 - 5. I don't like them
 - 6. Other (Please specify)
 - 98. Don't know

[DISPLAY Q8 IF Q7 = 3]

8. Are any of those bulbs that you are waiting to burn out CFLs or incandescent/halogen? Select all that apply [MULTISELECT]

CFLs
Incandescent/halogen
No, all are LEDs
Don't know

9. Before you received the energy efficiency kit, what share of the light bulbs in your home were LED? Your best guess is fine.

None
Some but less than 25%
Between 25% and 75%
More than 75%
Don't know

[DISPLAY Q10 IF KIT = ELEC]

10. How many of the two showerheads are currently installed?

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

[DISPLAY Q11 IF Q10 = 0, 1]

11. You indicated that you have not installed [2 - Q10 RESPONSE] showerheads How many of those do you think you will install in the next 6 months?

- 0. [DISPLAY IF Q10 = 0 OR 1] 0
- 1. [DISPLAY IF Q10 = 0 OR 1] 1
- 2. [DISPLAY IF Q10 = 0] 2
- 98. Don't know

[DISPLAY Q12 IF Q10 = 0, 1]

12. Why have you not installed both of the showerheads? (Select all that apply) [MULTISELECT]

- 1. I did not receive both showerheads
- 2. I have not had the time to install them
- 3. I am not interested in installing them
- 4. I only have one shower and did not need two
- 5. I did not know how to install the showerheads
- 6. I need physical assistance or tools to install them
- 7. I don't like them
- 8. Other (Please specify)
- 98. Don't know

[DISPLAY Q13 IF KIT = ELEC]

- 13. Is the kitchen faucet aerator currently installed?
 - 1. Yes

- 2. No
- 98. Don't know

[DISPLAY Q14 IF Q13 =2]

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

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

[DISPLAY Q15 IF Q13 =2]

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

- 1. I did not receive it
- 2. I have not had the time to install it
- 3. I am not interested in installing it
- 4. I did not know how to install it
- 5. I need physical assistance or tools to install it
- 6. I don't like it
- 7. Other (Please specify)
- 98. Don't know

[DISPLAY Q16 IF KIT = ELEC]

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

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

[DISPLAY Q17 IF Q16 = 0, 1]

17. You indicated that you have not installed [2 - Q16 RESPONSE] bathroom faucet aerator(s). How many of those do you think you will install in the next 6 months?

- 0. [DISPLAY IF Q10 = 0 OR 1] 0
- 1. [DISPLAY IF Q10 = 0 OR 1] 1
- 2. [DISPLAY IF Q10 = 0] 2
- 98. Don't know

[DISPLAY Q18 IF Q16 =0, 1]

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

- 1. I did not receive them
- 2. I have not had the time to install them
- 3. I am not interested in installing them
- 4. I don't like them
- 5. I did not know how to install them
- 6. I need physical assistance or tools to install them
- 7. Other (Please specify)
- 98. Don't know

[DISPLAY Q19 IF KIT = GAS]

- 19. How many of the two LED night lights are currently installed?
 - 0. 0
 - 1. 1
 - 2. 2
 - 98. Don't know

[DISPLAY Q20 IF Q19= 0, 1]

20. You indicated that you have not installed [2 - Q19 RESPONSE] LED night light(s). How many of those do you think you will install in the next 6 months?

- 0. [DISPLAY IF Q10 = 0 OR 1] 0
- 1. [DISPLAY IF Q10 = 0 OR 1] 1
- 2. [DISPLAY IF Q10 = 0] 2
- 98. Don't know

[DISPLAY Q21 IF Q19 = 0,1]

21. Why have you not installed both of the LED night lights? (Select all that apply) [MULTISELECT]

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

[DISPLAY Q22 IF Q19 = 1]

22. When you installed the LED night light, did you replace a night light that you already had, or did you plug it into an empty outlet?

- 1. Replaced a night light
- 2. Installed the night light in an empty socket
- 98. Don't know

[DISPLAY Q23 IF Q19 = 2]

23. Did either of the night lights that you installed replace a night light that you already had or did they plug into unused outlets?

- 1. Neither replaced a night light they already had
- 2. One replaced a night light they already had
- 3. Both replaced a night light they already had
- 98. Don't know

FREE RIDERSHIP

24. Thinking back to before you completed the Online Energy Checkup, had you purchased any of the following items in the last three years? [SCALE: 1 = Yes, 2 = No, 98 = Don't know]

- a. LED light bulbs
- b. [DISPLAY IF KIT = ELEC] Bathroom faucet aerators
- c. [DISPLAY IF KIT = ELEC] Kitchen faucet aerator
- d. [DISPLAY IF KIT = ELEC] High efficiency showerheads
- e. [DISPLAY IF KIT = GAS] LED night lights

25. Before you heard of the Online Energy Checkup Program, did you have specific plans to purchase any of the kit items that were sent to you?

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

[DISPLAY Q26 IF Q25 = 1]

26. For each of the following items, please indicate if you had plans to purchase the item before you heard of the Online Energy Checkup Program. [SCALE: 1 = Yes, 2 = No, 98 = Don't know]

- a. LED light bulbs
- b. [DISPLAY IF KIT = ELEC] Bathroom faucet aerators
- c. [DISPLAY IF KIT = ELEC] Kitchen faucet aerator
- d. [DISPLAY IF KIT = ELEC] High efficiency showerheads
- e. [DISPLAY IF KIT = GAS] LED night lights

[DISPLAY Q27 IF Q26A = 1]

27. How many of the three LED lightbulbs that you received did you plan to purchase?

0. 0 1. 1 2. 2 3. 3 98. Don't know

[DISPLAY Q28 IF Q26B = 1]

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

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

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[DISPLAY Q29 IF Q26D = 1]
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29. How many of the two high efficiency showerheads that you received did you plan to purchase?

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

[DISPLAY Q30 IF Q26E = 1]

30. How many of the two LED nightlights that you received did you plan to purchase?

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

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

- a. LED light bulbs
- b. [DISPLAY IF KIT = ELEC] Bathroom faucet aerators
- c. [DISPLAY IF KIT = ELEC] Kitchen faucet aerator
- d. [DISPLAY IF KIT = ELEC] High efficiency showerheads
- e. [DISPLAY IF KIT = GAS] LED night lights

[DISPLAY Q32 IF ANY IN Q31A-E > 0]

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

Had you not already purchased the kit items because: (SELECT ALL THAT APPLY)

- 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 Q33 IF Q32 = 5]

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

AUDIT TOOL

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

About how many times have you completed the survey audit tool?

- 1. One time
- 2. Two times
- 3. Three times
- 4. Four times
- 5. Five times
- 6. More than five times
- 98. Don't know

35. Using a scale where 1 means "very difficult" and 5 means "very easy", how easy or difficult was it to complete the online checkup? [SCALE: 1 = 1 (Very difficult), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very easy), 98 = Don't know]

[DISPLAY Q36 IF Q35 < 3]

36. What difficulty did you have completing the online checkup? (Select all that apply) [MULTISELECT]

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

37. Do you recall receiving recommendations in a PDF report that was produced after completing the online energy checkup for ways you could save energy in your home?

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

[DISPLAY Q38 IF Q37 = 1]

38. Using a scale where 1 means "not at all useful" and 5 means "very useful", how useful were the recommendations that you received? [SCALE: 1 = 1 (Not at all useful), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very useful), 98 = Don't know]

[DISPLAY Q39 IF Q38 < 3]

39. Why do you think the recommendations were not useful?

- 1. Didn't receive recommendations
- 2. Already doing the things recommended
- 3. Too generic/not applicable to my home
- 4. Not realistic
- 98. Don't know

BEHAVIORAL ACTIONS, KNOWLEDGE AND ATTITUDES

40. Since completing the tool, have you taken any of the following actions to reduce energy use in your home because of a recommendation you received in the PDF report that was produced after you completed the online checkup? For each action, please indicate if you have done it. [RANDOMIZE ORDER OF A – I] [SCALE: 1 = Yes, 2 = No, 98 = Don't know]

- a. Added weather stripping or caulking around doors and windows
- b. Adjusted thermostat settings or used heating and cooling equipment less often
- c. Closed or covered windows to reduce heat gain or loss
- d. Turned down water heater temperature
- e. Used cold water more often when doing laundry
- f. Turned off lights when not in use more often
- g. Unplugged electronics not in use
- h. Wash only full loads in the clothes washer
- i. Increased freezer or refrigerator temperature
- 41. Have you taken any other actions to save energy?
 - 1. Yes
 - 2. No
 - 98. Don't know

[DISPLAY Q42 IF Q40I = 1]

42. What other actions have you taken?

[DISPLAY Q43 IF Q40B = 1]

43. You indicated that you adjusted your thermostat settings. How many degrees did you/will you turn down your thermostat in winter for heating?

- 0. Did not/will not lower temperature for winter heating
- 1. 1 degree down
- 2. 2 degrees down
- 3. 3 degrees down
- 4. 4 degrees down
- 5. 5 or more degrees down
- 98. Don't know

[DISPLAY Q43 IF Q40B=1]

- 44. And how many degrees did you/will you turn up your thermostat in summer for cooling?
 - 0. Did not/will not increase temperature for summer cooling
 - 1. 1 degree up
 - 2. 2 degrees up
 - 3. 3 degrees up
 - 4. 4 degrees up
 - 5. 5 or more degrees up
 - 98. Don't know

[DISPLAY Q45 IF Q40D = 1]

45. You indicated that you turned down your water heater temperature. How many degrees did you lower the temperature?

- 1. 1-5 degrees
- 2. 6-10 degrees
- 3. 11 +degrees
- 98. Don't know

46. Using the scale below, to what extent did the Online Energy Checkup Program do the following:

a) Increase your awareness of the services and incentives that I&M offers to help customers save energy.

- b) Increase your knowledge about how you use energy in your home.
- c) Encourage you to save energy in your home.

[SCALE: 1 (NOT AT ALL) – 10 (TO A VERY LARGE EXTENT, 98 = DON'T KNOW]

SPILLOVER SECTION

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

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

[DISPLAY Q48 IF Q47 =1]

48. Since completing the online checkup in [YEAR] have you done any of the following? (Select all that apply) [MULTISELECT]

- 1. Installed CFLs (Compact Fluorescent Light bulbs)
- 2. Installed additional 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 additional low flow faucet aerators
- 7. Installed additional low flow showerheads
- 8. Installed an ENERGY STAR window or room air conditioner
- 9. Installed an energy efficient water heater
- 10. Something else
- 98. Don't know

[DISPLAY Q49 IF Q48 = 1 - 10]

49. 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 Q50 IF Q48 = 1]

50. How many CFLs did you purchase and install?

[DISPLAY Q51 IF Q48 = 2]

51. How many LEDs did you purchase and install?

[DISPLAY Q52 IF Q48 = 3]

52. What kind of appliance did you purchase?

[DISPLAY Q53 IF Q48 = 3]

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

[DISPLAY Q54 IF Q48 = 4]

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

[DISPLAY Q55 IF Q48 = 6]

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

[DISPLAY Q56 IF Q48 = 6]

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

[DISPLAY Q57 IF Q48 = 7]

57. How many low flow showerheads did you install?

[DISPLAY Q58 IF Q48 = 8]

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

[DISPLAY Q59 IF Q48 = 8]

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

[DISPLAY Q60 IF Q48 = 9]

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

[DISPLAY Q61 IF Q48 =9]

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

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

[DISPLAY Q62 IF Q48 = 10]

62. What other energy efficient items did you install?

[DISPLAY Q63 IF Q48 = 1 - 10]

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

[DISPLAY Q64 IF Q48 = 1 - 10]

64. Using the scale below, how important was the experience with the Online Energy Checkup Survey and PDF with energy saving recommendations in your decision to purchase the items you just mentioned? [SCALE: 0 = 0 (Not at all important), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (Extremely important), 98 = Don't know]

[DISPLAY Q65 IF Q48 = 1 - 10]

65. Using the scale below, how likely would you have been to purchase those additional items if you had not participated in the Online Energy Checkup Program and received the PDF with energy saving recommendations? [SCALE: 0 = 0 (Not at all likely), 1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5, 6 = 6, 7 = 7, 8 = 8, 9 = 9, 10 = 10 (Extremely likely), 98 = Don't know]

SATISFACTION

66. 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. The online energy checkup service, overall
- b. The information provided by the online energy checkup
- c. The kit items that you received

[DISPLAY Q67 IF ANY IN Q66 < 3]

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

[TEXT BOX]

68. 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]

69. If you could change or improve something about the Online Energy Checkup program, what would it be?

[TEXT BOX]

DEMOGRAPHICS/HOME CHARACTERISTICS

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

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

- 1. Own
- 2. Rent
- 3. Own and rent to someone else
- 99. Prefer not to answer
- 71. Which of the following best describes your home? Is it a...
 - 1. Manufactured home
 - 2. Single-family house detached from any other house
 - 3. Single family house attached to one or more other houses, for example, duplex, row house, or townhome
 - 4. Apartment in a building with 2 to 3 units
 - 5. Apartment in a building with 4 or more units
 - 6. Other (Please Specify)
 - 99. Prefer not to answer
- 72. 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
- 73. What is the approximate square footage of your home? Your best estimate is fine.

[TEXT BOX]

- 74. What is the main fuel used for heating your home?
 - 1. Electricity
 - 2. Natural Gas
 - 3. Propane
 - 4. Something else (Please Specify)
 - 5. Don't heat home
 - 99. Prefer not to answer

- 75. What fuel does your main water heater use?
 - 1. Electricity
 - 2. Natural Gas
 - 3. Propane
 - 4. Something else (Please Specify)
 - 5. Don't heat home
 - 99. Prefer not to answer
- 76. Including yourself, how many people currently live in your home year-round?
 - 1. 1
 - 2. 2
 - 3. 3
 - 4. 4
 - 5. 5
 - 6. 6
 - 7. 7
 - 8. 8 or more
 - 99. Prefer not to answer
- 77. How many bathroom faucets do you have in your home?
 - 1. 1
 - 2. 2
 - 3. 3
 - 4. 4
 - 5. 5
 - 6. 6
 - 7. 7
 - 8. 8 or more
 - 99. Prefer not to answer
- 78. How many showers do you have in your home?
 - 1. 1
 - 2. 2
 - 3. 3
 - 4. 4
 - 5. 5
 - 6. 6
 - 7. 7
 - 8. 8 or more
 - 98. Prefer not to answer

79. 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

80. 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?

8. Home Energy Engagement – Residential AMI Survey Instrument

PROGRAM AWRENESS AND MOTIVATIONS

- 1. How did you first learn about the smart meter insight tools that I&M provides?
 - 1. Paper mail from I&M
 - 2. Email from I&M
 - 3. Saw it when I logged into my I&M account
 - 4. I&M Website (www.electricideas.com or indianamichiganpower.com)
 - 5. Friend or Relative (word-of-mouth)
 - 6. I&M Newsletter
 - 7. Social media
 - 8. Other (Please Specify)
 - 9. I don't know what the smart meter insight tools are

2. The smart meter insight tools are tools that provide you information on how much energy your household uses. The information includes trends in energy use over the year, bill comparisons, and projected bill information.

Does this sound familiar?

1. Yes 2. No [TERMINATE]

3. Which aspects of the smart meter insight tools are of interest to you? (Please select all that apply) [MULTISELECT, RANDOMIZE ORDER]

- 1. Getting high usage alerts
- 2. Getting a monthly energy report
- 3. Seeing a weekly energy update report
- 4. Being able to analyze energy cost and usage trends on the web portal
- 5. Seeing how much energy my household uses at different times of day
- 6. Getting tips on how to save energy

[DISPLAY IF MORE THAN ONE SELECTED IN Q3]

- 4. Which aspect of the smart meter insight tools is of greatest interest to you?
 - 1. Getting high usage alerts
 - 2. Getting a monthly energy report
 - 3. Seeing a weekly energy update report
 - 4. Being able to analyze energy cost and usage trends on the web portal
 - 5. Seeing how much energy my household uses at different times of day
 - 6. Getting tips on how to save energy

5. Which of the following best describes how often have you logged into the web-based portal that displays information on your energy usage in the past month?

- 1. Not at all
- 2. About once a week
- 3. A few times a week
- 4. Daily or almost daily

[DISPLAY IF Q5 = 1]

6. Have you ever logged into the portal?

1. Yes

2. No

PORTAL USAGE [DISPLAY SECTION IF Q5 = 2, 3, 4 OR Q6 = 1]

7. Which of these types of information have you viewed on the smart meter insights web portal? (Select all that apply)

[MULTISELECT, RANDOMIZE]

- 1. Viewed projected bill forecast
- 2. Viewed monthly bill comparison
- 3. Viewed the energy history data browser that lets me analyze energy use trends
- 4. Viewed energy saving tips

[DISPLAY IF ANY IN Q7 ARE SELECTED]

8. How useful do you think the portal is for understanding how your household uses energy?

- 1. Not at all useful
- 2. Slightly useful
- 3. Moderately useful
- 4. Very useful

[DISPLAY IF ANY IN Q7 ARE SELECTED]

9. How useful do you think the portal is for understanding how your household can reduce your energy use in general?

- 1. Not at all useful
- 2. Slightly useful
- 3. Moderately useful
- 4. Very useful

[DISPLAY IF ANY IN Q7 ARE SELECTED]

10. How useful do you think the portal is for understanding how your household can reduce your energy use during certain times of the day?

- 1. Not at all useful
- 2. Slightly useful
- 3. Moderately useful
- 4. Very useful

[DISPLAY IF ANY IN Q8 THROUGH Q10 ARE LESS THAN 3]

11. What would make the information on the portal more useful to you?

OTHER COMMUNICATIONS

12. Have you viewed the monthly email energy report sent to you as part of this service?

- 1. Yes
- 2. No
- 3. Do not recall receiving a monthly email report

[DISPLAY Q13 IF Q12 = 1]

- 13. How informative was the monthly energy report that you viewed?
 - 1. Not at all informative
 - 2. Slightly informative
 - 3. Moderately informative
 - 4. Very informative

14. Part of the service is that it provides you a high bill alert when your energy use is 30% higher than during the same month in the previous year.

Have you received any of these alerts?

1. Yes 2. No

[DISPLAY IF Q14 = 1]

15. Were you aware that your energy use had increased before you received the high bill alert(s)?

1. Yes

2. No

16. Do you have any suggestions for improving the information that I&M provides customers to help them manage their energy use?
ENERGY ACTIONS TAKEN

17. Have you taken any action to reduce your energy use because of the information you received through the smart meter insight tools service?

- 1. Yes
- 2. No

[DISPLAY IF Q17=1]

18. What types of actions have you taken?

- 1. Installed new equipment to reduce energy use
- 2. Replaced existing equipment with new equipment that uses less energy
- 3. Made changes in your behaviors to reduce energy use
- 4. Something else (Please describe)

[DISPLAY IF Q17=1]

19. Were any of the actions you took intended to reduce energy use during specific times of the day or just in general?

- 1. Intended to reduce energy during certain times of the day
- 2. Intended to reduce energy use in general

3. Both were intended

[DISPLAY IF Q19 = 1 OR 3]

20. What time of day were you trying to reduce your energy use? (Select all that apply) [MULTISELECT]

- 1. Morning
- 2. Midday
- 3. Afternoon
- 4. Evening
- 5. Nights

[DISPLAY IF Q17=1]

21. Could you briefly describe the actions you took to reduce its energy use?

[DISPLAY IF Q17=1]

22. Could you briefly describe how the information provided through the smart meter insight tools service helped you make those changes?

SATISFACTION

- 23. Overall, how satisfied are you with the smart meter insight tools service?
 - 1. Very dissatisfied
 - 2. Somewhat dissatisfied
 - 3. Neither satisfied nor dissatisfied
 - 4. Somewhat satisfied
 - 5. Very satisfied

[DISPLAY IF Q24=1]

24. Why are you dissatisfied with the smart meter insight tools service?

25. How likely is it that you would recommend I&M's smart meter insight tools service to a friend, family member, or colleague? [NET PROMOTER SCORE: SCALE: 0 (NOT AT ALL LIKELY) - 10 (VERY LIKELY)]

26. Why do you give it that rating?

27. Do you have any other feedback on I&M's smart meter insight tools that you would like to share?

DEMOGRAPHICS / HOME CHARACTERISTICS

The next questions are about this residence. These are confidential and will be used solely for combining different customers' responses. It is okay to not answer any of these questions.

- 28. 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

29. Do you own, rent, or own and rent to someone else the property that has access to the smart meter insight tools?

- 1. Own
- 2. Rent
- 99. I prefer not to state

- 30. Is this residence...
 - 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
- 31. 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
- 32. What fuel does your main water heater use?
 - 1. Electricity
 - 2. Natural Gas
 - 3. Propane
 - 4. Something else (Please explain)
 - 5. Don't heat water in home
 - 99. Don't know/Prefer not to state
- 33. 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
- 34. Do you have a Wi-Fi connect smart thermostat?
 - 1. Yes
 - 2. No
 - 99. Don't know/Prefer not to state

1 2

3

4 5

6

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

- 1. 2.
- 3.
- 4.
- 5.
- 6.
- 7. 7
- 8. 8 or more
- 99. I prefer not to state
- 36. 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

9. School Energy Education Survey Instrument

1. Our records indicate that your child participated in I&M's School Energy Education. As part of your participation, a coupon code was provided to your family that you used to redeem for a free kit of energy saving items on the I&M Marketplace. This kit included energy efficient products (e.g., LED lightbulbs, faucet aerators, etc.). Did you receive this energy efficiency kit?

- 1. Yes
- 2. No, I did not order a kit (TERMINATE SURVEY)
- 3. No, I ordered a kit but did not receive it. (TERMINATE SURVEY)
- 98. I am not sure (TERMINATE SURVEY)

INSTALLATION

2. We would like to know if you have had a chance to install any of the kit items and how many of the items are currently installed.

How many of the FOUR LED lightbulbs included in the kit are currently installed?

0. 0 1. 1 2. 2 3. 3 4. 4 98. Don't know

[DISPLAY Q3 IF Q2 = 0, 1, 2, 3]

3. You indicated that you have not installed [4 Q2 RESPONSE] LED bulb(s). How many of those do you think you will install in the next 6 months?

- 0. 0 [DISPLAY IF Q2 = 0 OR 1 OR 2 OR 3]
- 1. 1 [DISPLAY IF Q2 = 0 OR 1 OR 2 OR 3]
- 2. 2 [DISPLAY IF Q2 = 0 OR 1 OR 2]
- 3. 3 [DISPLAY IF Q2 = 0 OR 1]
- 4. 4 [DISPLAY IF Q2 = 0]
- 98. Don't know

[DISPLAY Q4 IF Q2 = 0, 1, 2, 3]

- 4. Why have you not installed all three of the LED bulbs yet? (Select all that apply)
 - 1. The kit did not include 4 bulbs
 - 2. I have not had the time to install them
 - 3. I am not interested in installing them
 - 4. I am waiting for light bulbs to burn out before replacing them
 - 5. I don't like them
 - 6. Some or all of the bulbs were broken
 - 6. Other (Please specify)
 - 98. Don't know [EXCLUSIVE]

[DISPLAY Q5 IF Q4 = 4]

5. Are any of those bulbs that you are waiting to burn out CFLs or incandescent/halogen? [MULTI-SELECT]

- 1. CFLs
- 2. Incandescent/halogen
- 3. No, all are LEDs [EXCLUSIVE]
- 98. Don't know [EXCLUSIVE]

6. Before you received the energy efficiency kit, what share of the light bulbs in your home were LED? Your best guess is fine.

- None
 Some but less than 25%
 Between 25% and 75%
 More than 75%
 Don't know
- 7. How many of the two showerheads are currently installed?
 - 0. 0 1. 1 2. 2 98. Don't know

[DISPLAY Q8 IF Q7 = 0, 1]

8. You indicated that you have not installed [2 - Q7 RESPONSE] showerheads. How many of those do you think you will install in the next 6 months?

- $0. \qquad [DISPLAY IF Q7 = 0 OR 1] 0$
- 1. [DISPLAY IF Q7 = 0 OR 1] 1
- 2. [DISPLAY IF Q7 = 0] 2
- 98. Don't know

[DISPLAY Q9 IF Q7 = 0, 1]

9. Why have you not installed both of the showerheads? (Select all that apply) [MULTISELECT]

- 1. The kit did not include two showerheads
- 2. I have not had the time to install them
- 3. I am not interested in installing them
- 4. I only have one shower and did not need two
- 5. I did not know how to install the showerheads
- 6. I need physical assistance or tools to install them
- 7. I don't like them
- 9. They don't fit on my shower
- 10. Other
- 10. Is the kitchen faucet aerator currently installed?
 - 1. Yes
 - 2. No
 - 98. Don't know

[DISPLAY Q11 IF Q10 =2]

- 11. Do you plan to install the kitchen faucet aerator in the next 6 months?
 - 1. Yes
 - 2. No
 - 98. Don't know

[DISPLAY Q12 IF Q10 =2]

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

- 1. It was not included in the kit
- 2. I have not had the time to install it
- 3. I am not interested in installing it
- 4. I did not know how to install it
- 5. I need physical assistance or tools to install it
- 6. I don't like it
- 7. It does not fit on my faucet
- 8. Other
- 13. How many of the two bathroom faucet aerators are currently installed?
 - 0. 0
 - 1. 1
 - 2. 2
 - 98. Don't know

[DISPLAY Q14 IF Q13 = 0, 1]

14. You indicated that you have not installed [2 - Q13 RESPONSE] bathroom faucet aerator(s). How many of those do you think you will install in the next 6 months?

- 0. [DISPLAY IF Q7 = 0 OR 1] 0
- 1. [DISPLAY IF Q7 = 0 OR 1] 1
- 2. [DISPLAY IF Q7 = 0] 2
- 98. Don't know

[DISPLAY Q15 IF Q13 =0, 1]

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

- 1. The kit did not include two bathroom faucet aerators
- 2. I have not had the time to install them
- 3. I am not interested in installing them
- 4. I don't like them
- 5. I did not know how to install them
- 6. I need physical assistance or tools to install them
- 7. They do not fit on my faucet
- 8. Other
- 16. Is the filter tone alarm currently installed?
 - 1. Yes
 - 2. No
 - 98. Don't know

[DISPLAY Q17 IF Q16=2]

17. You indicated that you have not installed the filter tone alarm. Do you think you will install it in the next 6 months?

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

[DISPLAY Q18 IF Q16 = 2]

18. Why have you not installed the filter tone alarm? (Select all that apply) [MULTISELECT]

- 1. It was not included in the kit
- 2. I have not had the time to install it
- 3. I am not interested in installing it
- 4. It was installed but it was removed when the filter was replaced
- 5. I don't like it
- 6. I didn't need it
- 7. Other

FREE RIDERSHIP

19. Thinking back to before your family received the energy efficient products through the School Energy Education program, had you purchased any of the following items in the last three years? [SCALE: 1 = Yes, 2 = No]

- a. LED lightbulbs
- b. High efficiency showerheads
- c. Kitchen faucet aerator
- d. Bathroom faucet aerators
- e. Filter tone alarm

20. Before you heard of the School Energy Education program, did you have specific plans to purchase any of the kit items that were sent to you?

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

[DISPLAY Q21 IF Q20 = 1]

21. For each of the following items, please indicate if you had plans to purchase the item before you heard of the School Energy Education Program. [SCALE: 1 = Yes, 2 = No]

- a. LED light bulbs
- b. High efficiency showerheads
- c. Kitchen faucet aerator
- d. Bathroom faucet aerators
- e. Filter tone alarm

[DISPLAY Q22 IF Q21A = 1]

22. How many of the four LED lightbulbs that you received did you plan to purchase?

- 0. 0 1. 1
- 2.
- 3.
- 4.
- 98. Don't know

[DISPLAY Q23 IF Q21B = 1]

2

3

4

23. How many of the two high efficiency showerheads that you received did you plan to purchase?

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

[DISPLAY Q24 IF Q21D = 1]

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

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

25. Using a scale where 0 means "not at all likely" and 10 means "very likely", if your family had not received the School Energy Education kit, how likely would you have been to purchase any of the following items on your own within 12 months of when you received them? [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. LED light bulbs
- b. High efficiency showerheads
- c. Kitchen faucet aerator
- d. Bathroom faucet aerators
- e. Filter tone alarm

[DISPLAY Q26 IF ANY IN Q25A-E > 0]

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

Had you not already purchased the kit items because: (SELECT ALL THAT APPLY)

- 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 Q27 IF Q26 = 5]

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

SPILLOVER SECTION

28. Have you bought any additional energy efficient items on your own without a financial incentive or rebate since receiving the School Energy Education kit?

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

[DISPLAY Q29 IF Q28 =1]

29. Since receiving the School Energy Education kit in [YEAR] have you done any of the following? (Select all that apply) [MULTISELECT]

1. Installed additional LED Light Bulbs

2. Purchased an ENERGY STAR appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer

- 3. Installed water heater pipe insulation
- 4. Installed water heater jacket, blanket, or insulation
- 5. Installed additional low flow faucet aerators
- 6. Installed additional low flow showerheads
- 7. Installed an ENERGY STAR window or room air conditioner
- 8. Installed an energy efficient water heater
- 9. Smart thermostat
- 10. Something else
- 98. Don't know

[DISPLAY Q30 IF Q29 = 1 - 10]

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

- 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 Q31 IF Q29 = 1]

31. How many LEDs did you purchase and install?

[DISPLAY Q32 IF Q29 = 2]

32. What kind of appliance did you purchase?

[DISPLAY Q33 IF Q29 = 2]

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

[DISPLAY Q34 IF Q29 = 3]

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

[DISPLAY Q35 IF Q29 = 5]

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

[DISPLAY Q36 IF Q29 = 5]

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

[DISPLAY Q37 IF Q29 = 6]

37. How many low flow showerheads did you install?

[DISPLAY Q38 IF Q29 = 7]

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

[DISPLAY Q39 IF Q29 = 7]

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

[DISPLAY Q40 IF Q29 = 8]

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

[DISPLAY Q41 IF Q29 =8]

- 41. What type of water heater did you install? Was it a...
 - 1. Natural gas storage tank water heater
 - 2. Electric storage tank water heater
 - 3. Heat pump water heater
 - 4. A natural gas tank less water heater
 - 5. Some other type of water heater (Please Specify)
 - 98. Don't know

[DISPLAY Q42 IF Q29 = 9]

42. 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 IF Q42 = 1 OR 3]

- 43. Is your central air conditioning system a heat pump?
 - 1. Yes
 - 2. No
 - 98. Don't know

[DISPLAY IF Q42 = 2 OR 3]

- 44. What type of central heating system do you have?
 - 1. Central furnace
 - 2. Heat pump
 - 3. Other (Please specify)
 - 98. Don't know

[DISPLAY IF Q42 = 2 OR 3]

45. 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 IF Q29 = 9]

46. 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 Q47 IF Q29 = 10]

47. What other energy efficient items did you install?

[DISPLAY Q48 IF Q29 = 1 - 10]

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

[DISPLAY Q49 IF Q29 = 1 - 10]

49. Using the scale below, how important was the experience with the School Energy Education kit 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 Q50 IF Q29 = 1 - 10]

50. Using the scale below, how likely would you have been to purchase those additional items if you had not received a School Energy Education kit? [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]

MARKETPLACE

51. How easy or difficult was it to order the School Energy kit on the I&M Marketplace? [SCALE: 1 = 1 (Very difficult), 2 = 2, 3 = 3, 4 = 4, 5 = 5 (Very easy), 98 = Don't know]

- 52. Did you order any other products from the I&M marketplace in addition to the kit?
 - 1. Yes
 - 2. No

[DISPLAY Q53 IF Q52 = 1]

- 53. What products did you purchase? [MULTISELECT]
 - 1. Additional LED lightbulbs
 - 2. Smart thermostat
 - 3. Advanced power strip
 - 4. Additional faucet aerators
 - 5. Additional showerheads
 - 6. Other (specify)

54. Given your experience using the online market place, 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)]

SATISFACTION

55. 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. Your child's experience in the School Energy Education program
- b. The energy education provided by the School Energy Education program
- c. The kit items that you received

[DISPLAY Q56 IF ANY IN Q0 < 3]

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

[TEXT BOX]

57. 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]

DEMOGRAPHICS/HOME CHARACTERISTICS

"The next few 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."

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

- 1. Own
- 2. Rent
- 3. Own and rent to someone else
- 99. Prefer not to answer
- 59. Which of the following best describes your home? Is it a...
 - 1. Manufactured home
 - 2. Single-family house detached from any other house
 - 3. Single family house attached to one or more other houses, for example, duplex, row house, or townhome
 - 4. Apartment in a building with 2 to 3 units
 - 5. Apartment in a building with 4 or more units
 - 6. Other (Please Specify)
 - 99. Prefer not to answer
- 60. 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 to 2019
 - 10 2020 or later
 - 99. Prefer not to answer
- 61. What is the approximate square footage of your home? Your best estimate is fine.

[TEXT BOX]

- 62. What type of heating system do you mainly use to heat your home?
 - 1. Central furnace
 - 2. Heat pump
 - 3. Other (Please specify)
 - 4. Don't heat home
 - 99. Prefer not to answer

- 63. What is the main fuel used for heating your home?
 - 1. Electricity
 - Natural Gas 2.
 - 3. Propane
 - Something else (Please Specify) 4.
 - Don't heat home 5.
 - 99. Prefer not to answer
- 64. What fuel does your main water heater use?
 - 1. Electricity
 - 2. Natural Gas
 - 3. Propane
 - Something else (Please Specify) 4.
 - 5. Don't heat home
 - 99. Prefer not to answer

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

- 1. 1
- 2 2.
- 3. 3
- 4. 4 5
- 5.
- 6. 6
- 7. 7
- 8. 8 or more
- 99. Prefer not to answer
- 66. How many bathroom faucets do you have in your home?
 - 1. 1
 - 2 2.
 - 3 3.
 - 4. 4
 - 5 5.
 - 6. 6
 - 7. 7
 - 8 or more 8.
 - 99. Prefer not to answer

- 67. How many showers do you have in your home?
 - 1. 1
 - 2 2.
 - 3 3.
 - 4 4. 5
 - 5.
 - 6. 6
 - 7. 7
 - 8. 8 or more
 - 99. Prefer not to answer
- Is your child eligible for free or reduced lunch? 68.
 - 1. Yes
 - 2. No
 - 99. Prefer not to answer

10. 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
 - \$40,000 to less than \$50,000 5.
 - \$50,000 to less than \$75,000 6.
 - 7. \$75,000 to less than \$100,000
 - \$100,000 to less than \$150,000 8.
 - 9. \$150,000 to less than \$200,000
 - 10. \$200,000 or more
 - 99. I prefer not to state

11. Home Appliance Recycling Survey Results

Q1 - Our program records indicate that you had [Field-DESCRIPTION] picked up for recycling through the Appliance Recycling program around [Field-DATE]. Is that correct?

#	Answer	%	Count
1	Yes	99.4%	173
2	No	0.6%	1
98	Don't know	0.0%	0
	Total	100%	174

% # Answer Count 2.3% Newspaper/magazine/print media 4 1 2 Mailer from I&M 31.4% 54 3 I&M Website (www.electricideas.com or indianamichiganpower.com) 29.1% 50 Friend or Relative (word-of-mouth) 27 4 15.7% 0 60/ 1 C ~ 1 -1-

Q2 - How did you first learn about I&M's appliance pick-up and recycling program?

2	Contractor or plumber	0.6%	1
6	TV/Radio ad	0.6%	1
7	I&M Representative	0.6%	1
8	I&M Newsletter	6.4%	11
9	Retailer/store	0.6%	1
10	Community event	0.0%	0
11	Social media (Facebook, Instagram or Twitter)	1.7%	3
12	Home Energy Report	1.7%	3
13	Other	5.2%	9
98	Don't know	4.1%	7
	Total	100%	172

Q5 - How old was your [Field-RECYCLED_APPLIANCE]?

#	Answer	%	Count
1	Years	64.7%	110
2	Don't know	35.3%	60
	Total	100%	170
Q6 - Was the old [Field-RECYCLED_APPLIANCE] your primary or secondary (spare, auxiliary) unit?

#	Answer	%	Count
1	Primary	39.3%	66
98	Secondary	58.9%	99
99	Don't know	1.8%	3
	Total	100%	168

Q7 - Did you replace the old [Field-RECYCLED_APPLIANCE] with a new unit?

#	Answer	%	Count
1	Yes	68.0%	115
2	No	32.0%	54
98	Don't know	0.0%	0
	Total	100%	169

Q8 - Which of the following best describes the [Field-RECYCLED_APPLIANCE] that replaced the old unit?

#	Answer	%	Count
1	You bought the replacement New	82.6%	95
2	You bought the replacement Used	3.5%	4
3	You moved the replacement from somewhere else in the house	6.1%	7
4	You moved the replacement from another home, or	1.7%	2
5	You received the replacement from someone else?	6.1%	7
98	Don't know	0.0%	0
	Total	100%	115

Q9 - Is the new unit that you installed an ENERGY STAR unit?

#	Answer	%	Count
1	Yes	91.6%	87
2	No	0.0%	0
98	Don't know	8.4%	8
	Total	100%	95

Q10 - Would you have purchased a replacement [Field-RECYCLED_APPLIANCE] even if I&M's recycling program had not been offered?

#	Answer	%	Count
1	Yes	81.7%	94
2	No	9.6%	11
98	Don't know	8.7%	10
	Total	100%	115

Q11 - To confirm, do you mean that you chose to purchase a new appliance because of the appliance recycling program, or are you saying that you would have purchased the new [Field-RECYCLED_APPLIANCE] regardless of the program?

#	Answer	%	Count
1	Would have purchased a new appliance regardless of the program	91.5%	86
2	Purchased new appliance because of the program	5.3%	5
98	Don't know	3.2%	3
	Total	100%	94

Q12 - For the majority of 2020, where within your home was the [Field-RECYCLED_APPLIANCE] that you recycled located?

#	Answer	%	Count
1	Kitchen	32.5%	55
2	Garage	43.8%	74
3	Porch/patio	1.8%	3
4	Basement	16.0%	27
5	Living room	0.0%	0
6	Family room	0.0%	0
7	Bedroom	0.0%	0
8	Hallway	0.0%	0
9	Other (Please specify)	5.9%	10
98	Don't know	0.0%	0
	Total	100%	169

Q13 - Thinking about the year prior to recycling the [Field-RECYCLED_APPLIANCE], how often was it plugged in and running ...

#	Answer	%	Count
1	All the time	78.1%	132
2	For special occasions only	4.1%	7
3	During certain months of the year only, or	10.7%	18
4	Never plugged in or running	5.9%	10
98	Don't know	1.2%	2
	Total	100%	169

Q14 - If you were to add up the total amount of time it was running in the year prior to being picked up, how many months would that be? Your best estimate is okay.

#	Answer	%	Count
1	Number of Months	92.0%	23
2	All the time	0.0%	0
98	Don't know	8.0%	2
	Total	100%	25

Q15 - Was the [Field-RECYCLED_APPLIANCE] still in working condition when it was picked up? By working condition, we mean that the unit maintained a cold temperature.

#	Answer	%	Count
1	Yes	81.1%	137
2	No	1.8%	3
3	It worked but had some problems	17.2%	29
98	Don't know	0.0%	0
	Total	100%	169

Q16 - What was wrong with the unit?

#	Answer	%	Count
1	Wouldn't turn on	3.1%	1
2	Wouldn't keep food/room cold enough	71.9%	23
3	Wouldn't keep food/room cold at all	3.1%	1
4	Too loud	0.0%	0
5	Other (Please specify)	18.8%	6
98	Don't know	3.1%	1
	Total	100%	32

Q17 - Did the unit produce cold air?

#	Answer	%	Count
1	Yes	100.0%	7
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	7

Q18 - Had you already considered disposing of the [Field-RECYCLED_APPLIANCE] before you heard about I&M's appliance recycling program? For example, getting the appliance out of your home by any means including selling it, giving it away, having someone pick it up, or taking it to the dump or a recycling center yourself.

#	Answer	%	Count
1	Yes	69.0%	116
2	No	25.6%	43
98	Don't know	4.8%	8
99	Refused	0.6%	1
	Total	100%	168

Q19 - What would you have most likely done with the [Field-RECYCLED_APPLIANCE] if I&M's program had not been available?

#	Answer	%	Count
1	sold it to a private party	9.6%	16
2	sold it to a used appliance dealer	0.0%	0
3	kept it and continued to use it	8.4%	14
4	kept it and stored it unplugged	4.2%	7
5	given it away to a private party, such as a friend or a neighbor	8.4%	14
6	given it away to a charity organization, such as Goodwill Industries or a church	6.0%	10
7	put it on a curb with a sign on it	11.4%	19
8	had it removed by the dealer you got your new or replacement \${e://Field/RECYCLED_APPLIANCE} from	14.4%	24
9	taken it to a dump or recycling center	27.5%	46
10	hired someone to take it to a dump or recycling center	6.6%	11
11	gotten rid of it some other way (Please specify)	0.6%	1
98	Don't know	3.0%	5
	Total	100%	167

Q20 - When do you think you would have [QID19-ChoiceDescription-8] if the program had not been available?

#	Answer	%	Count
1	At the same time that the appliance was actually picked up	91.7%	22
2	In less than six months	0.0%	0
3	In less than one year	8.3%	2
4	In less than three years	0.0%	0
5	In more than three years	0.0%	0
98	Don't know	0.0%	0
	Total	100%	24

Q68 - When do you think you would have [QID19-ChoiceDescription-9] if the program had not been available?

#	Answer	%	Count
1	At the same time that the appliance was actually picked up	30.4%	14
2	In less than six months	45.7%	21
3	In less than one year	8.7%	4
4	In less than three years	6.5%	3
5	In more than three years	0.0%	0
98	Don't know	8.7%	4
	Total	100%	46

Q69 - When do you think you would have [QID19-ChoiceDescription-10] if the program had not been available?

#	Answer	%	Count
1	At the same time that the appliance was actually picked up	36.4%	4
2	In less than six months	36.4%	4
3	In less than one year	0.0%	0
4	In less than three years	0.0%	0
5	In more than three years	0.0%	0
98	Don't know	27.3%	3
	Total	100%	11

Q22 - What is the MAIN reason you chose to get rid of your [Field-RECYCLED_APPLIANCE] through I&M's program over other methods of disposing of your appliance? If there was more than one reason why you recycled it through the program, please select the main reason.

#	Answer	%	Count
1	Cash/incentive payment	25.1%	42
2	Free pick-up service/others don't pick up/don't have to take it myself	17.4%	29
3	Environmentally safe disposal/recycled/good for environment	26.3%	44
4	Recommendation of a friend/relative	3.0%	5
5	Recommendation of retailer/dealer	1.2%	2
6	Utility sponsorship of the program	3.0%	5
7	Easy way/convenient	22.8%	38
8	Never heard of any others/only one I know of	0.6%	1
9	Other (Please specify)	0.0%	0
98	Don't know	0.6%	1
	Total	100%	167

Q24 - Did you acquire the replacement [Field-RECYCLED_APPLIANCE] before or after the old [Field-RECYCLED_APPLIANCE] was picked up?

#	Answer	%	Count
1	before	84.9%	90
2	after	10.4%	11
3	got it the same day	3.8%	4
98	Don't know	0.9%	1
	Total	100%	106

Q25 - How long [QID24-ChoiceGroup-SelectedChoices] the old one was picked-up did you get the replacement [Field-RECYCLED_APPLIANCE]?

#	Answer	%	Count
1	Within one to two weeks	56.2%	50
2	Over two weeks, but less than two months	24.7%	22
3	Within two to three months	4.5%	4
4	Within four to six months	4.5%	4
5	Within seven to twelve months (one year)	3.4%	3
6	More than twelve months (one year)	2.2%	2
7	Other (Please specify)	2.2%	2
98	Don't know	2.2%	2
	Total	100%	89

Q70 - How long [QID24-ChoiceGroup-SelectedChoices] the old one was picked-up did you get the replacement [Field-RECYCLED_APPLIANCE]?

#	Answer	%	Count
1	Within one to two weeks	54.5%	6
2	Over two weeks, but less than two months	9.1%	1
3	Within two to three months	36.4%	4
4	Within four to six months	0.0%	0
5	Within seven to twelve months (one year)	0.0%	0
6	More than twelve months (one year)	0.0%	0
7	Other (Please specify)	0.0%	0
98	Don't know	0.0%	0
	Total	100%	11

Q26 - How old is this replacement [Field-RECYCLED_APPLIANCE]?

#	Answer	%	Count
1	Number of years old	50.0%	10
98	Don't know	50.0%	10
	Total	100%	20

Q27 - Thinking about the refrigerator that replaced the recycled unit, does this replacement refrigerator have ...

#	Answer	%	Count
1	A single door, with a freezer compartment inside	0.0%	0
2	Two doors, side by side, with a freezer on one side	17.4%	15
3	Two doors, top and bottom, with a freezer on the top	37.2%	32
4	Two doors, top and bottom, with a freezer on the bottom	23.3%	20
5	Three doors with a freezer door on the bottom	14.0%	12
6	Other (Please specify)	7.0%	6
98	Don't know	1.2%	1
	Total	100%	86

Q28 - Thinking about the freezer that replaced the recycled freezer, is this replacement freezer...

#	Answer	%	Count
1	A chest freezer	37.5%	9
2	An upright freezer	62.5%	15
3	Other (Please specify)	0.0%	0
98	Don't know	0.0%	0
	Total	100%	24

Q29 - Is the replacement [Field-RECYCLED_APPLIANCE] frost-free or manual defrost?

#	Answer	%	Count
1	Frost free	84.7%	94
2	Manual defrost	7.2%	8
3	Other (Please specify)	0.9%	1
98	Don't know	7.2%	8
	Total	100%	111

Q30 - Is your replacement [Field-RECYCLED_APPLIANCE] larger, smaller or about the same size as the one that the program removed for you?

#	Answer	%	Count
1	Larger	26.6%	29
2	Smaller	20.2%	22
3	About the Same Size	52.3%	57
98	Don't know	0.9%	1
	Total	100%	109

Q31 - The next questions about your experience with the program sign-up process. Once you decided to participate, the first step was signing up for the program. Are you the one that signed up, or did someone else in your household sign up?

#	Answer	%	Count
1	I signed up	90.9%	150
2	Someone else signed up	7.9%	13
98	Don't know	1.2%	2
	Total	100%	165

Q32 - Did you sign up online or on the phone?

#	Answer	%	Count
1	Telephone	26.7%	40
2	Online	72.0%	108
98	Don't know	1.3%	2
	Total	100%	150

Q33 - Was it easy to find the sign up screen on the I&M website?

#	Answer	%	Count
1	Yes	94.3%	100
2	No	3.8%	4
98	Don't know	1.9%	2
	Total	100%	106

Q34 - Did the website answer all your questions about the appliance recycling program?

#	Answer	%	Count
1	Yes	97.2%	104
2	No	0.9%	1
3	Not applicable	0.9%	1
98	Don't know	0.9%	1
	Total	100%	107

Q35 - Did you receive confirmation that your online sign up had been successful?

#	Answer	%	Count
1	Yes	97.2%	103
2	No	0.0%	0
3	Not applicable	0.0%	0
98	Don't know	2.8%	3
	Total	100%	106

Q36 - Did the confirmation include the date of the scheduled appliance pickup?

#	Answer	%	Count
1	Yes	90.1%	91
2	No	5.9%	6
3	Not applicable	0.0%	0
98	Don't know	4.0%	4
	Total	100%	101

Q37 - Did you contact a program representative after signing up for the recycling online?

#	Answer	%	Count
1	Yes	13.9%	15
2	No	81.5%	88
98	Don't know	4.6%	5
	Total	100%	108

Q38 - What did you contact them about?

#	Answer	%	Count
1	Cancel or reschedule an appointment	5.7%	5
2	Confirm appointment date/time	47.7%	42
3	Other (Please specify)	11.4%	10
98	Don't know	35.2%	31
	Total	100%	88

Q40 - Were you aware that you could have signed up for the appliance recycling using the program website?

#	Answer	%	Count
1	Yes	52.5%	21
2	No	27.5%	11
3	Don't know	20.0%	8
	Total	100%	40

Q41 - Why did you choose to sign up by telephone instead of using the online website?

#	Answer	%	Count
1	Don't have access to a computer/internet	0.0%	0
2	Had questions you wanted to ask before signing up	38.1%	8
3	More convenient/prefer phone	42.9%	9
4	Website problem prevented online sign up	9.5%	2
5	Other (Please specify)	4.8%	1
98	Don't know	4.8%	1
	Total	100%	21

Q42 - Was the representative you spoke to on the telephone courteous?

#	Answer	%	Count
1	Yes	100.0%	38
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	38

Q43 - Did the representative answer all your questions about the program?

#	Answer	%	Count
1	Yes	97.5%	39
2	No (Please specify)	0.0%	0
98	Don't know	2.5%	1
	Total	100%	40

Q44 - Did you have to call more than once?

#	Answer	%	Count
1	Yes	12.5%	5
2	No	87.5%	35
98	Don't know	0.0%	0
	Total	100%	40

Q47 - Were you able to schedule a pick-up date and time that was convenient for you?

#	Answer	%	Count
1	Yes	96.0%	143
2	No	2.7%	4
98	Don't know	1.3%	2
	Total	100%	149

Q48 - Did you have any interaction with the people that collected your old appliance?

#	Answer	%	Count
1	Yes	64.4%	105
2	No, someone else at my home interacted them	12.3%	20
3	No, I left the appliance outside for pickup	22.1%	36
98	Don't know	1.2%	2
	Total	100%	163

Q49 - Were the people who collected the old appliance professional?

#	Answer	%	Count
1	Yes	100.0%	104
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	104

Q50 - Was the appliance plugged in at the time of pick-up?

#	Answer	%	Count
1	Yes	83.8%	88
2	No	16.2%	17
98	Don't know	0.0%	0
	Total	100%	105

Q51 - Did the people who collected the old appliance check to see that it still worked?

#	Answer	%	Count
1	Yes	72.4%	76
2	No	5.7%	6
98	Don't know	21.9%	23
	Total	100%	105

Q52 - Did you see the people who collected the old appliance disable it, such as cutting its cord or breaking the unit, at the time of pick up?

#	Answer	%	Count
1	Yes	14.3%	15
2	No	61.0%	64
98	Don't know	24.8%	26
	Total	100%	105

Q53 - The next questions about your satisfaction with your participation in the program. From the time you had the appliance(s) picked up, about how many weeks did it take to receive your rebate?

#	Answer	%	Count
1	Less than 2 weeks	7.3%	12
2	2 – 4 weeks	51.2%	84
3	4-6 weeks	19.5%	32
4	6 – 8 weeks	1.8%	3
5	More than 8 weeks	1.8%	3
98	Don't know	18.3%	30
	Total	100%	164

Q54 - Using a scale where 1 means "very dissatisfied" and 5 means "very satisfied", please rate how dissatisfied or satisfied you are with each of the following:

#	Question	1- Very dissatisfie d		2		3		4		5- Very satisfie d		Don' t kno w		Tota 1
1	The time it took to receive your rebate check	1.5%	2	4.5 %	6	3.0 %	4	20.5 %	2 7	70.5%	93	0.0 %	0	132
2	Schedulin g to pick- up your old appliance	2.1%	3	2.1 %	3	2.7 %	4	17.8 %	2 6	75.3%	11 0	0.0 %	0	146
3	The actual pick-up of your old appliance	1.9%	2	0.0 %	0	1.9 %	2	9.6%	1 0	86.5%	90	0.0 %	0	104
4	The program overall	0.6%	1	1.2 %	2	0.6 %	1	16.0 %	2 6	81.5%	13 2	0.0 %	0	162

Q57	- Using the same scal	e, how d	dissatisfied of	or satisfied	are you	with I&M	as your
elect	ricity service provide	er?					

#	Answer	%	Count
1	1- Very dissatisfied	3.8%	6
2	2	1.9%	3
3	3	10.6%	17
4	4	33.1%	53
5	5- Very satisfied	50.0%	80
6	Don't know	0.6%	1
	Total	100%	160

Q60 - Do you own the home where the appliances were recycled, rent it, or own it and rent it to someone else?

#	Answer	%	Count
1	Own	96.3%	154
2	Rent	0.6%	1
3	Own and rent to someone else	1.9%	3
98	Don't know	0.0%	0
99	I prefer not to state	1.3%	2
	Total	100%	160

Q61 - Which of the following best describes your home? Is it a...

#	Answer	%	Count
1	Manufactured home	6.9%	11
2	Single-family house detached from any other house	86.3%	138
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	0.0%	0
4	Apartment in a building with 2 to 3 units	0.6%	1
5	Apartment in a building with 4 or more units	0.0%	0
6	Other (Please specify)	1.3%	2
98	Don't know	0.6%	1
99	I prefer not to state	4.4%	7
	Total	100%	160

Q71 - When was your home built?

#	Answer	%	Count
1	Before 1950	20.6%	33
2	1950 to 1959	11.3%	18
3	1960 to 1969	10.6%	17
4	1970 to 1979	11.9%	19
5	1980 to 1989	7.5%	12
6	1990 to 1999	13.1%	21
7	2000 to 2009	11.3%	18
8	2010 or later	5.6%	9
98	Don't know	4.4%	7
99	I prefer not to state	3.8%	6
	Total	100%	160

Q62 - What is the approximate square footage of your home? Your best estimate is fine.

#	Answer	%	Count
1	Square feet	62.9%	100
98	Don't know	25.8%	41
99	I prefer not to state	11.3%	18
	Total	100%	159

Q63 - What is the main fuel used for heating your home?

#	Answer	%	Count
1	Electricity	12.5%	20
2	Natural Gas	53.1%	85
3	Propane	18.8%	30
4	Something else (Please specify)	10.6%	17
5	Don't heat home	0.0%	0
98	Don't know	0.0%	0
99	I prefer not to state	5.0%	8
	Total	100%	160

Q64 - What fuel does your main water heater use?

#	Answer	%	Count
1	Electricity	49.7%	78
2	Natural Gas	36.3%	57
3	Propane	8.3%	13
4	Something else (Please specify)	1.3%	2
5	Don't heat home	0.0%	0
98	Don't know	1.9%	3
99	I prefer not to state	2.5%	4
	Total	100%	157

#	Answer	%	Count
1	1	11.4%	18
2	2	50.6%	80
3	3	15.8%	25
4	4	8.2%	13
5	5	1.9%	3
6	6	0.6%	1
7	7	1.3%	2
8	8 or more	0.0%	0
9	Don't know	0.0%	0
10	I prefer not to state	10.1%	16
	Total	100%	158

Q65 - Including yourself, how many people currently live in your home year-round?

Q66 - 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	0.0%	0
2	\$10,000 to less than \$20,000	2.6%	4
3	\$20,000 to less than \$30,000	3.9%	6
4	\$30,000 to less than \$40,000	3.3%	5
5	\$40,000 to less than \$50,000	9.2%	14
6	\$50,000 to less than \$75,000	9.2%	14
7	\$75,000 to less than \$100,000	10.5%	16
8	\$100,000 to less than \$150,000	9.8%	15
9	\$150,000 to less than \$200,000	6.5%	10
10	\$200,000 or more	4.6%	7
98	Don't know	0.7%	1
99	I prefer not to state	39.9%	61
	Total	100%	153

12. Residential Income Qualified Weatherproofing 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	66.67%	8
2	No	16.67%	2
98	Don't know	16.67%	2
	Total	100%	12

#	Answer	%	Count
1	Newspaper/magazine/print media	12.50%	1
2	I&M Mailing	0.00%	0
3	I&M Website (www.electricideas.com or indianamichiganpower.com)	25.00%	2
4	Friend or Relative (word-of-mouth)	12.50%	1
5	TV/Radio ad	0.00%	0
6	I&M Representative	0.00%	0
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)	25.00%	2
98	Don't know	25.00%	2
	Total	100%	8

Q3 - How did you first learn about I&M's Home Weatherproofing Program?

Q4 - What is the main reason you decided to participate in the program?

#	Answer	%	Count
1	To save money on energy bill(s)	25.00%	2
2	Environmental reasons	0.00%	0
3	I&M financial assistance for making the home improvements	12.50%	1
4	Other (Specify)	37.50%	3
98	Don't know	25.00%	2
	Total	100%	8

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]	100.00%	2	0.00%	0	0.00%	0	2
2	[Field-EFF_MEASURE2]	100.00%	1	0.00%	0	0.00%	0	1
3	[Field-EFF_MEASURE3]	0.00%	0	0.00%	0	0.00%	0	0
4	[Field-EFF_MEASURE4]	0.00%	0	0.00%	0	0.00%	0	0

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

#	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?

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	0⁄0	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		Incorrec t		Don't know		Refuse d		Tota 1
1	[Field-LED_QUANT] LED light bulbs	83.33%	5	0.00%	0	16.67 %	1	0.00%	0	6
2	[Field- BATH_AERATOR_QUAN T] Energy and water efficient bathroom faucet aerators(s)	100.00 %	1	0.00%	0	0.00%	0	0.00%	0	1
3	[Field- KIT_AERATOR_QUANT] Energy and water efficient kitchen faucet aerator(s)	100.00 %	3	0.00%	0	0.00%	0	0.00%	0	3
4	[Field-SHOWER_QUANT] Energy and water efficient showerheads	100.00 %	1	0.00%	0	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	83.33%	5
2	Removed LED light bulbs	16.67%	1
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%	6

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	12.50%	1
2	No	75.00%	6
98	Don't know	12.50%	1
	Total	100%	8

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	100.00%	1
2	No	0.00%	0
98	Don't know	0.00%	0
	Total	100%	1

Q52 - Which energy saving tips have you implemented? (Select all that apply)

#	Answer	%	Count
1	Turning off lights when you leave the room	16.67%	1
2	Unplugging unused appliances	0.00%	0
3	Washing clothes in cold water	16.67%	1
4	Installing a water heater tank wrap	16.67%	1
5	Installing a programmable thermostat	16.67%	1
6	Programming an existing thermostat	16.67%	1
7	Other (Please specify)	16.67%	1
98	Don't know	0.00%	0
	Total	100%	6

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	100.00%	1
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	100%	1

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	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	100.00%	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	0.00%	0
98	Don't know	0.00%	0
	Total	100%	1

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

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 dissatisfi ed		2		3		4		5- Very satisfi ed		Don't know		Tot al
1	Performanc e of the items or improveme nts installed	0.00%	0	0.00 %	0	25.00 %	2	0.00 %	0	75.00 %	6	0.00 %	0	8
2	The effort required for the program application process	0.00%	0	0.00 %	0	0.00 %	0	25.00 %	2	50.00 %	4	25.00 %	2	8
3	Informatio n about the program provided by I&M	0.00%	0	0.00 %	0	12.50 %	1	0.00 %	0	37.50 %	3	50.00 %	4	8
4	The home energy audit	0.00%	0	0.00 %	0	12.50 %	1	0.00 %	0	37.50 %	3	50.00 %	4	8
5	The quality of the installation work	0.00%	0	0.00 %	0	0.00 %	0	12.50 %	1	50.00 %	4	37.50 %	3	8
6	The program overall	0.00%	0	0.00 %	0	0.00 %	0	25.00 %	2	75.00 %	6	0.00 %	0	8

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	0.00%	0
3	3	12.50%	1
4	4	25.00%	2
5	5- Very satisfied	62.50%	5
98	Don't know	0.00%	0
	Total	100%	8

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	25.00%	2
2	Rent	62.50%	5
3	Own and rent to someone else	0.00%	0
98	Prefer not to answer	12.50%	1
	Total	100%	8

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	25.00%	2
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	0.00%	0
4	Apartment in a building with 2 to 3 units	0.00%	0
5	Apartment in a building with 4 or more units	62.50%	5
6	Other (Specify)	0.00%	0
99	Prefer not to answer	12.50%	1
	Total	100%	8

Q82 - When was your home built?

#	Answer	%	Count
1	Before 1950	12.50%	1
2	1950 to 1959	25.00%	2
3	1960 to 1969	12.50%	1
4	1970 to 1979	25.00%	2
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	25.00%	2
	Total	100%	8

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	37.50%	3
2	\$10,000 to less than \$20,000	25.00%	2
3	\$20,000 to less than \$30,000	0.00%	0
4	\$30,000 to less than \$40,000	12.50%	1
5	\$40,000 to less than \$50,000	0.00%	0
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	25.00%	2
	Total	100%	8

13. 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	100.0%	10	0.0%	0	10
2	Air source heat pump heating and cooling system	100.0%	3	0.0%	0	3
3	A ductless heat pump	100.0%	11	0.0%	0	11
4	A heat pump water heater	100.0%	6	0.0%	0	6
5	Electronically commutated motor (on an efficient furnace)	0.0%	0	0.0%	0	undefined
6	A Wi-Fi / smart thermostat	100.0%	35	0.0%	0	35
7	An ENERGY STAR dehumidifier	100.0%	7	0.0%	0	7
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%	14	0.0%	0	14

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Q 3 -	поw	ulu you	iirst learn	аронт поше	Litergy	rrouucis	rrogram:

#	Answer	%	Count
1	Newspaper/magazine/print media	0.0%	0
2	Mailer from I&M	17.9%	14
3	I&M Website (www.electricideas.com or indianamichiganpower.com)	30.8%	24
4	Friend or Relative (word-of-mouth)	5.1%	4
5	Contractor or plumber	21.8%	17
6	TV/Radio ad	0.0%	0
7	I&M Representative	0.0%	0
8	I&M Newsletter	6.4%	5
9	Retailer/store	9.0%	7
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)	7.7%	6
14	Don't know	1.3%	1
	Total	100%	78

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}	45.5%	35
2	At the time you made the purchase decision	14.3%	11
3	After researching the product but before deciding to purchase	10.4%	8
4	After deciding to purchase the \${e://Field/EFF_MEASURE1}	29.9%	23
98	Don't know	0.0%	0
	Total	100%	77

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	28.2%	22
2	There was a rebate for it	32.1%	25
3	It costs less to operate it	34.6%	27
4	It's good for the environment	20.5%	16
5	It was all that was available/only choice	0.0%	0
6	The contractor/retailer recommended it	37.2%	29
7	It had features I wanted	32.1%	25
8	It was the right size, color	11.5%	9
9	Wanted that brand	9.0%	7
10	It had an ENERGY STAR label	24.4%	19
11	Other (Please specify)	11.5%	9
98	Don't know	0.0%	0
	Total	100%	78

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	12.8%	10
2	Installation contractors	48.7%	38
3	Friend, neighbor, relative or co-worker	14.1%	11
4	I&M website	9.0%	7
5	Internet	35.9%	28
6	Consumer reports or other product magazines	6.4%	5
7	Newspaper	0.0%	0
8	Radio	0.0%	0
9	Television	0.0%	0
10	Other (Please specify)	1.3%	1
11	Did not look for any information about what to buy	1.3%	1
98	Don't know	0.0%	0
	Total	100%	78

Q7 - Where did you obtain the rebate application?

#	Answer	%	Count
1	From the I&M website (www.electricideas.com or indianamichiganpower.com)	65.4%	51
2	From another website	2.6%	2
3	In a retail store	2.6%	2
4	From a contractor	28.2%	22
5	Other (Please Specify)	0.0%	0
98	Don't know	1.3%	1
	Total	100%	78

Q8 - Is the central air conditioner that you received a rebate for currently installed and working?

#	Answer	%	Count
1	Yes	100.0%	10
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	10

Q10 - Was there a cooling system already installed in the location where the new air conditioner was installed?

#	Answer	%	Count
1	Yes	100.0%	9
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	9

Q11 - Was the cooling equipment that you replaced a central air condition?

#	Answer	%	Count
1	Yes	77.8%	7
2	No	22.2%	2
98	Don't know	0.0%	0
	Total	100%	9

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.	11.1%	1
3	It was there when you bought the house from a previous owner.	55.6%	5
4	You or your family installed the old unit.	33.3%	3
5	Other (Please specify)	0.0%	0
	Total	100%	9

#	Answer	%	Count
1	Yes	100.0%	7
2	No	0.0%	0
	Total	100%	7

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	42.9%	3
2	2 to 4 years	14.3%	1
3	5 to 10 years	14.3%	1
4	More than 10 years	14.3%	1
98	Don't know	14.3%	1
	Total	100%	7

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

017 -	Dov	vou know	the app	proximate a	age of the	old cooling	equipme	ent that was	replaced?
		,							

#	Answer	%	Count
1	Yes (How old was it?)	100.0%	5
2	No	0.0%	0
	Total	100%	5

Q18 - How were you able to determine the age of the old cooling equipment?

#	Answer	%	Count
1	Documentation included with the unit	20.0%	1
2	Contractor knew or estimated it	0.0%	0
3	Age of units was included in description of home when we bought it	60.0%	3
4	Previous owner told us	0.0%	0
5	Other (Please specify)	20.0%	1
	Total	100%	5

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%	14
2	No	0.0%	0
	Total	100%	14

Q24 - Did the [Field-HEATPUMP_TYPE] replace some old heating and cooling equipment?

#	Answer	%	Count
1	Yes, it replaced both cooling and heating equipment	28.6%	4
2	Yes, it replaced cooling equipment	21.4%	3
3	Yes, it replaced heating equipment	28.6%	4
4	No, it was a new installation that did not replace any equipment	21.4%	3
	Total	100%	14

Q25 - Did the [Field-HEATPUMP_TYPE] replace a heat pump?

#	Answer	%	Count
1	Yes	25.0%	1
2	No	75.0%	3
98	Don't know	0.0%	0
	Total	100%	4

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.	0.0%	0
4	You or your family installed the old unit.	100.0%	1
5	Other (Please specify)	0.0%	0
	Total	100%	1

Q28 - Do you know the approximate age of the old heat pump that was replaced?

#	Answer	%	Count
1	Yes (How old was it?)	0.0%	0
2	No	0.0%	0
	Total		0

Q29 - How were you able to determine the age of the old heat pump?

#	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

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	0.0%	0
98	Don't know	100.0%	1
	Total	100%	1

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%	1
	Total	100%	1

Q34 - What type of heating system did you have before you installed the [Field-HEATPUMP_TYPE]?

#	Answer	%	Count
1	Electric resistance heating	85.7%	6
2	An air source heat pump	0.0%	0
3	Some other kind of heating system	14.3%	1
4	No heating equipment	0.0%	0
98	Don't know	0.0%	0
	Total	100%	7

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	83.3%	5
98	Don't know	0.0%	0
	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.	0.0%	0
2	It was original equipment in a newly constructed home when the previous owner bought it.	12.5%	1
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.	12.5%	1
5	Other (Please specify)	0.0%	0
	Total	100%	8

Q39 - Do you know the approximate age of the old heating equipment that was replaced?

#	Answer	%	Count
1	Yes (How old was it?)	66.7%	4
2	No	33.3%	2
	Total	100%	6

Q40 - How were you able to determine the age of the old heating equipment?

#	Answer	%	Count
1	Documentation included with the unit	25.0%	1
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	50.0%	2
5	Other (Please specify)	25.0%	1
	Total	100%	4

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	33.3%	2
2	No	66.7%	4
98	Don't know	0.0%	0
	Total	100%	6

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.	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.	42.9%	3
4	You or your family installed the old unit.	57.1%	4
5	Other (Please specify)	0.0%	0
	Total	100%	7

Q46 - Do you know the approximate age of the old cooling equipment that was replaced?

#	Answer	%	Count
1	Yes (How old was it?)	33.3%	1
2	No	66.7%	2
	Total	100%	3

Q47 - How were you able to determine the age of the old cooling equipment?

#	Answer	%	Count
1	Documentation included with the unit	100.0%	1
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	100%	1

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	50.0%	1
2	15-20 years old	0.0%	0
3	10-15 years old	50.0%	1
4	Less than 10 years old	0.0%	0
	Total	100%	2

Q50 - Please provide the seasonal energy efficiency ratio or SEER of the air conditioner that you replaced?

#	Answer	%	Count
1	SEER	0.0%	0
2	Don't know	100.0%	6
	Total	100%	6

Q51 - Is the Wi-Fi thermostat that you received a rebate for currently installed and working?

#	Answer	%	Count
1	Yes	100.0%	35
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	35

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	51.4%	18
2	A standard thermostat that lets you set on/off temperatures	42.9%	15
3	A different Wi-Fi smart thermostat	5.7%	2
98	Don't know	0.0%	0
	Total	100%	35

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	50.0%	9
2	No	33.3%	6
98	Don't know	16.7%	3
	Total	100%	18

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	8.6%	3
3	Both cooling and heating systems	91.4%	32
98	Don't know	0.0%	0
	Total	100%	35

Q56 - Is your central air conditioning system a heat pump?

#	Answer	%	Count
1	Yes	12.5%	4
2	No	78.1%	25
98	Don't know	9.4%	3
	Total	100%	32

Q57 - What type of central heating system do you have?

#	Answer	%	Count
1	Central furnace	85.7%	30
2	Heat pump	5.7%	2
3	Other (Please specify)	5.7%	2
98	Don't know	2.9%	1
	Total	100%	35

Q58 - What is the main fuel used by the central heating system?

#	Answer	%	Count
1	Electricity	8.6%	3
2	Natural Gas	68.6%	24
3	Propane	22.9%	8
4	Something else (Please specify)	0.0%	0
98	Don't know	0.0%	0
	Total	100%	35

Q59 - Is the ENERGY STAR dehumidifier that you received a rebate for currently working?

#	Answer	%	Count
1	Yes	100.0%	7
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	7

Q61 - Did the rebated dehumidifier...

#	Answer	%	Count
1	Replace a functioning unit	28.6%	2
2	Replace a broken unit	57.1%	4
3	It was not a replacement	14.3%	1
98	Don't know	0.0%	0
	Total	100%	7

Q62 - Is the heat pump water heater that you received a rebate for currently installed and working?

#	Answer	%	Count
1	Yes	100.0%	6
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	6

Q64 - Was this water heater purchased...

#	Answer	%	Count
1	To replace a functioning unit	83.3%	5
2	To replace a broken unit	16.7%	1
3	Not a replacement	0.0%	0
98	Don't know	0.0%	0
	Total	100%	6

Q65 - Is the high efficiency electric water heater that you received a rebate for currently installed and working?

#	Answer	%	Count
1	Yes	100.0%	14
2	No	0.0%	0
3	Don't know	0.0%	0
	Total	100%	14

Q67 - Was this water heater purchased...

#	Answer	%	Count
1	To replace a functioning unit	42.9%	6
2	To replace a broken unit	57.1%	8
3	Not a replacement	0.0%	0
98	Don't know	0.0%	0
	Total	100%	14

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	65.0%	13
2	No	35.0%	7
98	Don't know	0.0%	0
	Total	100%	20

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	50.0%	10
2	No	35.0%	7
98	Don't know	15.0%	3
	Total	100%	20

Q75 - Did the contractor that you worked with tell you there was a rebate available for the efficient equipment?

#	Answer	%	Count
1	Yes	68.4%	13
2	No	26.3%	5
98	Don't know	5.3%	1
	Total	100%	19

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	0.0%	0
2	I got the rebate	100.0%	13
3	Neither	0.0%	0
	Total	100%	13

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	65.0%	13
2	No	30.0%	6
98	Don't know	5.0%	1
	Total	100%	20

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	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	46.2%	6
9	9	15.4%	2
10	10 Very influential	38.5%	5
	Total	100%	13

Q79 - Were you planning to purchase an [Field-EFF_MEASURE1] before you learned of I&M's rebate program?

#	Answer	%	Count
1	Yes	73.1%	57
2	No	19.2%	15
98	Don't know	7.7%	6
	Total	100%	78

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	94.6%	53
2	No	3.6%	2
98	Don't know	1.8%	1
	Total	100%	56

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	83.3%	65
2	No	11.5%	9
98	Don't know	5.1%	4
	Total	100%	78

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	75.6%	59
2	No	15.4%	12
98	Don't know	9.0%	7
	Total	100%	78

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	10.3%	8
2	Installed a new but less energy efficient \${e://Field/STAND_MEASURE1}	6.4%	5
3	Installed a similarly energy efficient \${e://Field/STAND_MEASURE1}	12.8%	10
4	Installed the exact same \${e://Field/STAND_MEASURE1}	64.1%	50
98	Don't know	6.4%	5
	Total	100%	78

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	0/0	Count
0	0 Not at all likely	2.6%	2
1	1	1.3%	1
2	2	7.7%	6
3	3	1.3%	1
4	4	2.6%	2
5	5	6.4%	5
6	6	3.8%	3
7	7	7.7%	6
8	8	9.0%	7
9	9	3.8%	3
10	10 Very likely	53.8%	42
	Total	100%	78

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	33.3%	26
2	No	61.5%	48
98	Don't know	5.1%	4
	Total	100%	78

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	23.1%	6
2	Between 6 months and 1 year	34.6%	9
3	In more than 1 year to 2 years	15.4%	4
4	In two years or more	11.5%	3
98	Don't know	15.4%	4
	Total	100%	26

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	100.0%	4
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	4

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	50.0%	2
2	No	25.0%	1
98	Don't know	25.0%	1
	Total	100%	4

Q89 - Did the contractor that you worked with tell you there was a rebate available for the efficient equipment?

#	Answer	%	Count
1	Yes	50.0%	2
2	No	50.0%	2
98	Don't know	0.0%	0
	Total	100%	4

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	100.0%	2
3	Neither	0.0%	0
	Total	100%	2

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	75.0%	3
2	No	0.0%	0
3	Don't know	25.0%	1
	Total	100%	4

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	66.7%	2
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	33.3%	1
9	9	0.0%	0
10	10 Very influential	0.0%	0
	Total	100%	3

Q93 - Were you planning to purchase an [Field-EFF_MEASURE2] before you learned of I&M's rebate program?

#	Answer	%	Count
1	Yes	100.0%	8
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	8

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	87.5%	7
2	No	12.5%	1
98	Don't know	0.0%	0
	Total	100%	8

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	100.0%	8
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	8

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	100.0%	8
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	8

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}	0.0%	0
3	Installed a similarly energy efficient \${e://Field/STAND_MEASURE2}	0.0%	0
4	Installed the exact same \${e://Field/STAND_MEASURE2}	100.0%	8
98	Don't know	0.0%	0
	Total	100%	8

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	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	25.0%	2
9	9	0.0%	0
10	10 Very likely	75.0%	6
98	Don't know	0.0%	0
	Total	100%	8

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	0.0%	0
2	No	100.0%	8
98	Don't know	0.0%	0
	Total	100%	8

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	0.0%	0
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	0.0%	0
	Total		0

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	71.8%	56
2	A contractor or salesperson filled it out	24.4%	19
3	Other (Please Specify)	2.6%	2
98	Don't know	1.3%	1
	Total	100%	78

Q122 - Have you noticed any energy savings on your electric bill since installing the rebated equipment?

#	Answer	%	Count
1	Yes	34.6%	27
2	No	23.1%	18
98	Not sure	42.3%	33
	Total	100%	78

Q123 - Using the scale	below, please rate how	v dissatisfied or	satisfied you are	e with each of
the following:				

#	Question	Very dissatisfied1		2		3		4		Very satisfied5		Total
1	The rebate application process	1.8%	1	3.6%	2	5.4%	3	25.0%	14	64.3%	36	56
2	The savings on your electricity bills since installing the rebated equipment	0.0%	0	3.8%	1	11.5%	3	26.9%	7	57.7%	15	26
3	The rebate equipment that you purchased	1.3%	1	1.3%	1	2.6%	2	16.9%	13	77.9%	60	77
4	The rebate program overall	1.3%	1	2.6%	2	3.9%	3	15.6%	12	76.6%	59	77

Q125 - Using the scale below, how dissatisfied or satisfied are you with I&M as your electricity service provider?

#	Answer	%	Count
1	Very dissatisfied1	1.3%	1
2	2	5.1%	4
3	3	9.0%	7
4	4	35.9%	28
5	Very satisfied5	48.7%	38
	Total	100%	78

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	97.4%	75
2	Rent	1.3%	1
3	Own and rent to someone else	1.3%	1
98	Don't know	0.0%	0
	Total	100%	77

Q129 - Which of the following best describes your home? Is it a...

#	Answer	%	Count
1	Manufactured home	2.6%	2
2	Single-family house detached from any other house	92.1%	70
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	3.9%	3
4	Apartment in a building with 2 to 3 units	0.0%	0
5	Apartment in a building with 4 or more units	1.3%	1
6	Other (Specify)	0.0%	0
98	Don't know	0.0%	0
	Total	100%	76

Q130 - When was your home built?

#	Answer	%	Count
1	Before 1950	22.4%	17
2	1950 to 1959	19.7%	15
3	1960 to 1969	7.9%	6
4	1970 to 1979	7.9%	6
5	1980 to 1989	7.9%	6
6	1990 to 1999	17.1%	13
7	2000 to 2009	13.2%	10
8	2010 or later	2.6%	2
98	Don't know	1.3%	1
	Total	100%	76

Q132 - What fuel does your main water heater use?

#	Answer	%	Count
1	Electricity	55.1%	43
2	Natural Gas	35.9%	28
3	Propane	9.0%	7
4	Something else (SPECIFY)	0.0%	0
5	Don't heat home	0.0%	0
98	Don't know	0.0%	0
	Total	100%	78

#	Answer	%	Count
1	1	23.7%	18
2	2	50.0%	38
3	3	9.2%	7
4	4	6.6%	5
5	5	0.0%	0
6	6	3.9%	3
7	7	1.3%	1
8	8 or more	0.0%	0
98	Don't know	5.3%	4
	Total	100%	76

Q133 - Including yourself, how many people currently live in your home year-round?

14. 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%	108
2	No	0.0%	0
	Total	100%	108

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)	97.6%	81	0.0%	0	2.4%	2	83
2	[Field-APS_QUANT] Advanced power strip(s)	98.0%	49	0.0%	0	2.0%	1	50
3	[Field-SHOWER_QUANT] High efficiency showerhead(s)	100.0%	2	0.0%	0	0.0%	0	2
4	[Field-BATH_QUANT] High efficiency bathroom faucet aerator(s)	100.0%	1	0.0%	0	0.0%	0	1
5	[Field-KITCHEN_QUANT] High efficiency kitchen faucet aerator(s)	100.0%	1	0.0%	0	0.0%	0	1
6	[Field-TSTAT_QUANT] Wi-Fi / smart thermostat(s)	100.0%	1	0.0%	0	0.0%	0	1

Q3 - Are/is the [Field-LED_QUANT] LED light bulbs that you purchased from the Online Marketplace currently installed?

#	Answer	%	Count
1	Yes	16.0%	13
2	Some are	66.7%	54
3	No, none are	17.3%	14
	Total	100%	81

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	10.4%	7
2	I am not interested in installing them	0.0%	0
3	I am waiting for light bulbs to burn out before replacing them	77.6%	52
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)	20.9%	14
98	Don't know	0.0%	0
	Total	100%	67

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)	24.5%	12
1	1	40.8%	20
2	2	24.5%	12
3	3	4.1%	2
4	4	6.1%	3
	Total	100%	49

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	0.0%	0
2	I'm not sure how to use it	13.3%	4
3	I'm not interested in using it	0.0%	0
4	I didn't have a need for it	10.0%	3
5	Other (Please specify)	73.3%	22
98	Don't know	6.7%	2
	Total	100%	30

Q9 - The Advanced Power Strip has outlets labeled 'Always on", 'Controlled', and 'Switched".

#	Answer	%	Count
1	Television	47.2%	17
2	Computer	25.0%	9
3	Other (Please describe)	19.4%	7
4	Nothing	5.6%	2
98	Don't know	2.8%	1
	Total	100%	36

Q10 - What equipment is plugged into the outlets labeled 'Switched"? (Select all that apply)

#	Answer	%	Count
1	Audio/visual/entertainment equipment	46.9%	15
2	Computer/office equipment	25.0%	8
3	Other types of equipment	21.9%	7
4	No equipment is plugged into the 'Switched" outlets	18.8%	6
98	Don't know	3.1%	1
	Total	100%	32

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	29.4%	5
2	Computer	23.5%	4
3	Other (Please describe)	29.4%	5
4	Nothing	11.8%	2
98	Don't know	5.9%	1
	Total	100%	17

Q12 - What equipment is plugged into the outlets labeled 'Switched"? (Select all that apply)

#	Answer	%	Count
1	Audio/visual/entertainment equipment	42.9%	6
2	Computer/office equipment	7.1%	1
3	Other types of equipment	14.3%	2
4	No equipment is plugged into the 'Switched" outlets	35.7%	5
98	Don't know	7.1%	1
	Total	100%	14
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	60.0%	3
2	Computer	0.0%	0
3	Other (Please describe)	0.0%	0
4	Nothing	20.0%	1
98	Don't know	20.0%	1
	Total	100%	5

Q14 - What equipment is plugged into the outlets labeled 'Switched"? (Select all that apply)

#	Answer	%	Count
1	Audio/visual/entertainment equipment	66.7%	2
2	Computer/office equipment	0.0%	0
3	Other types of equipment	0.0%	0
4	No equipment is plugged into the 'Switched" outlets	33.3%	1
98	Don't know	0.0%	0
	Total	100%	3

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	66.7%	2
2	Computer	0.0%	0
3	Other (Please describe)	0.0%	0
4	Nothing	33.3%	1
98	Don't know	0.0%	0
	Total	100%	3

Q16 - What equipment is plugged into the outlets labeled 'Switched"? (Select all that apply)

#	Answer	%	Count
1	Audio/visual/entertainment equipment	50.0%	1
2	Computer/office equipment	0.0%	0
3	Other types of equipment	50.0%	1
4	No equipment is plugged into the 'Switched" outlets	0.0%	0
98	Don't know	0.0%	0
	Total	100%	2

Q17 - Are/is the [Field-SHOWER_QUANT] high efficiency showerhead(s) that you purchased from the Online Marketplace currently installed?

#	Answer	%	Count
1	Yes	0.0%	0
2	Some are	0.0%	0
3	No, none are	100.0%	2
	Total	100%	2

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%	1
2	I am not interested in installing them	0.0%	0
3	I need help installing them	0.0%	0
4	I don't like them	50.0%	1
5	Doesn't fit my shower	0.0%	0
6	Other (Please specify)	0.0%	0
98	Don't know	0.0%	0
	Total	100%	2

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	0.0%	0
2	Some are	100.0%	1
3	No, none are	0.0%	0
	Total	100%	1

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	0.0%	0
2	I am not interested in installing them	0.0%	0
3	I need help installing them	0.0%	0
4	I don't like them	0.0%	0
5	Doesn't fit my faucet	100.0%	1
6	Other (Please specify)	0.0%	0
98	Don't know	0.0%	0
	Total	100%	1

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	0.0%	0
2	Some are	0.0%	0
3	No, none are	100.0%	1
	Total	100%	1

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	100.0%	1
2	I am not interested in installing them	0.0%	0
3	I need help installing them	0.0%	0
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	100.0%	1
2	No	0.0%	0
98	Don't know	0.0%	0
	Total	100%	1

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	100.0%	1
2	A standard thermostat that lets you set on/off temperatures	0.0%	0
3	A different Wi-Fi smart thermostat	0.0%	0
98	Don't know	0.0%	0
	Total	100%	1

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	0.0%	0
2	No	100.0%	1
98	Don't know	0.0%	0
	Total	100%	1

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%	1
98	Don't know	0.0%	0
	Total	100%	1

Q34 - Is your central air conditioning system a heat pump?

#	Answer	%	Count
1	Yes	0.0%	0
2	No	100.0%	1
3	Don't know	0.0%	0
	Total	100%	1

Q35 - What type of central heating system do you have?

#	Answer	%	Count
1	Central furnace	100.0%	1
2	Heat pump	0.0%	0
3	Other (Please specify)	0.0%	0
98	Don't know	0.0%	0
	Total	100%	1

Q36 - What is the main fuel used by the central heating system?

#	Answer	%	Count
1	Electricity	0.0%	0
2	Natural Gas	100.0%	1
3	Propane	0.0%	0
4	Something else (Please specify)	0.0%	0
98	Don't know	0.0%	0
	Total	100%	1

Q38 - Did you decide to purchase the [Field-EFF_MEASURE1]....

#	Answer	%	Count
1	Before you learned about I&M's Online Marketplace	14.8%	16
2	After viewing products on I&M's Online Marketplace	81.5%	88
98	Don't know	3.7%	4
	Total	100%	108

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	38.9%	42
2	No	61.1%	66
	Total	100%	108

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	7.1%	3
2	Shipping was free	0.0%	0
3	The instant rebate / price of the product	78.6%	33
4	You felt confident in the quality	9.5%	4
5	For some other reason (Please explain)	4.8%	2
	Total	100%	42

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	38.0%	41
2	No	53.7%	58
98	Don't know	8.3%	9
	Total	100%	108

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	61.7%	66
2	No	28.0%	30
98	Don't know	10.3%	11
	Total	100%	107

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	30.6%	33
2	No	41.7%	45
98	Don't know	27.8%	30
	Total	100%	108

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	37.0%	40
1	1	8.3%	9
2	2	9.3%	10
3	3	13.9%	15
4	4	4.6%	5
5	5	13.0%	14
6	6	4.6%	5
7	7	4.6%	5
8	8	1.9%	2
9	9	0.9%	1
10	10 Very likely	1.9%	2
	Total	100%	108

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	69.2%	74
2	No	21.5%	23
98	Don't know	9.3%	10
	Total	100%	107

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	21.6%	16
2	Between 6 months and 1 year	31.1%	23
3	In more than 1 year to 2 years	10.8%	8
4	In two years or more	4.1%	3
98	Don't know	32.4%	24
	Total	100%	74

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	10.2%	11
2	No would not have purchased any	25.9%	28
3	No, would have purchased fewer \${e://Field/EFF_MEASURE1}	55.6%	60
4	Don't know	8.3%	9
	Total	100%	108

Q49 - Overall, how satisfied are you with the following products that you received an instant rebate for?

#	Question	1Very dissatisfie d		2		3		4		5Very satisfie d		Tota 1
1	LED light bulb(s)	7.6%	6	1.3 %	1	5.1%	4	8.9%	7	77.2%	6 1	79
2	Advanced power strip(s)	4.3%	2	4.3 %	2	17.4%	8	10.9%	5	63.0%	2 9	46
3	High efficiency showerhead(s)	0.0%	0	0.0 %	0	50.0%	1	0.0%	0	50.0%	1	2
4	High efficiency bathroom faucet aerator(s)	0.0%	0	0.0 %	0	0.0%	0	100.0 %	1	0.0%	0	1
5	High efficiency kitchen faucet aerator(s)	0.0%	0	0.0 %	0	100.0 %	1	0.0%	0	0.0%	0	1
6	Wi-Fi / smart thermostat(s)	0.0%	0	0.0 %	0	0.0%	0	0.0%	0	100.0%	1	1

Q50 - Overall, how satisfied are you with your I&M Online Marketplace purchase experience?

#	Answer	%	Count
1	1 Very dissatisfied	3.7%	4
2	2	1.9%	2
3	3	6.5%	7
4	4	14.8%	16
5	5 Very satisfied	73.1%	79
	Total	100%	108

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	97.2%	105
2	Rent	1.9%	2
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%	108

Q55 - Which of the following best describes your home? Is it a...

#	Answer	%	Count
1	Manufactured home	4.6%	5
2	Single-family house detached from any other house	86.1%	93
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	5.6%	6
4	Apartment in a building with 2 to 3 units	0.9%	1
5	Apartment in a building with 4 or more units	0.9%	1
6	Other (Please specify)	0.0%	0
98	Don't know	0.0%	0
99	Prefer not to state	1.9%	2
	Total	100%	108

Q56 - What fuel does your main water heater use?

#	Answer	%	Count
1	Electricity	36.4%	39
2	Natural Gas	58.9%	63
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	0.0%	0
99	Prefer not to state	2.8%	3
	Total	100%	107

#	Answer	%	Count
1	1	25.0%	27
2	2	50.9%	55
3	3	11.1%	12
4	4	5.6%	6
5	5	0.9%	1
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	6.5%	7
	Total	100%	108

Q57 - Including yourself, how many people currently live in your home year-round?

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	0.0%	0
2	\$10,000 to less than \$20,000	6.7%	7
3	\$20,000 to less than \$30,000	2.9%	3
4	\$30,000 to less than \$40,000	8.6%	9
5	\$40,000 to less than \$50,000	1.0%	1
6	\$50,000 to less than \$75,000	16.2%	17
7	\$75,000 to less than \$100,000	15.2%	16
8	\$100,000 to less than \$150,000	3.8%	4
9	\$150,000 to less than \$200,000	3.8%	4
10	\$200,000 or more	2.9%	3
98	Don't know	0.0%	0
99	Prefer not to state	39.0%	41
	Total	100%	105

15. Home Energy Engagement – Online Energy Checkup Survey Results

Q1 - Our records indicate that your household participated in I&M's Online Energy Checkup Survey program and received a kit in the mail that contained energy efficient items for installation in your home. Is that correct?

#	Answer	%	Count
1	Yes	100.00%	117
2	No	0.00%	0
98	Don't know	0.00%	0
	Total	100%	117

Q2 - Were you the person that completed the online energy checkup survey?

#	Answer	%	Count
1	Yes	100.00%	117
2	No	0.00%	0
98	Don't know	0.00%	0
	Total	100%	117

#	Answer	%	Count
1	Newspaper/magazine/print media	0.00%	0
2	Mailer from I&M	14.53%	17
3	I&M Website (www.electricideas.com or indianamichiganpower.com)	35.04%	41
4	Friend or Relative (word-of-mouth)	2.56%	3
5	TV/Radio ad	0.00%	0
6	I&M Representative	0.00%	0
7	I&M Newsletter	23.93%	28
8	Community event	0.00%	0
9	Social media (Facebook, Instagram or Twitter)	1.71%	2
10	Home Energy Report	5.98%	7
11	Other (Please Specify)	13.68%	16
98	Don't know	2.56%	3
	Total	100%	117

Q3 - How did you first learn about I&M's Online Energy Checkup program?

Q4 - Why did you decide to complete the online energy checkup survey and receive the energy efficiency kit?

#	Answer	%	Count
1	To learn about ways to save money on energy bill(s)	65.52%	76
2	Environmental reasons	7.76%	9
3	The items were provided free of charge	23.28%	27
4	Other (Please Specify)	3.45%	4
98	Don't know	0.00%	0
	Total	100%	116

Q5 - We would like to know if you have had a chance to install any of the kit items and how many of the items are currently installed. How many of the three LED lightbulbs are currently installed?

#	Answer	%	Count
0	0	13.68%	16
1	1	9.40%	11
2	2	20.51%	24
3	3	55.56%	65
98	Don't know	0.85%	1
	Total	100%	117

Q6 - You indicated that you have not installed \$e{3 - [QID5-ChoiceGroup-SelectedChoices]} LED bulb(s). How many of those do you think you will install in the next 6 months?

#	Answer	%	Count
0	0	13.73%	7
1	1	33.33%	17
2	2	21.57%	11
3	3	13.73%	7
98	Don't know	17.65%	9
	Total	100%	51

Q7 - Why have you not installed all three of the LED bulbs yet? (Select all that apply)

#	Answer	%	Count
1	I did not receive 3 bulbs	3.85%	2
2	I have not had the time to install them	21.15%	11
3	I am not interested in installing them	0.00%	0
4	I am waiting for light bulbs to burn out before replacing them	51.92%	27
5	I don't like them	0.00%	0
6	Other (Please specify)	19.23%	10
98	Don't know	3.85%	2
	Total	100%	52

Q8 - Are any of those bulbs that you are waiting to burn out CFLs or incandescent/halogen? Select all that apply.

#	Answer	%	Count
1	CFLs	0.00%	0
2	Incandescent/halogen	0.00%	0
3	No, all are LEDs	0.00%	0
98	Don't know	0.00%	0
	Total		0

Q9 - Before you received the energy efficiency kit, what share of the light bulbs in your home were LED? Your best guess is fine.

#	Answer	%	Count
1	None	7.69%	9
2	Some but less than 25%	23.93%	28
3	Between 25% and 75%	43.59%	51
4	More than 75%	21.37%	25
5	Don't know	3.42%	4
	Total	100%	117

Q10 - How many of the two showerheads are currently installed?

#	Answer	%	Count
0	0	38.78%	19
1	1	46.94%	23
2	2	12.24%	6
98	Don't know	2.04%	1
	Total	100%	49

Q11 - You indicated that you have not installed \$e{2 - [QID10-ChoiceGroup-SelectedChoices]} showerheads How many of those do you think you will install in the next 6 months?

#	Answer	%	Count
0	0	62.07%	18
1	1	27.59%	8
2	2	10.34%	3
	Total	100%	29

Q12 - Why have you not installed both of the showerheads? (Select all that apply)

#	Answer	%	Count
0	I did not receive both showerheads	6.38%	3
1	I have not had the time to install them	14.89%	7
2	I am not interested in installing them	6.38%	3
5	I did not know how to install the showerheads	2.13%	1
6	I need physical assistance or tools to install them	4.26%	2
7	I don't like them	6.38%	3
8	Other (Please specify)	21.28%	10
9	Don't know	0.00%	0
98	I only have one shower and did not need two	38.30%	18
	Total	100%	47

Q13 - Is the kitchen faucet aerator currently installed?

#	Answer	%	Count
1	Yes	55.10%	27
2	No	44.90%	22
98	Don't know	0.00%	0
	Total	100%	49

Q14 - Do you plan to install the kitchen faucet aerator in the next 6 months?

#	Answer	%	Count
1	Yes	36.36%	8
2	No	45.45%	10
98	Don't know	18.18%	4
	Total	100%	22

#	Answer	%	Count
1	I did not receive it	4.17%	1
2	I have not had the time to install it	20.83%	5
3	I am not interested in installing it	4.17%	1
4	I did not know how to install it	8.33%	2
5	I need physical assistance or tools to install it	4.17%	1
6	I don't like it	4.17%	1
7	Other (Please specify)	50.00%	12
98	Don't know	4.17%	1
	Total	100%	24

Q15 - Why have you not installed the kitchen faucet aerator? (Select all that apply)

Q16 - How many of the two bathroom faucet aerators are currently installed?

#	Answer	%	Count
0	0	36.73%	18
1	1	38.78%	19
2	2	24.49%	12
98	Don't know	0.00%	0
	Total	100%	49

Q17 - You indicated that you have not installed \$e{2 - [QID16-ChoiceGroup-SelectedChoices]} bathroom faucet aerator(s). How many of those do you think you will install in the next 6 months?

#	Answer	%	Count
0	0	60.71%	17
1	1	17.86%	5
2	2	21.43%	6
	Total	100%	28

Q18 - Why have you not installed both of the bathroom faucet aerators? (Select all that apply)

#	Answer	%	Count
1	I did not receive them	2.63%	1
2	I have not had the time to install them	23.68%	9
3	I am not interested in installing them	2.63%	1
4	I don't like them	0.00%	0
5	I did not know how to install them	2.63%	1
6	I need physical assistance or tools to install them	5.26%	2
7	Other (Please specify)	57.89%	22
8	Don't know	5.26%	2
	Total	100%	38

Q19 - How many of the two LED night lights are currently installed?

#	Answer	%	Count
0	0	8.82%	6
1	1	19.12%	13
2	2	72.06%	49
	Total	100%	68

Q20 - You indicated that you have not installed \$e{2 - [QID19-ChoiceGroup-SelectedChoices]} LED night light(s). How many of those do you think you will install in the next 6 months?

#	Answer	%	Count
0	0	33.33%	4
1	1	50.00%	6
2	2	16.67%	2
	Total	100%	12

021 -	Why	v have	von no	t installed	both	of the	LED	nioht	liohts?	(Select	all th	at a	nnlv)
V#1 -		y nave	you no	t mstancu	Doth	or the		mgnu	ngnts.	USCICCI	an u	ala	ppiy)

#	Answer	%	Count
0	I did not receive them	10.53%	2
1	I have not had the time to install them	15.79%	3
2	I am not interested in installing them	0.00%	0
5	I didn't need them	31.58%	6
6	Other (Please specify)	31.58%	6
7	Don't know	5.26%	1
98	I don't like them	5.26%	1
	Total	100%	19

Q22 - When you installed the LED night light, did you replace a night light that you already had, or did you plug it into an empty outlet?

#	Answer	%	Count
1	Replaced a night light	23.08%	3
2	Installed the night light in an empty socket	76.92%	10
98	Don't know	0.00%	0
	Total	100%	13

Q23 - Did either of the night lights that you installed replace a night light that you already had or did they plug into unused outlets?

#	Answer	%	Count
1	Neither replaced a night light they already had	32.65%	16
2	One replaced a night light they already had	18.37%	9
4	Don't know	0.00%	0
98	Both replaced a night light they already had	48.98%	24
	Total	100%	49

Q24 - Thinking back to before you completed the Online Energy Checkup, had you purchased any of the following items in the last three years?

#	Question	Yes		No		Don't know		Total
1	LED light bulbs	88.79%	103	11.21%	13	0.00%	0	116
2	Bathroom faucet aerators	6.25%	3	91.67%	44	2.08%	1	48
3	Kitchen faucet aerator	14.58%	7	85.42%	41	0.00%	0	48
4	High efficiency showerheads	41.67%	20	58.33%	28	0.00%	0	48
5	LED night lights	32.84%	22	62.69%	42	4.48%	3	67

Q25 - Before you heard of the Online Energy Checkup Program, did you have specific plans to purchase any of the kit items that were sent to you?

#	Answer	%	Count
1	Yes	42.74%	50
2	No	42.74%	50
98	Don't know	14.53%	17
	Total	100%	117

Q26 - For each of the following items, please indicate if you had plans to purchase the item before you heard of the Online Energy Checkup Program.

#	Question	Yes		No		Don't know		Total
1	LED light bulbs	96.00%	48	2.00%	1	2.00%	1	50
2	Bathroom faucet aerators	9.52%	2	80.95%	17	9.52%	2	21
3	Kitchen faucet aerator	13.64%	3	77.27%	17	9.09%	2	22
4	High efficiency showerheads	30.43%	7	65.22%	15	4.35%	1	23
5	LED night lights	34.62%	9	50.00%	13	15.38%	4	26

Q27 - How many of the three LED lightbulbs that you received did you plan to purchase?

#	Answer	%	Count
0	0	0.00%	0
1	1	0.00%	0
2	2	14.58%	7
3	3	62.50%	30
98	Don't know	22.92%	11
	Total	100%	48

Q28 - How many of the two bathroom faucet aerators that you received did you plan to purchase?

#	Answer	%	Count
0	0	0.00%	0
1	1	50.00%	1
2	2	0.00%	0
98	Don't know	50.00%	1
	Total	100%	2

Q29 - How many of the two high efficiency showerheads that you received did you plan to purchase?

#	Answer	%	Count
0	0	0.00%	0
1	1	66.67%	4
2	2	33.33%	2
98	Don't know	0.00%	0
	Total	100%	6

Q30 - How many of the two LED nightlights that you received did you plan to purchase?

#	Answer	%	Count
0	0	11.11%	1
1	1	11.11%	1
2	2	66.67%	6
98	Don't know	11.11%	1
	Total	100%	9

Q31 - Using a scale where 0 means "not at all likely" and 10 means "very likely", if you had not completed the Online Energy Checkup or received the energy conservation kit, how likely would you have been to purchase any of the following items on your own within 12 months of when you received them?

#	Quest ion	0		1		2		3		4		5		6		7		8		9		10		Do n't kn ow		T ot al
1	LED light bulbs	8.6 2%	1 0	1. 72 %	2	2.5 9%	3	3. 45 %	4	2. 59 %	3	4. 31 %	5	6. 03 %	7	6.9 0%	8	8. 62 %	1 0	8. 62 %	1 0	44. 83 %	5 2	1. 72 %	2	11 6
2	Bathr oom faucet aerato rs	58. 70 %	2 7	8. 70 %	4	6.5 2%	3	6. 52 %	3	0. 00 %	0	4. 35 %	2	0. 00 %	0	2.1 7%	1	2. 17 %	1	0. 00 %	0	6.5 2%	3	4. 35 %	2	46
3	Kitch en faucet aerato r	58. 33 %	2 8	6. 25 %	3	8.3 3%	4	6. 25 %	3	0. 00 %	0	4. 17 %	2	0. 00 %	0	2.0 8%	1	2. 08 %	1	0. 00 %	0	8.3 3%	4	4. 17 %	2	48
4	High effici ency show erhea ds	46. 81 %	2 2	6. 38 %	3	2.1 3%	1	0. 00 %	0	2. 13 %	1	8. 51 %	4	6. 38 %	3	8.5 1%	4	2. 13 %	1	0. 00 %	0	12. 77 %	6	4. 26 %	2	47
5	LED night lights	32. 35 %	2 2	0. 00 %	0	10. 29 %	7	1. 47 %	1	5. 88 %	4	7. 35 %	5	4. 41 %	3	10. 29 %	7	5. 88 %	4	2. 94 %	2	16. 18 %	1 1	2. 94 %	2	68

Q32 - Based on your response, there is some likelihood that you would have purchased some of the kit items in the next 12 months. Given that, we would like to know why you had not already purchased the items on your own. Had you not already purchased the kit items because: (SELECT ALL THAT APPLY)

#	Answer	%	Count
1	You didn't want to spend the money	21.01%	25
2	You had not gotten around to purchasing the items	44.54%	53
3	You didn't know where to purchase the items	1.68%	2
4	You didn't know enough about the items	8.40%	10
5	For other reasons	21.85%	26
6	Don't know	2.52%	3
	Total	100%	119

Q34 - The next few questions are about your experience with the online energy checkup survey. About how many times have you completed the survey audit tool?

#	Answer	%	Count
1	One time	48.28%	56
2	Two times	28.45%	33
3	Three times	6.03%	7
4	Four times	0.00%	0
5	Five times	0.00%	0
6	More than five times	0.00%	0
98	Don't know	17.24%	20
	Total	100%	116

Q35 - Using a scale where 1 means "very difficult" and 5 means "very easy", how easy or difficult was it to complete the online checkup?

#	Answer	%	Count
1	1(Very difficult)	0.00%	0
2	2	0.00%	0
3	3	1.71%	2
4	4	19.66%	23
5	5(Very easy)	77.78%	91
6	Don't know	0.85%	1
	Total	100%	117

Q36 - What difficulty did you have completing the online checkup? (Select all that apply)

#	Answer	%	Count
1	Signing on	0.00%	0
2	Not familiar with computers/technology	0.00%	0
3	The survey would not load	0.00%	0
4	The screen froze up	0.00%	0
5	Received some type of error message that prevented completion of the survey	0.00%	0
6	Couldn't answer some questions	0.00%	0
7	Other (Please specify)	0.00%	0
8	Don't know	0.00%	0
	Total		0

Q37 - Do you recall receiving recommendations in a PDF report that was produced after completing the online energy checkup for ways you could save energy in your home?

#	Answer	%	Count
1	Yes	53.85%	63
2	No	18.80%	22
3	Don't know	27.35%	32
	Total	100%	117

Q38 - Using a scale where 1 means "not at all useful" and 5 means "very useful", how useful were the recommendations that you received?

#	Answer	%	Count
1	1(Not at all useful)	1.59%	1
2	2	7.94%	5
3	3	11.11%	7
4	4	41.27%	26
5	5(Very useful)	34.92%	22
98	Don't know	3.17%	2
	Total	100%	63

Q39 - Why do you think the recommendations were	e not useful?
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#	Answer	%	Count
1	Didn't receive recommendations	0.00%	0
2	Already doing the things recommended	66.67%	4
3	Too generic/not applicable to my home	16.67%	1
4	Not realistic	16.67%	1
98	Don't know	0.00%	0
	Total	100%	6

Q40 - Since completing the tool, have you taken any of the following actions to reduce energy use in your home because of a recommendation you received in the PDF report that was produced after you completed the online checkup? For each action, please indicate if you have done it.

#	Question	Yes		No		Don't know		Total
1	Added weather stripping or caulking around doors and windows	34.78%	40	63.48%	73	1.74%	2	115
2	Adjusted thermostat settings or used heating and cooling equipment less often	87.83%	101	12.17%	14	0.00%	0	115
3	Closed or covered windows to reduce heat gain or loss	66.96%	77	30.43%	35	2.61%	3	115
4	Turned down water heater temperature	28.95%	33	67.54%	77	3.51%	4	114
5	Used cold water more often when doing laundry	66.38%	77	30.17%	35	3.45%	4	116
6	Turned off lights when not in use more often	91.38%	106	6.03%	7	2.59%	3	116
7	Unplugged electronics not in use	66.38%	77	32.76%	38	0.86%	1	116
8	Wash only full loads in the clothes washer	80.87%	93	16.52%	19	2.61%	3	115
9	Increased freezer or refrigerator temperature	23.68%	27	71.93%	82	4.39%	5	114
Q41 - Have you taken any other actions to save energy?

#	Answer	%	Count
1	Yes	38.79%	45
2	No	43.97%	51
98	Don't know	17.24%	20
	Total	100%	116

Q43 - You indicated that you adjusted your thermostat settings. How many degrees did you/will you turn down your thermostat in winter for heating?

#	Answer	%	Count
0	Did not/will not lower temperature for winter heating	1.98%	2
1	1 degree down	1.98%	2
2	2 degrees down	29.70%	30
3	3 degrees down	21.78%	22
4	4 degrees down	19.80%	20
5	5 or more degrees down	22.77%	23
98	Don't know	1.98%	2
	Total	100%	101

Q44 - And how many degrees did you/will you turn up your thermostat in summer for cooling?

#	Answer	%	Count
0	Did not/will not increase temperature for summer cooling	17.00%	17
1	1 degree up	5.00%	5
2	2 degrees up	27.00%	27
3	3 degrees up	12.00%	12
4	4 degrees up	10.00%	10
5	5 or more degrees up	18.00%	18
98	Don't know	11.00%	11
	Total	100%	100

Q45 - You indicated that you turned down your water heater temperature. How many degrees did you lower the temperature?

#	Answer	%	Count
1	1 – 5 degrees	54.55%	18
2	6 – 10 degrees	27.27%	9
3	11+ degrees	9.09%	3
98	Don't know	9.09%	3
	Total	100%	33

#	Quest	0(No t at all)		1		2		3		4		5		6		7		8		9		10(To a very larg e exte nt)		Do n't kno W		To tal
1	Increa se your aware ness of the servic es and incent ives that I&M offers to help custo mers save energ y.	4.3 1%	5	0.8 6%	1	2.5 9%	3	0.0 0%	0	3.4 5%	4	7.76 %	9	6.0 3%	7	14.6 6%	1 7	14.6 6%	1 7	18.1 0%	2 1	24.1 4%	2 8	3.4 5%	4	11 6
2	Increa se your knowl edge about how you use energ y in your home.	1.7 5%	2	0.0 0%	0	3.5 1%	4	0.8 8%	1	1.7 5%	2	10.5 3%	1 2	7.8 9%	9	12.2 8%	1 4	19.3 0%	22	15.7 9%	1 8	23.6 8%	2 7	2.6 3%	3	11 4
3	Enco urage you to save energ y in your home.	0.0 0%	0	0.8 8%	1	0.8 8%	1	3.5 4%	4	2.6 5%	3	3.54 %	4	7.0 8%	8	7.08 %	8	15.0 4%	1 7	19.4 7%	2 2	36.2 8%	4	3.5 4%	4	11 3

Q46 - Using the scale below, to what extent did the Online Energy Checkup Program do the following:

Q47 - Have you bought any additional energy efficient items on your own without a financial incentive or rebate because of a recommendation or information provided by the Online Energy Checkup?

#	Answer	%	Count
1	Yes	39.66%	46
2	No	54.31%	63
3	Don't know	6.03%	7
	Total	100%	116

Q48 - Since completing the online checkup in [Field-YEAR] have you done any of the following? (Select all that apply)

#	Answer	%	Count
1	Installed CFLs (Compact Fluorescent Light bulbs)	9.68%	12
2	Installed additional LED Light Bulbs	30.65%	38
3	Purchased an ENERGY STAR appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer	16.13%	20
4	Installed water heater pipe insulation	7.26%	9
5	Installed water heater jacket, blanket, or insulation	4.03%	5
6	Installed additional low flow faucet aerators	4.03%	5
7	Installed additional low flow showerheads	6.45%	8
8	Installed an ENERGY STAR window or room air conditioner	8.87%	11
9	Installed an energy efficient water heater	6.45%	8
10	Something else	4.84%	6
11	Don't know	1.61%	2
	Total	100%	124

Q49 - 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	44.19%	19
2	Did not have the time to complete rebate application	0.00%	0
3	Found out about rebate too late	16.28%	7
4	Did not think my equipment was eligible	18.60%	8
5	Submitted a rebate application that was rejected	2.33%	1
6	For some other reason (Please describe)	11.63%	5
7	Don't know	6.98%	3
	Total	100%	43

Q64 - Using the scale below, how important was the experience with the Online Energy Checkup Survey and PDF with energy saving recommendations in your decision to purchase the items you just mentioned?

#	Answer	%	Count
0	0(Not at all important)	2.33%	1
1	1	0.00%	0
2	2	2.33%	1
3	3	0.00%	0
4	4	2.33%	1
5	5	9.30%	4
6	6	9.30%	4
7	7	13.95%	6
8	8	23.26%	10
9	9	2.33%	1
10	10(Extremely important)	32.56%	14
98	Don't know	2.33%	1
	Total	100%	43

Q65 - Using the scale below, how likely would you have been to purchase those additional items if you had not participated in the Online Energy Checkup Program and received the PDF with energy saving recommendations?

#	Answer	%	Count
0	0(Not at all likely)	0.00%	0
1	1	0.00%	0
2	2	4.65%	2
3	3	11.63%	5
4	4	4.65%	2
5	5	11.63%	5
6	6	9.30%	4
7	7	13.95%	6
8	8	9.30%	4
9	9	11.63%	5
10	10(Extremely likely)	20.93%	9
98	Don't know	2.33%	1
	Total	100%	43

Q66 - Using the scale below, please rate how dissatisfied or satisfied you are with each of the following:

#	Question	1(Very dissatisfie d)		2		3		4		5(Very satisfie d)		Don't know		Tota 1
1	The online energy checkup service, overall	0.86%	1	0.00 %	0	5.17 %	6	24.14 %	2 8	64.66%	7 5	5.17 %	6	116
2	The informati on provided by the online energy checkup	0.00%	0	2.61 %	3	3.48 %	4	25.22 %	2 9	64.35%	7 4	4.35 %	5	115
3	The kit items that you received	2.59%	3	0.00 %	0	9.48 %	1 1	20.69 %	2 4	65.52%	7 6	1.72 %	2	116

Q68 - Using the scale below, how dissatisfied or satisfied are you with I&M as your electricity service provider?

#	Answer	%	Count
1	1(Very dissatisfied)	1.71%	2
2	2	4.27%	5
3	3	11.11%	13
4	4	26.50%	31
5	5(Very satisfied)	55.56%	65
6	Don't know	0.85%	1
	Total	100%	117

Q70 - Do you own the home that you completed the online energy checkup for, rent it, or own it and rent it to someone else?

#	Answer	%	Count
1	Own	83.62%	97
2	Rent	13.79%	16
3	Own and rent to someone else	0.00%	0
99	Prefer not to answer	2.59%	3
	Total	100%	116

Q71 - Which of the following best describes this property? Is it a...

#	Answer	%	Count
1	Manufactured home	3.42%	4
2	Single-family house detached from any other house	79.49%	93
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	5.98%	7
5	Apartment in a building with 2 to 3 units	1.71%	2
6	Apartment in a building with 4 or more units	6.84%	8
7	Other (Please Specify)	0.85%	1
99	Prefer not to answer	1.71%	2
	Total	100%	117

Q74 - When was your home built?

#	Answer	%	Count
1	Before 1950	19.66%	23
2	1950 to 1959	18.80%	22
3	1960 to 1969	15.38%	18
4	1970 to 1979	14.53%	17
5	1980 to 1989	2.56%	3
6	1990 to 1999	9.40%	11
7	2000 to 2009	7.69%	9
8	2010 or later	7.69%	9
99	Prefer not to answer	4.27%	5
	Total	100%	117

Q72 - What is the main fuel used to heat this property?

#	Answer	%	Count
1	Electricity	17.95%	21
2	Natural gas	62.39%	73
3	Propane	11.11%	13
4	Something else (Please specify)	7.69%	9
5	Don't heat home	0.00%	0
99	Prefer not to answer	0.85%	1
	Total	100%	117

Q73 - What fuel does the main water heater use?

#	Answer	%	Count
1	Natural gas	54.87%	62
2	Electricity	38.94%	44
3	Propane	4.42%	5
4	Something else (Please specify)	0.00%	0
5	Do not have hot water	0.00%	0
99	Prefer not to answer	1.77%	2
	Total	100%	113

Q75 - Including yourself, how many people live in your home year-round?

#	Answer	%	Count
1	1 person	26.72%	31
2	2 people	43.10%	50
3	3 people	14.66%	17
4	4 people	7.76%	9
5	5 people	1.72%	2
6	6 people	0.00%	0
7	7 people	0.86%	1
8	8 people or more	0.00%	0
99	Prefer not to answer	5.17%	6
	Total	100%	116

#	Answer	%	Count
1	1	25.00%	29
2	2	43.10%	50
3	3	17.24%	20
4	4	8.62%	10
5	5	2.59%	3
6	6	2.59%	3
7	7	0.00%	0
8	8 or more	0.00%	0
99	Prefer not to answer	0.86%	1
	Total	100%	116

Q80 - How many bathroom faucets do you have in your home?

Q81 - How many showers do you have in your home?

#	Answer	%	Count
1	1	43.10%	50
2	2	43.10%	50
3	3	9.48%	11
4	4	3.45%	4
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8 or more	0.00%	0
99	Prefer not to answer	0.86%	1
	Total	100%	116

#	Answer	%	Count
1	Less than \$10,000	2.61%	3
2	\$10,000 to less than \$20,000	5.22%	6
3	\$20,000 to less than \$30,000	7.83%	9
4	\$30,000 to less than \$40,000	6.96%	8
5	\$40,000 to less than \$50,000	11.30%	13
6	\$50,000 to less than \$75,000	16.52%	19
7	\$75,000 to less than \$100,000	5.22%	6
8	\$100,000 to less than \$150,000	11.30%	13
10	\$200,000 or more	1.74%	2
99	Prefer not to answer	31.30%	36
	Total	100%	115

Q78 - Which of the following best describes your household income?

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#	Answer	%	Count
1	Paper mail from I&M	55.56%	5
2	Email from I&M	33.33%	3
3	Saw it when I logged into my I&M account	0.00%	0
4	I&M Website (www.electricideas.com or indianamichiganpower.com)	0.00%	0
5	Friend or Relative (word-of-mouth)	0.00%	0
6	I&M Newsletter	0.00%	0
7	Social media	0.00%	0
8	Other (Please Specify)	0.00%	0
9	I don't know what the smart meter insight tools are	11.11%	1
	Total	100%	9

Q1 - How did you first learn about the smart meter insight tools that I&M provides?

Q2 - The smart meter insight tools are tools that provide you information on how much energy your household uses. The information includes trends in energy use over the year, bill comparisons, and projected bill information. Does this sound familiar?

#	Answer	%	Count
1	Yes	100.00%	9
2	No	0.00%	0
	Total	100%	9

Q3 - Which aspects of the smart meter insight tools are of interest to you? (Please select all that apply)

#	Answer	%	Count
1	Getting high usage alerts	20.69%	6
2	Getting a monthly energy report	17.24%	5
3	Seeing a weekly energy update report	10.34%	3
4	Being able to analyze energy cost and usage trends on the web portal	17.24%	5
5	Seeing how much energy my household uses at different times of day	24.14%	7
6	Getting tips on how to save energy	10.34%	3
	Total	100%	29

Q4 - Which aspect of the smart meter insight tools is of greatest interest to you?

#	Answer	%	Count
6	Getting high usage alerts	14.29%	1
7	Getting a monthly energy report	0.00%	0
8	Seeing a weekly energy update report	42.86%	3
9	Being able to analyze energy cost and usage trends on the web portal	14.29%	1
10	Seeing how much energy my household uses at different times of day	28.57%	2
11	Getting tips on how to save energy	0.00%	0
	Total	100%	7

Q5 - Which of the following best describes how often have you logged into the web-based portal that displays information on your energy usage in the past month?

#	Answer	%	Count
1	Not at all	77.78%	7
2	About once a week	22.22%	2
3	A few times a week	0.00%	0
4	Daily or almost daily	0.00%	0
	Total	100%	9

Q6 - Have you ever logged into the portal?

#	Answer	%	Count
1	Yes	28.57%	2
2	No	71.43%	5
	Total	100%	7

Q7 - Which of these types of information have you viewed on the smart meter insights web portal? (Select all that apply)

#	Answer	%	Count
1	Viewed projected bill forecast	16.67%	1
2	Viewed monthly bill comparison	50.00%	3
3	Viewed the energy history data browser that lets me analyze energy use trends	16.67%	1
4	Viewed energy saving tips	16.67%	1
	Total	100%	6

Q8 - How useful do you think the portal is for understanding how your household uses energy?

#	Answer	%	Count
1	Not at all useful	0.00%	0
2	Slightly useful	33.33%	1
3	Moderately useful	66.67%	2
4	Very useful	0.00%	0
	Total	100%	3

Q9 - How useful do you think the portal is for understanding how your household can reduce your energy use in general?

#	Answer	%	Count
1	Not at all useful	50.00%	2
2	Slightly useful	0.00%	0
3	Moderately useful	50.00%	2
4	Very useful	0.00%	0
	Total	100%	4

Q10 - How useful do you think the portal is for understanding how your household can reduce your energy use during certain times of the day?

#	Answer	%	Count
1	Not at all useful	50.00%	2
2	Slightly useful	0.00%	0
3	Moderately useful	50.00%	2
4	Very useful	0.00%	0
	Total	100%	4

Q12 - Have you viewed the monthly email energy report sent to you as part of this service?

#	Answer	%	Count
1	Yes	88.89%	8
2	No	0.00%	0
3	Do not recall receiving a monthly email report	11.11%	1
	Total	100%	9

Q13 - How informative was the monthly energy report that you viewed?

#	Answer	%	Count
1	Not at all informative	25.00%	2
2	Slightly informative	12.50%	1
3	Moderately informative	25.00%	2
4	Very informative	37.50%	3
	Total	100%	8

Q14 - Part of the service is that it provides you a high bill alert when your energy use is 30% higher than during the same month in the previous year. Have you received any of these alerts?

#	Answer	%	Count
1	Yes	22.22%	2
2	No	77.78%	7
	Total	100%	9

Q15 - Were you aware that your energy use had increased before you received the high bill alert(s)?

#	Answer	%	Count
1	Yes	100.00%	2
2	No	0.00%	0
	Total	100%	2

Q17 - Have you taken any action to reduce your energy use because of the information you received through the smart meter insight tools service? s

#	Answer	%	Count
1	Yes	55.56%	5
2	No	44.44%	4
	Total	100%	9

Q18 - What types of actions have you taken?

#	Answer	%	Count
1	Installed new equipment to reduce energy use	0.00%	0
2	Replaced existing equipment with new equipment that uses less energy	20.00%	1
3	Made changes in your behaviors to reduce energy use	80.00%	4
4	Something else (Please describe)	0.00%	0
	Total	100%	5

Q19 - Were any of the actions you took intended to reduce energy use during specific times of the day or just in general?

#	Answer	%	Count
1	Intended to reduce energy during certain times of the day	20.00%	1
2	Intended to reduce energy use in general	60.00%	3
3	Both were intended	20.00%	1
	Total	100%	5

Q20 - What time of day were you trying to reduce your energy use? (Select all that apply)

#	Answer	%	Count
1	Morning	66.67%	2
2	Midday	0.00%	0
3	Afternoon	0.00%	0
4	Evening	33.33%	1
5	Nights	0.00%	0
	Total	100%	3

Q22 - Overall, how satisfied are you with the smart meter insight tools service?

#	Answer	%	Count
1	Very dissatisfied	11.11%	1
2	Somewhat dissatisfied	0.00%	0
3	Neither satisfied nor dissatisfied	33.33%	3
4	Somewhat satisfied	44.44%	4
5	Very satisfied	11.11%	1
	Total	100%	9

Q27 - Which of the following best describes your home?

#	Answer	%	Count
1	Manufactured home	22.22%	2
2	Single-family house detached from any other house	77.78%	7
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	0.00%	0
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	I prefer not to state	0.00%	0
	Total	100%	9

Q28 - Do you own, rent, or own and rent to someone else the property that has access to the smart meter insight tools?

#	Answer	%	Count
1	Own	100.00%	9
2	Rent	0.00%	0
99	I prefer not to state	0.00%	0
	Total	100%	9

Q29 - Is this residence....

#	Answer	%	Count
1	Your primary residence	88.89%	8
2	A residence that you rent to someone else	0.00%	0
3	A vacation property that is not occupied year-round	0.00%	0
4	Something else	11.11%	1
	Total	100%	9

Q30 - What is the main fuel used for heating your home?

#	Answer	%	Count
1	Electricity	33.33%	3
2	Natural Gas	33.33%	3
3	Propane	22.22%	2
4	Something else (Please explain)	11.11%	1
5	Don't heat home	0.00%	0
99	Don't know/Prefer not to state	0.00%	0
	Total	100%	9

Q31 - What fuel does your main water heater use?

#	Answer	%	Count
1	Electricity	66.67%	6
2	Natural Gas	33.33%	3
3	Propane	0.00%	0
4	Something else (Please explain)	0.00%	0
5	Don't heat water in home	0.00%	0
99	Don't know/Prefer not to state	0.00%	0
	Total	100%	9

Q32 - What is the fuel source for your clothes dryer?

#	Answer	%	Count
1	Electricity	66.67%	6
2	Natural Gas	11.11%	1
3	Propane	0.00%	0
4	Something else (Please explain)	0.00%	0
5	I don't have a clothes dryer	11.11%	1
99	Don't know/Prefer not to state	11.11%	1
	Total	100%	9

Q33 - Do you have a Wi-Fi connect smart thermostat?

#	Answer	%	Count
1	Yes	11.11%	1
2	No	77.78%	7
99	Don't know/Prefer not to state	11.11%	1
	Total	100%	9

#	Answer	%	Count
1	1	44.44%	4
2	2	44.44%	4
3	3	0.00%	0
4	4	0.00%	0
5	5	11.11%	1
6	6	0.00%	0
7	7	0.00%	0
8	8 or more	0.00%	0
99	I prefer not to state	0.00%	0
	Total	100%	9

Q34 - Including yourself, how many people currently live in your home year-round?

Q35 - 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	0.00%	0
2	\$10,000 to less than \$20,000	12.50%	1
3	\$20,000 to less than \$30,000	12.50%	1
4	\$30,000 to less than \$40,000	0.00%	0
5	\$40,000 to less than \$50,000	12.50%	1
6	\$50,000 to less than \$75,000	12.50%	1
7	\$75,000 to less than \$100,000	0.00%	0
8	\$100,000 to less than \$150,000	12.50%	1
9	\$150,000 to less than \$200,000	0.00%	0
10	\$200,000 or more	0.00%	0
99	I prefer not to state	37.50%	3
	Total	100%	8

17. School Energy Education Survey Results

Q1 - Our records indicate that your child participated in I&M's School Energy Education. As part of your participation, you ordered a free energy-saving kit from the I&M Marketplace. This kit included energy efficient products (e.g., LED lightbulbs, faucet aerators, etc.). Did you receive this energy efficiency kit?

#	Answer	%	Count
1	Yes	100.00%	7
2	No, I did not order a kit	0.00%	0
3	No, I ordered a kit but did not receive it	0.00%	0
98	I am not sure	0.00%	0
	Total	100%	7

Q2 - We would like to know if you have had a chance to install any of the kit items and how many of the items are currently installed. How many of the FOUR LED lightbulbs included in the kit are currently installed?

#	Answer	%	Count
0	0	28.57%	2
1	1	0.00%	0
2	2	28.57%	2
3	3	28.57%	2
4	4	14.29%	1
98	Don't know	0.00%	0
	Total	100%	7

Q3 - You indicated that you have not installed \$e{4-

q://QID2/ChoiceGroup/SelectedChoices} LED bulb(s). How many of those do you think you will install in the next 6 months?

#	Answer	%	Count
0	0	0.00%	0
1	1	33.33%	2
2	2	33.33%	2
3	3	0.00%	0
4	4	16.67%	1
98	Don't know	16.67%	1
	Total	100%	6

Q4 - Why have you not installed all three of the LED bulbs yet? (Select all that apply)

#	Answer	%	Count
1	The kit did not include 4 bulbs	0.00%	0
2	I have not had the time to install them	0.00%	0
3	I am not interested in installing them	0.00%	0
4	I am waiting for light bulbs to burn out before replacing them	100.00%	6
5	I don't like them	0.00%	0
6	Some or all of the bulbs were broken	0.00%	0
7	Other (Please specify)	0.00%	0
98	Don't know	0.00%	0
	Total	100%	6

Q5 - Are any of those bulbs that you are waiting to burn out CFLs or incandescent/halogen?

#	Answer	%	Count
1	CFLs	0.00%	0
2	Incandescent/halogen	16.67%	1
3	No, all are LEDs	0.00%	0
98	Don't know	83.33%	5
	Total	100%	6

Q6 - Before you received the energy efficiency kit, what share of the light bulbs in your home were LED? Your best guess is fine.

#	Answer	%	Count
1	None	0.00%	0
2	Some but less than 25%	16.67%	1
3	Between 25% and 75%	66.67%	4
4	More than 75%	16.67%	1
98	Don't know	0.00%	0
	Total	100%	6

Q7 - How many of the two showerheads are currently installed?

#	Answer	%	Count
0	0	28.57%	2
1	1	71.43%	5
2	2	0.00%	0
98	Don't know	0.00%	0
	Total	100%	7

Q8 - You indicated that you have not installed \$e{2-

q://QID7/ChoiceGroup/SelectedChoices} showerheads. How many of those do you think you will install in the next 6 months?

#	Answer	%	Count
0	0	71.43%	5
1	1	0.00%	0
2	2	0.00%	0
98	Don't know	28.57%	2
	Total	100%	7

#	Answer	%	Count
1	The kit did not include two showerheads	0.00%	0
2	I have not had the time to install them	25.00%	2
3	I am not interested in installing them	12.50%	1
4	I only have one shower and did not need two	50.00%	4
5	I did not know how to install the showerheads	0.00%	0
6	I need physical assistance or tools to install them	0.00%	0
7	I don't like them	12.50%	1
8	They don't fit on my shower	0.00%	0
9	Other	0.00%	0
	Total	100%	8

Q9 - Why have you not installed both of the showerheads? (Select all that apply)

Q10 - Is the kitchen faucet aerator currently installed?

#	Answer	%	Count
1	Yes	71.43%	5
2	No	28.57%	2
98	Don't know	0.00%	0
	Total	100%	7

ſ	11	Do	NON	nlan	to	install	the	litahan	format	agratar	in	the	novt 6	monthe	9
Y	11	- DU	yuu	ріап	ω	mstan	une	KIUIU	laucci	aci atui	111	uic	ΠΕΛΙ Ο	monus	•

#	Answer	%	Count
1	Yes	50.00%	1
2	No	50.00%	1
98	Don't know	0.00%	0
	Total	100%	2

Q12 - Why have you not installed the kitchen faucet aerator? (Select all that apply)

#	Answer	0⁄0	Count
1	It was not included in the kit	0.00%	0
2	I have not had the time to install it	50.00%	1
3	I am not interested in installing it	0.00%	0
4	I did not know how to install it	0.00%	0
5	I need physical assistance or tools to install it	0.00%	0
6	I don't like it	0.00%	0
7	It does not fit on my faucet	50.00%	1
8	Other	0.00%	0
	Total	100%	2

#	Answer	%	Count
0	0	28.57%	2
1	1	42.86%	3
2	2	28.57%	2
98	Don't know	0.00%	0
	Total	100%	7

Q13 - How many of the two bathroom faucet aerators are currently installed?

Total

Q14 - You indicated that you have not installed \$e{2-

q://QID13/ChoiceGroup/SelectedChoices} bathroom faucet aerator(s). How many of those do you think you will install in the next 6 months?

#	Answer	%	Count
0	0	40.00%	2
1	1	20.00%	1
2	2	0.00%	0
98	Don't know	40.00%	2
	Total	100%	5

Q15 - Why have you not installed both of the bathroom faucet aerators? (Select all that apply)

#	Answer	%	Count
1	The kit did not include two bathroom faucet aerators	0.00%	0
2	I have not had the time to install them	60.00%	3
3	I am not interested in installing them	0.00%	0
4	I don't like them	0.00%	0
5	I did not know how to install them	0.00%	0
6	I need physical assistance or tools to install them	0.00%	0
7	They do not fit on my faucet	0.00%	0
8	Other	40.00%	2
	Total	100%	5

Q16 - Is the filter tone alarm currently installed?

#	Answer	%	Count
1	Yes	14.29%	1
2	No	71.43%	5
98	Don't know	14.29%	1
	Total	100%	7
Q17 - You indicated that you have not installed the filter tone alarm. Do you think you will install it in the next 6 months?

#	Answer	%	Count
1	Yes	60.00%	3
2	No	20.00%	1
98	Don't know	20.00%	1
	Total	100%	5

Q18 - Why have you not installed the filter tone alarm? (Select all that apply)

#	Answer	%	Count
1	It was not included in the kit	0.00%	0
2	I have not had the time to install it	16.67%	1
3	I am not interested in installing it	0.00%	0
4	It was installed but it was removed when the filter was replaced	0.00%	0
5	I don't like it	0.00%	0
6	I didn't need it	33.33%	2
7	Other	50.00%	3
	Total	100%	6

Q19 - Thinking back to before your family received the energy efficient products through the School Energy Education program, had you purchased any of the following items in the last three years?

#	Question	Yes		No		Total
1	LED lightbulbs	85.71%	6	14.29%	1	7
2	High efficiency showerheads	20.00%	1	80.00%	4	5
3	Kitchen faucet aerator	33.33%	2	66.67%	4	6
4	Bathroom faucet aerators	33.33%	2	66.67%	4	6
5	Filter tone alarm	0.00%	0	100.00%	5	5

Q20 - Before you heard of the School Energy Education program, did you have specific plans to purchase any of the kit items that were sent to you?

#	Answer	%	Count
1	Yes	42.86%	3
2	No	28.57%	2
98	Don't know	28.57%	2
	Total	100%	7

Q21 - For each of the following items, please indicate if you had plans to purchase the item before you heard of the School Energy Education Program.

#	Question	Yes		No		Total
1	LED lightbulbs	100.00%	3	0.00%	0	3
2	High efficiency showerheads	50.00%	1	50.00%	1	2
3	Kitchen faucet aerator	0.00%	0	100.00%	2	2
4	Bathroom faucet aerators	33.33%	1	66.67%	2	3
5	Filter tone alarm	0.00%	0	100.00%	2	2

#	Answer	%	Count
0	0	0.00%	0
1	1	0.00%	0
2	2	33.33%	1
3	3	33.33%	1
4	4	0.00%	0
98	Don't know	33.33%	1
	Total	100%	3

Q22 - How many of the four LED lightbulbs that you received did you plan to purchase?

Q23 - How many of the two high efficiency showerheads that you received did you plan to purchase?

#	Answer	%	Count
0	0	0.00%	0
1	1	100.00%	1
2	2	0.00%	0
98	Don't know	0.00%	0
	Total	100%	1

Q24 - How many of the two bathroom faucet aerators that you received did you plan to purchase?

#	Answer	%	Count
0	0	71.43%	5
1	1	14.29%	1
2	2	14.29%	1
	Total	100%	7

Q25 - Using a scale where 0 means "not at all likely" and 10 means "very likely", if your family had not received the School Energy Education kit, how likely would you have been to purchase any of the following items on your own within 12 months of when you received them?

#	Ques tion	0		1		2		3		4		5		6		7		8		9		10		T ot al
1	LED light bulbs	0.0 0 %	0	0.0 0 %	0	0.0 0 %	0	0.0 0 %	0	14. 29 %	1	0.0 0 %	0	0.0 0 %	0	0. 00 %	0	0.0 0 %	0	28. 57 %	2	57. 14 %	4	7
2	High effici ency show erhea ds	16. 67 %	1	0.0 0 %	0	16. 67 %	1	16. 67 %	1	0.0 0 %	0	16. 67 %	1	0.0 0 %	0	0. 00 %	0	16. 67 %	1	16. 67 %	1	0.0 0 %	0	6
3	Kitc hen fauce t aerat or	14. 29 %	1	14. 29 %	1	0.0 0 %	0	14. 29 %	1	0.0 0 %	0	14. 29 %	1	14. 29 %	1	0. 00 %	0	14. 29 %	1	0.0 0 %	0	14. 29 %	1	7
4	Bath room fauce t aerat ors	14. 29 %	1	14. 29 %	1	28. 57 %	2	0.0 0 %	0	0.0 0 %	0	14. 29 %	1	0.0 0 %	0	0. 00 %	0	0.0 0 %	0	14. 29 %	1	14. 29 %	1	7
5	Filter tone alar m	33. 33 %	2	16. 67 %	1	0.0 0 %	0	16. 67 %	1	0.0 0 %	0	16. 67 %	1	0.0 0 %	0	0. 00 %	0	0.0 0 %	0	16. 67 %	1	0.0 0 %	0	6

Q26 - Based on your response, there is some likelihood that you would have purchased some of the kit items in the next 12 months. Given that, we would like to know why you had not already purchased the items on your own. Had you not already purchased the kit items because: (Select all that apply)

#	Answer	%	Count
1	You didn't want to spend the money	12.50%	1
2	You had not gotten around to purchasing the items	50.00%	4
3	You didn't know where to purchase the items	12.50%	1
4	You didn't know enough about the items	25.00%	2
5	For other reasons	0.00%	0
6	Don't know	0.00%	0
	Total	100%	8

Q28 - Have you bought any additional energy efficient items on your own without a financial incentive or rebate since receiving the School Energy Education kit?

#	Answer	%	Count
1	Yes	28.57%	2
2	No	71.43%	5
3	Don't know	0.00%	0
	Total	100%	7

Q29 - Since receiving the School Energy Education kit in 2021 have you done any of the following? (Select all that apply)

#	Answer	%	Count
1	Installed additional LED Light Bulbs	28.57%	2
2	Purchased an ENERGY STAR appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer	0.00%	0
3	Installed water heater pipe insulation	0.00%	0
4	Installed water heater jacket, blanket, or insulation	14.29%	1
5	Installed additional low flow faucet aerators	0.00%	0
6	Installed additional low flow showerheads	0.00%	0
7	Installed an ENERGY STAR window or room air conditioner	0.00%	0
8	Installed an energy efficient water heater	0.00%	0
9	Smart thermostat	14.29%	1
10	Something else	14.29%	1
11	Don't know	28.57%	2
	Total	100%	7

Q30 - Why did you not get an I&M incentive, rebate, or discount for that energy saving equipment? Select all that apply.

#	Answer	%	Count
1	Was not aware there was a rebate available	75.00%	3
2	Did not have the time to complete the rebate application	0.00%	0
3	Found out about the 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)	25.00%	1
7	Don't know	0.00%	0
	Total	100%	4

Q49 - Using the scale below, how important was the experience with the School Energy
Education kit in your decision to purchase the items you just mentioned?

#	Answer	%	Count
0	0Not 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	25.00%	1
7	7	0.00%	0
8	8	25.00%	1
9	9	0.00%	0
10	10Very important	50.00%	2
98	Don't know	0.00%	0
	Total	100%	4

Q50 - Using the scale below, how likely would you have been to purchase those additional items if you had not received a School Energy Education kit?

#	Answer	%	Count
0	0Not 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	25.00%	1
7	7	0.00%	0
8	8	25.00%	1
9	9	25.00%	1
10	10Very likely	25.00%	1
98	Don't know	0.00%	0
	Total	100%	4

051	l - How easy or	r difficult was it to	order the	School Energy	kit on the	I&M Marketnlace?
V3	l - IIUw casy ui	unneun was n to	order the	School Energy	KIL OH LHC	I WINI IVIAI KELPIACE.

#	Answer	%	Count
1	1Very difficult	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	14.29%	1
5	5Very easy	71.43%	5
98	Don't know	14.29%	1
	Total	100%	7

Q52 - Did you order any other products from the I&M marketplace in addition to the kit?

#	Answer	%	Count
1	Yes	28.57%	2
2	No	71.43%	5
	Total	100%	7

Q53 - What products did you purchase?

#	Answer	%	Count
1	Additional LED lightbulbs	50.00%	1
2	Smart thermostat	0.00%	0
3	Advanced power strip	0.00%	0
4	Additional faucet aerators	0.00%	0
5	Additional showerheads	0.00%	0
6	Other (specify)	50.00%	1
	Total	100%	2

Q55 - Using the scale below, please rate how dissatisfied or satisfied you are with each of the following:

#	Question	1Very dissatisfie d		2		3		4		5Very satisfie d		Don't know		Tota 1
1	Your child's experienc e in the School Energy Education program	0.00%	0	0.00 %	0	0.00%	0	14.29 %	1	57.14%	4	28.57 %	2	7
2	The energy education provided by the School Energy Education program	0.00%	0	0.00 %	0	0.00%	0	28.57 %	2	42.86%	3	28.57 %	2	7
3	The kit items that you received	0.00%	0	0.00 %	0	14.29 %	1	14.29 %	1	71.43%	5	0.00%	0	7

Q57 - Using the scale below, how dissatisfied or satisfied are you with I&M as your electricity service provider?

#	Answer	%	Count
1	1Very dissatisfied	0.00%	0
2	2	0.00%	0
3	3	14.29%	1
4	4	0.00%	0
5	5Very satisfied	85.71%	6
98	Don't know	0.00%	0
	Total	100%	7

Q59 - Do you own, rent, or own and rent to someone else the property located at [ADDRESS]?

#	Answer	%	Count
1	Own	71.43%	5
2	Rent	14.29%	1
3	Own and rent to someone else	0.00%	0
99	Prefer not to answer	14.29%	1
	Total	100%	7

Q60 - 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	71.43%	5
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	0.00%	0
4	Apartment in a building with 2 to 3 units	0.00%	0
5	Apartment in a building with 4 or more units	14.29%	1
6	Other (Please Specify)	0.00%	0
99	Prefer not to answer	14.29%	1
	Total	100%	7

Q61 - When was this property built?

#	Answer	%	Count
1	Before 1950	14.29%	1
2	1950 to 1959	0.00%	0
3	1960 to 1969	28.57%	2
4	1970 to 1979	0.00%	0
5	1980 to 1989	0.00%	0
6	1990 to 1999	14.29%	1
7	2000 to 2009	0.00%	0
8	2010 to 2019	14.29%	1
9	2020 or later	0.00%	0
99	Prefer not to answer	28.57%	2
	Total	100%	7

Q62 - What is the approximate square footage of your home? Your best estimate is fine.

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

1000			
3,500			
965			
3500			
1900			
Don't know			
700			

Q63 - What type of heating system do you mainly use to heat your home?

#	Answer	%	Count
1	Central furnace	57.14%	4
2	Heat pump	0.00%	0
3	Other (Please specify)	28.57%	2
4	Don't heat home	0.00%	0
99	Prefer not to answer	14.29%	1
	Total	100%	7

Q64 - What is the main fuel used to heat this property?

#	Answer	%	Count
1	Electricity	28.57%	2
2	Natural gas	57.14%	4
3	Propane	0.00%	0
4	Something else (Please specify)	0.00%	0
5	Don't heat home	14.29%	1
99	Prefer not to answer	0.00%	0
	Total	100%	7

Q65 - What fuel does the main water heater use?

#	Answer	%	Count
1	Natural gas	42.86%	3
2	Electricity	42.86%	3
3	Propane	0.00%	0
4	Something else (Please specify)	14.29%	1
5	Do not have hot water	0.00%	0
99	Prefer not to answer	0.00%	0
	Total	100%	7

Q66 - Including yourself, how many people lived in the property in the last year?

#	Answer	%	Count
1	1 person	14.29%	1
2	2 people	14.29%	1
3	3 people	0.00%	0
4	4 people	28.57%	2
5	5 people	14.29%	1
6	6 people	0.00%	0
7	7 people	0.00%	0
8	8 people or more	0.00%	0
99	Prefer not to answer	28.57%	2
	Total	100%	7

#	Answer	%	Count
1	1	42.86%	3
2	2	14.29%	1
3	3	0.00%	0
4	4	28.57%	2
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8 or more	0.00%	0
99	Prefer not to answer	14.29%	1
	Total	100%	7

Q67 - How many bathroom faucets do you have in your home?

O68 -	How	manv	showers	do vou	have in	vour home?
Q00 -	110 11	many	SHUTCIS	uuyuu	nave m	your nome.

#	Answer	%	Count
1	1	57.14%	4
2	2	0.00%	0
3	3	14.29%	1
4	4	14.29%	1
5	5	0.00%	0
6	6	0.00%	0
7	7	0.00%	0
8	8 or more	0.00%	0
99	Prefer not to answer	14.29%	1
	Total	100%	7

Q69 - Is your child eligible for free or reduced lunch?

#	Answer	%	Count
1	Yes	28.57%	2
2	No	28.57%	2
99	Prefer not to answer	42.86%	3
	Total	100%	7

18. Residential Non-Participant 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%	145
2	No	0.0%	0
3	The location is not a residence	0.0%	0
4	Not sure	0.0%	0
	Total	100%	145

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%	145
	Total	100%	145

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%	145
	Total	100%	145

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%	145
	Total	100%	145

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	23.4%	32
2	Installed LED Light Bulbs	63.5%	87
3	Purchased an ENERGY STAR® appliance such as a refrigerator, dishwasher, clothes washer, air purifier, dehumidifier, or clothes dryer	18.2%	25
4	Installed water heater pipe insulation	5.1%	7
5	Installed water heater jacket, blanket, or insulation	2.9%	4
6	Installed low flow faucet aerators	6.6%	9
7	Installed low flow showerheads	9.5%	13
8	Installed an ENERGY STAR® room air conditioner	2.2%	3
9	Installed an energy efficient water heater	13.1%	18
10	Installed an energy efficient central air conditioner or heat pump	9.5%	13
11	Installed a smart (Wi-Fi) thermostat	10.2%	14
12	Something else	8.0%	11
	Total	100%	137

Q6 - Did you receive a rebate or incentive from I&M for the equipment or home improvements that you mentioned?

#	Answer	%	Count
1	Yes	1.0%	1
2	No	90.5%	95
3	Not sure	8.6%	9
	Total	100%	105

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	73.4%	69
2	Did not have the time to complete rebate application	0.0%	0
3	Found out about rebate too late	4.3%	4
4	Did not think my equipment was eligible	13.8%	13
5	Submitted a rebate application that was rejected	0.0%	0
6	For some other reason (Please describe)	4.3%	4
7	Don't know	4.3%	4
	Total	100%	94

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)	7.0%	10
2	2	14.0%	20
3	3	33.6%	48
4	4	32.9%	47
5	5(Very easy)	12.6%	18
	Total	100%	143

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	9.9%	14	7.7%	11	31.0%	44	21.1%	30	30.3%	43	142
2	Reduce greenhouse gas emissions	9.2%	13	9.9%	14	31.2%	44	29.8%	42	19.9%	28	141
3	Help make the grid more reliable	7.8%	11	5.7%	8	36.2%	51	31.9%	45	18.4%	26	141

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	25.9%	36	74.1%	103	139
2	All-electric homes are expensive to buy	56.8%	79	43.2%	60	139
3	All-electric homes improve indoor and outdoor air quality	57.2%	79	42.8%	59	138
4	All-electric homes have higher utility costs	80.9%	114	19.1%	27	141

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	21.5%	31
2	No	61.1%	88
3	Don't know	17.4%	25
	Total	100%	144

#	Answer	%	Count
1	Heating and cooling equipment	58.1%	18
2	Heat pump water heaters or high-efficiency electric water heater	35.5%	11
3	Discounts for LED light bulbs	58.1%	18
4	Insulation / air sealing	16.1%	5
5	Smart Wi-Fi thermostats	54.8%	17
6	Recycling old refrigerators or freezers	67.7%	21
7	Home energy assessments	38.7%	12
8	Energy-saving pool pump	6.5%	2
9	Efficient dehumidifier	6.5%	2
10	ECM furnace fan motor	0.0%	0
11	Geothermal heat pump	12.9%	4
12	Packaged terminal heat pump	0.0%	0
13	IM Power Rewards: Smart Thermostat	19.4%	6
14	Other (Specify)	3.2%	1
15	Don't know	12.9%	4
	Total	100%	31

Q60 - What types of rebates or services do you recall hearing about? (Select all that apply)

#	Answer	%	Count
1	I&M Website (www.electricideas.com or indianamichiganpower.com)	20.0%	6
2	I&M bill insert, or message printed on your bill	66.7%	20
3	Friend, family member, or colleague	6.7%	2
4	TV ad	6.7%	2
5	I&M Representative	0.0%	0
6	I&M Newsletter	13.3%	4
7	Community event	0.0%	0
8	Social media	3.3%	1
9	Home Energy Report	13.3%	4
10	Newspaper/magazine/print media	3.3%	1
11	Other (Please describe)	3.3%	1
12	Don't recall	20.0%	6
	Total	100%	30

Q61 - How did you learn of these rebates or services? (Select all that apply)

Q63 - Which of the following best describes your home?

#	Answer	%	Count
1	Manufactured home	6.3%	9
2	Single-family house detached from any other house	75.7%	109
3	Single family house attached to one or more other houses, for example, duplex, row house, or townhome	7.6%	11
4	Apartment in a building with 2 to 3 units	0.7%	1
5	Apartment in a building with 4 or more units	4.2%	6
6	Other (Specify)	1.4%	2
99	I prefer not to state	4.2%	6
	Total	100%	144

Q64 - Do you own, rent, or own and rent to someone else the property located at [Field-ADDRESS]?

#	Answer	%	Count
1	Own	85.3%	122
2	Rent	8.4%	12
3	Own and rent to someone else	0.0%	0
99	I prefer not to state	6.3%	9
	Total	100%	143

Q65 - When was your home built?

#	Answer	%	Count
1	Before 1950	18.2%	26
2	1950 to 1959	10.5%	15
3	1960 to 1969	13.3%	19
4	1970 to 1979	16.1%	23
5	1980 to 1989	6.3%	9
6	1990 to 1999	9.1%	13
7	2000 to 2009	4.2%	6
8	2010 or later	6.3%	9
99	Don't know/Prefer not to state	16.1%	23
	Total	100%	143

Q66 - What is the fuel source for your clothes dryer?

#	Answer	%	Count
1	Natural gas	25.4%	36
2	Electricity	67.6%	96
3	Propane	1.4%	2
4	Other	0.0%	0
5	I don't have a clothes dryer	3.5%	5
99	Don't know/Prefer not to state	2.1%	3
	Total	100%	142

Q67 - What is the fuel source for your oven and range?

#	Answer	%	Count
1	Natural gas	31.0%	44
2	Electricity	62.0%	88
3	Propane	4.9%	7
4	Other	1.4%	2
5	I don't have an oven/range	0.0%	0
99	Don't know/Prefer not to state	0.7%	1
	Total	100%	142

Q68 - Do you have a Wi-Fi connect smart thermostat?

#	Answer	%	Count
1	Yes	14.7%	21
2	No	81.8%	117
99	Don't know/Prefer not to state	3.5%	5
	Total	100%	143

Q69 - Do you or any member of your household own or lease a plug-in electric vehicle?

#	Answer	%	Count
1	Yes	0.7%	1
2	No	97.9%	139
99	Don't know/Prefer not to state	1.4%	2
	Total	100%	142

Q70 - Do you have a plug-in hybrid vehicle or a battery electric vehicle?

#	Answer	%	Count
1	Plug-in hybrid	100.0%	1
2	Battery electric vehicle	0.0%	0
3	Both	0.0%	0
99	Don't know/Prefer not to state	0.0%	0
	Total	100%	1

Q71 - Do you charge your electric vehicle at home?

#	Answer	%	Count
1	Yes	100.0%	1
2	No	0.0%	0
99	Prefer not to state	0.0%	0
	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	61.0%	86
2	No	37.6%	53
3	Prefer not to state	1.4%	2
	Total	100%	141

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	12.1%	17
2	No	78.0%	110
99	Don't know/Prefer not to state	9.9%	14
	Total	100%	141

Q74 - What is the main fuel used for heating your home?

#	Answer	%	Count
1	Electricity	14.0%	20
2	Natural Gas	67.8%	97
3	Propane	7.7%	11
4	Something else (Please explain)	7.0%	10
5	Don't heat home	0.0%	0
99	Don't know/Prefer not to state	3.5%	5
	Total	100%	143

Q75 - What fuel does your main water heater use?

#	Answer	%	Count
1	Electricity	35.7%	51
2	Natural Gas	53.1%	76
3	Propane	4.9%	7
4	Something else (Please explain)	1.4%	2
5	Don't heat home	0.0%	0
99	Don't know/Prefer not to state	4.9%	7
	Total	100%	143

Q76 - Including yourself, how many people currently live in your home year-round?

#	Answer	%	Count
1	1	26.4%	38
2	2	50.0%	72
3	3	6.3%	9
4	4	3.5%	5
5	5	1.4%	2
6	6	0.7%	1
7	7	0.7%	1
8	8 or more	0.0%	0
99	I prefer not to state	11.1%	16
	Total	100%	144

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	1.4%	2
2	\$10,000 to less than \$20,000	4.2%	6
3	\$20,000 to less than \$30,000	7.7%	11
4	\$30,000 to less than \$40,000	6.3%	9
5	\$40,000 to less than \$50,000	4.9%	7
6	\$50,000 to less than \$75,000	11.3%	16
7	\$75,000 to less than \$100,000	7.0%	10
8	\$100,000 to less than \$150,000	9.9%	14
9	\$150,000 to less than \$200,000	4.2%	6
10	\$200,000 or more	2.8%	4
99	I prefer not to state	40.1%	57
	Total	100%	142