2021-2022
Idaho Wattsmart Homes Program
Evaluation, Measurement & Verification Report

Prepared for:

Rocky Mountain Power

March 2024

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Table of Contents

Acronyms & Glossary of Terms ii
1 Executive Summary 1
1.1 Impact Analysis Results 1
1.2 Cost Effectiveness Results 3
1.3 Conclusions 5
1.4 Recommendations 8
2 Introduction and Purpose of Study 10
2.1 Description of Programs 10
2.2 Impact Evaluation Objective 12
2.3 Process Evaluation Objective 13
3 Impact Evaluation 14
3.1 Impact Evaluation Approach 15
3.2 Sample Design 17
3.3 Determination of Impact Methodology 18
3.4 Net-to-Gross Ratios 19
3.5 Note on Measure Versions 19
3.6 Transportation 19
3.7 Lighting 26
3.8 Heating, Ventilation, and Air Conditioning (HVAC) 32
3.9 Energy Saving Kits 36
3.10 Whole Building and Whole Home 43
3.11 Water Heating 47
3.12 Building Shell 48
3.13 Appliances 50
3.14 Electronics 53
4 Process Evaluation 55
4.1 Review of Program Materials and Staff Interviews 55
4.2 Engine Block Heater Control Survey Results 57
4.3 General Population Survey 63
4.4 Energy Kits Participant Survey Results 70
5 Cost-Effectiveness Results 75
6 Conclusions and Recommendations 75
6.1 Conclusions 79
6.2 Recommendations 81
Appendix A: Energy Block Heater Controller Participant Survey 83
Appendix B: 2022 General Population Survey 86
Appendix C: Energy Saving Kits Participant Survey 109

Acronyms & Glossary of Terms

The following acronyms and terms are used throughout this report.

AHRI – Air-Conditioning, Heating, and Refrigeration Institute

CAC – Central air conditioning

Claimed savings – Energy savings calculated based on forecasts rather than actual results; used for program and portfolio planning purposes; energy savings included in RMP's annual reports. Used interchangeably with ex-ante savings.

Deemed savings – An estimate of energy savings for an adopted efficiency measure or practice developed from a set of assumptions that reflects an average installation scenario.

Downstream distribution channel – financial incentives to purchase energy efficient products measures are offered to customers post purchase by submitting a rebate application. The incentive is paid at the end point, or downstream, in the distribution channel.

EM&V – Evaluation, measurement, and verification

Evaluated savings – Savings estimates that are based on verified program results rather than forecasts. Used interchangeably with ex-post savings.

Ex-ante savings – Energy savings calculated based on forecasts rather than actual results; used for program and portfolio planning purposes; energy savings included in RMP's annual reports. Used interchangeably with claimed savings.

Ex-post savings – Savings estimates that are based on verified program results rather than forecasts. Used interchangeably with evaluated savings.

HVAC – Heating, ventilation, and air conditioning

HOU – Hours of use

ISR – In-service rate

kWh – Kilowatt hours

ML – Measure Library

Midmarket or midstream distribution channel – financial incentives are offered to customers through contractors, for example HVAC trade allies, who submit rebate applications on behalf of end customers. The incentive is paid in the middle, or midstream, point of the distribution channel.

NTG – Net to gross

Realization rate – The ratio of evaluated savings to claimed savings (ex-post savings divided by ex-ante savings).

RTF – Regional Technical Forum

TMY3 – Typical meteorological year (TMY) data set 3 derived from the 1991-2005 National Solar Radiation Data Base (NSRDB)

Upstream distribution channel – financial incentives are offered through discounts on energy efficient products or services at retail stores. RMP pays incentives to retailers, distributors, or manufacturers who pass incentives on to customers. The incentive is paid at the beginning, or upstream, point in the distribution channel.

UES – Unit energy savings

1 Executive Summary

ADM Associates, Inc. (ADM) is under contract with PacifiCorp to perform evaluation, measurement, and verification (EM&V) services to determine kilowatt hours (kWh) of energy savings that resulted from Rocky Mountain Power's (RMP) 2021-2022 Wattsmart Homes Program in Idaho. This report documents ADM's findings.

The purpose of this report is to present ADM's impact evaluation of the energy savings (kWh) that resulted from the program and ADM's process evaluation that considers program operations.

The program provides financial incentives (discounts, rebates, and free products) to RMP residential customers who purchase and install energy efficient products. The program leverages relationships with manufacturers, distributors, and retailers to ensure effective program implementation and optimize participation.

1.1 Impact Analysis Results

Table 1-1 through Table 1-3 present impact evaluation results including claimed savings, evaluated savings and realization rates for each measure category across both program years.

Table 1-1: Total Program Savings 2021-2022

Measure Category	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Appliances	68	5,200	4,415	85%	89%	3,908
Building Shell	23,037	30,590	30,590	100%	89%	27,079
Electronics	36	1,228	1,228	100%	89%	1,087
Energy Kits	736	111,532	107,430	96%	89%	95,304
HVAC	526	402,672	367,053	91%	89%	324,922
Lighting	27,758	549,110	475,254	87%	63%	297,076
Transportation	1,530	2,357,730	1,650,411	70%	96%	1,584,395
Water Heating	25	42,509	35,446	83%	89%	31,377
Whole Building	82	87,495	95,651	109%	89%	84,672
Whole Home	5	20,710	20,710	100%	89%	18,333
Total	**53,803**	**3,608,776**	**2,788,186**	**77%**	**89%**	**2,468,152**

Table 1-2: Total Program Savings 2021

Measure Category	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Appliances	29	2,609	2,198	84%	89%	1,945
Building Shell	13,517	16,466	16,466	100%	89%	14,576
Electronics	2	68	68	100%	89%	60
Energy Kits	328	60,397	51,398	85%	89%	45,648
HVAC	339	193,067	185,687	96%	89%	164,373
Lighting	27,747	545,333	471,635	86%	63%	294,892
Transportation	3	4,623	3,236	70%	96%	3,107
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Whole Building	15	20,885	19,683	94%	89%	17,424
Whole Home	5	20,710	20,710	100%	89%	18,333
Total	**41,995**	**880,308**	**785,639**	**89%**	**73%**	**573,245**

Table 1-3: Total Program Savings 2022

Measure Category	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Appliances	39	2,591	2,218	86%	89%	1,963
Building Shell	9,520	14,124	14,124	100%	89%	12,503
Electronics	34	1,159	1,159	100%	89%	1,026
Energy Kits	408	51,136	56,032	110%	89%	49,657
HVAC	187	209,605	181,367	87%	89%	160,549
Lighting	11	3,777	3,618	96%	60%	2,184
Transportation	1,527	2,353,107	1,647,175	70%	96%	1,581,288
Water Heating	15	26,359	20,888	79%	89%	18,490
Whole Building	67	66,610	75,967	114%	89%	67,248
Total	**11,808**	**2,728,468**	**2,002,547**	**73%**	**95%**	**1,894,908**

Net-to-gross (NTG) ratios were calculated for Transportation (96 percent), Lighting (63 percent) and Energy Kits (89 percent) measure categories. The remaining measure categories had too few participants or contributed too small a percentage of program savings to justify measure-category-level NTG investigations. Therefore, a weighted average NTG from Transportation, Lighting and Energy Kits measure categories was calculated as a program wide NTG that was applied to the remaining measures categories.

1.2 Cost Effectiveness Results

AEG estimated the cost-effectiveness results for the Idaho Wattsmart Homes Program based on 2021 and 2022 costs and savings estimates provided by PacifiCorp. The program did not pass the cost effectiveness tests. Cost-effectiveness test results are presented with and without non-energy benefits (NEBs). Cost-effectiveness inputs are included in Table 1-4.

Table 1-4: Cost-Effectiveness Analysis Inputs

Parameter	Value
Discount Rate	6.88%
Residential Line Loss	9.06%
Residential Energy Rate ($/kWh)	$0.1013
Inflation Rate[1]	2.16%

1.2.1 Program Cost-Effectiveness Results (without NEBs)

Cost-effectiveness without NEBs results are reported in Table 1-5 through

Table 1-7.

Table 1-5: Program Cost-Effectiveness Results (Without NEBs) – 2021-2022

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.1345	$2,772,961	$1,316,169	-$1,456,792	0.47
Total Resource Cost Test (TRC) No Adder	$0.1345	$2,772,961	$1,196,517	-$1,576,444	0.43
Utility Cost Test (UCT)	$0.0622	$1,282,875	$1,196,517	-$86,358	0.93
Participant Cost Test (PCT)		$2,028,862	$2,823,037	$794,175	1.39
Rate Impact Test (RIM)		$3,798,364	$1,196,517	-$2,601,847	0.32
Lifecycle Revenue Impacts ($/kWh)	$0.0001011				
Discounted Participant Payback (years)	7.97				

[1] Future rates determined using a 2.16% annual escalator.

Table 1-6: Program Cost-Effectiveness Results (Without NEBs) – 2021

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.3130	$1,645,857	$497,373	-$1,148,485	0.30
Total Resource Cost Test (TRC) No Adder	$0.3130	$1,645,857	$452,157	-$1,193,700	0.27
Utility Cost Test (UCT)	$0.0932	$489,854	$452,157	-$37,697	0.92
Participant Cost Test (PCT)		$1,433,195	$864,473	-$568,721	0.60
Rate Impact Test (RIM)		$1,264,739	$452,157	-$812,582	0.36
Lifecycle Revenue Impacts ($/kWh)	$0.0000337				
Discounted Participant Payback (years)	19.10				

Table 1-7: Program Cost-Effectiveness Results (Without NEBs) – 2022

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.07	$1,165,305	$880,946	-$284,359	0.76
Total Resource Cost Test (TRC) No Adder	$0.07	$1,165,305	$800,860	-$364,445	0.69
Utility Cost Test (UCT)	$0.05	$808,104	$800,860	-$7,243	0.99
Participant Cost Test (PCT)		$636,888	$2,044,245	$1,407,357	3.21
Rate Impact Test (RIM)		$2,619,306	$800,860	-$1,818,445	0.31
Lifecycle Revenue Impacts ($/kWh)	0.00007				
Discounted Participant Payback (years)	3.36				

1.2.2 Program Cost-Effectiveness Results (with NEBs)

Cost-effectiveness with NEBs results are reported in Table 1-8 through Table 1-10.

Table 1-8: Program Cost-Effectiveness Results (With NEBs) – 2021-2022

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.1345	$2,772,961	$1,391,691	-$1,381,269	0.50
Total Resource Cost Test (TRC) No Adder	$0.1345	$2,772,961	$1,272,040	-$1,500,921	0.46
Utility Cost Test (UCT)	$0.0622	$1,282,875	$1,196,517	-$86,358	0.93
Participant Cost Test (PCT)		$2,028,862	$2,908,168	$879,306	1.43
Rate Impact Test (RIM)		$3,798,364	$1,196,517	-$2,601,847	0.32
Lifecycle Revenue Impacts ($/kWh)	$0.0001011				
Discounted Participant Payback (years)	7.72				

Table 1-9: Program Cost-Effectiveness Results (With NEBs) – 2021

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.3130	$1,645,857	$536,796	-$1,109,062	0.33
Total Resource Cost Test (TRC) No Adder	$0.3130	$1,645,857	$491,580	-$1,154,278	0.30
Utility Cost Test (UCT)	$0.0932	$489,854	$452,157	-$37,697	0.92
Participant Cost Test (PCT)		$1,433,195	$908,867	-$524,328	0.63
Rate Impact Test (RIM)		$1,264,739	$452,157	-$812,582	0.36
Lifecycle Revenue Impacts ($/kWh)	$0.0000337				
Discounted Participant Payback (years)	18.05				

Table 1-10: Program Cost-Effectiveness Results (With NEBs) – 2022

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.07	$1,165,305	$919,445	-$245,860	0.79
Total Resource Cost Test (TRC) No Adder	$0.07	$1,165,305	$839,358	-$325,946	0.72
Utility Cost Test (UCT)	$0.05	$808,104	$800,860	-$7,243	0.99
Participant Cost Test (PCT)		$636,888	$2,087,688	$1,450,800	3.28
Rate Impact Test (RIM)		$2,619,306	$800,860	-$1,818,445	0.31
Lifecycle Revenue Impacts ($/kWh)					0.00007
Discounted Participant Payback (years)					3.29

1.3 Conclusions

ADM draws the following conclusions from its evaluation.

- RMP's 2021-2022 Wattsmart Homes program resulted in a net evaluated savings of 2,468,152 kWh with a realization rate of 77 percent as reported in Table 1-11.

Table 1-11: Total Program Savings by Year

Year	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
2021	880,308	785,639	89%	73%	573,245
2022	2,728,468	2,002,547	73%	95%	1,894,908
Total	**3,608,776**	**2,788,186**	**77%**	**89%**	**2,468,152**

- The Transportation measure category accounted for 86 percent of claimed program results in 2022. This is a new measure category with a single measure, the Engine Block Heater Control. The measure had a 70 percent realization rate, which drove savings and realization rates for the Wattsmart Homes program in 2022.
- Claimed savings for 2022 (2,728,468 kWh) was three times the claimed savings for 2021 (880,308 kWh). The 73 percent realization rate for 2022 heavily influenced the realization rate for the two-year evaluation period (77 percent). See Figure 1-1.

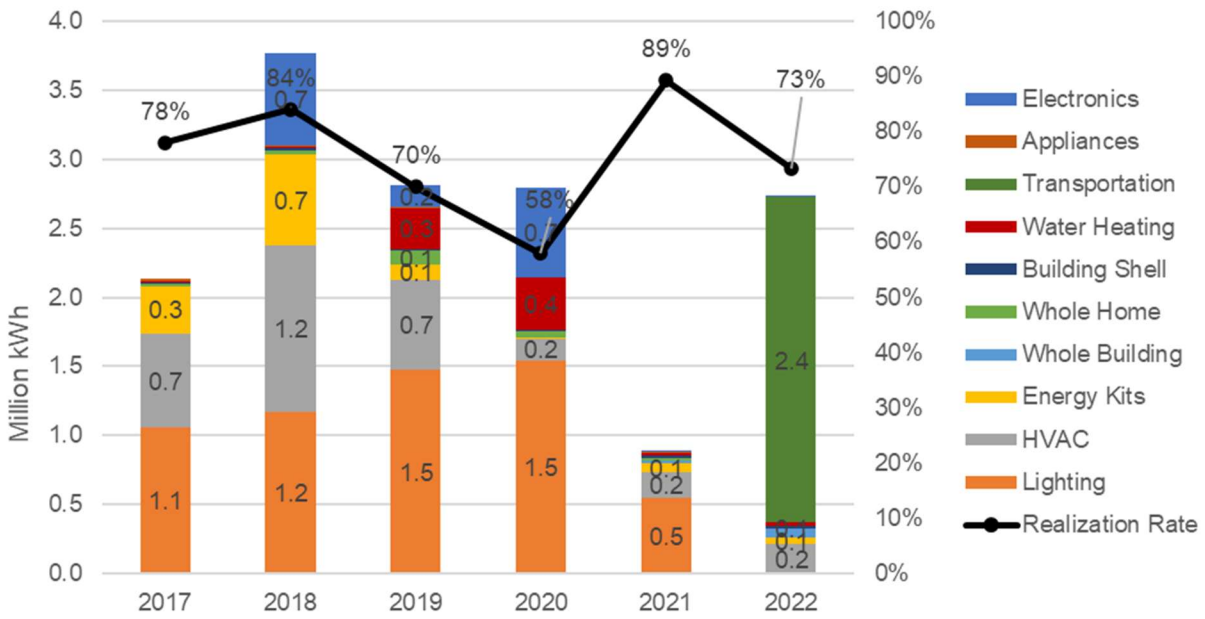

Figure 1-1: Claimed Program Savings by Measure Category 2017-2022

- The annual 2021 net-to-gross ratio (73 percent) was heavily impacted by lighting measures, an indication of LED saturation of the lighting market. Lighting measures were not offered during the 2022 program. The annual 2022 net-to-gross ratio increased to 95 percent, largely because of the engine block heater controller measures reflecting the high impact the program had on measure adoption (see Figure 1-2).

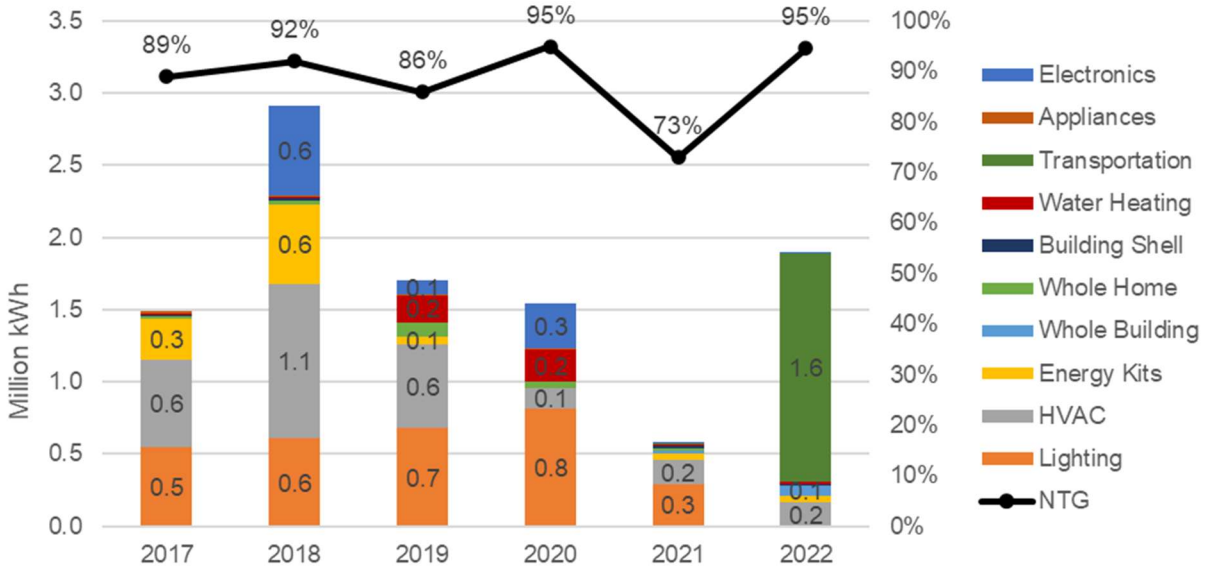

Figure 1-2: Net Evaluated Program Savings by Measure Category 2017-2022

Figure 1-3 illustrates program realization rates and NTG ratios by measure category.

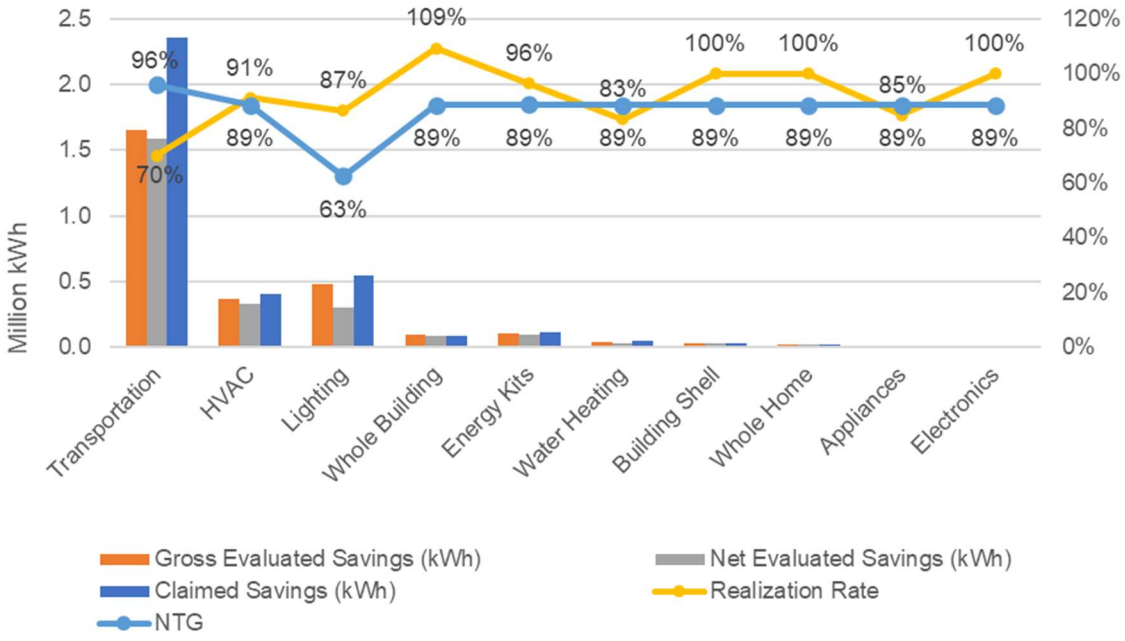

Figure 1-3: 2021-2022 Program Results by Measure Category

1.4 Recommendations

ADM provides the following recommendations to improve future program implementation.

Update Engine Block Heater Control measures ex-ante savings. ADM recommends updating the following Engine Block Heater Controller calculation variables.

- **Update weather data locations** with locations that more accurately estimate customers' climate conditions.
- **Review baseline plug-in hours**. Survey results indicate that the ex-ante savings overestimated baseline plug-in hours. Prior to receiving the controllers, many customers did not have their engine block heaters on from 5 pm to 8 am as assumed in the Regional Technical Forum (RTF) savings calculations included in the Measure Library (ML).
- **Collect mode-use data.** The controller model distributed through the program has two mode settings: maintain ready and timed ready modes. ADM recommends further investigation of mode use.

Update Engine Block Heater Control measures. A single model of controller was offered during the evaluated program years. ADM recommends that PacifiCorp's ML and Qualified Product List be updated to reflect the type of controller offered through the program. ADM recommends a review of measure definitions and qualified product lists

so that incentivized products clearly meet measure eligibility requirements documented in the ML and the RTF reference files.

Develop consistent measure identification practice. ADM recommends that measure identification is standardized in the program tracking data. Currently, a single model of controller is identified as a wall-mounted, engine-mounted, and extension-cord-type controller. ADM recommends that the program implementer develop a process to identify measures consistently in program tracking data.

Diversify program measure offerings. ADM recommends restoring a diversity of measure category offerings to reduce program evaluation risk.

Require implementation contractors to include measure-defining data elements in uploaded program dataset. The dataset provided to RMP by the implementer does not include all data elements that are required to verify and calculate program savings. ADM recommends that RMP require program implementers to provide the following data elements in addition to the data currently included in program data uploads:

- For all measures, measure-defining data elements. For example, the measure *Single Family - Heat Pump Conversion to 9.0 HSPF/14.0 SEER - Convert FAF w/CAC* includes the following measure-defining elements: home type, installed equipment, efficiency rating, baseline heating system, and baseline cooling system.
- For non-HVAC measures, product manufacturer and model number, or ENERGY STAR identification number.
- For HVAC measures, Air-Conditioning, Heating, and Refrigeration Institute (AHRI) certification number.
- For measures distributed through upstream channels, sales or distribution location and product manufacturer and model number at the record level.
- Additional data fields, as required, to identify the correct measure (e.g., heating and cooling system type, baseline conditions, installation location, U- and R-values, etc.).

Storing this key information with RMP's program data will result in the following benefits:

- Adds data management industry best practices to RMP's energy efficiency programs.
- Allows verification of a census of program data rather than relying on sampling. A central dataset can undergo census review, while a census review of discrete image application files (.pdf formatted files) is often cost prohibitive.
- Reduce evaluation risk by requiring implementer to document reason for measure selection.
- Improve internal program planning by having more accurate program measure participation data.

2 Introduction and Purpose of Study

ADM Associates, Inc. (ADM) is under contract with PacifiCorp to perform evaluation, measurement, and verification (EM&V) services to determine the energy savings (kWh) that resulted from RMP's 2021-2022 Wattsmart Homes Program in Idaho. This report documents ADM's findings.

The purpose of this report is to present ADM's impact evaluation of the energy savings (kWh) that resulted from the program and ADM's process evaluation that considers program operations.

2.1 Description of Programs

The program provides financial incentives (discounts, rebates, and free products) to RMP residential customers to install energy efficient products. The program leverages relationships with manufacturers, distributors, and retailers to ensure effective program implementation and optimize participation.

Products included in the program are reported in Table 2-1.

Table 2-1: Quantities Delivered through Program by Measure Category

Measure Category	2021	2022	Total
Appliances	**29**	**39**	**68**
Dishwasher	9	22	31
Laundry	16	12	28
Refrigeration	4	4	8
Ventilation	-	1	1
Building Shell (square feet)	**13,517**	**9,520**	**23,037**
Insulation	11,416	7,847	19,263
Windows	2,100	1,674	3,774
Electronics	**2**	**34**	**36**
Smart Plug	2	34	36
Energy Kits	**328**	**408**	**736**
HVAC	**339**	**187**	**526**
Controls and Thermostats	324	163	487
Cooling	4	-	4
Heat Pump	11	23	34
Ventilation	-	1	1
Lighting	**27,747**	**11**	**27,758**
Bulbs	27,694	11	27,705
Fixtures	53	-	53
Transportation	**3**	**1,527**	**1,530**
Controls	3	1,527	1,530
Water Heating	**10**	**15**	**25**
Water Heater	10	15	25
Whole Building	**15**	**67**	**82**
ENERGY STAR	1	7	8
HERs Rating	14	60	74
Whole Home	**5**	**-**	**5**
ENERGY STAR	5	-	5
Total	**41,995**	**11,808**	**53,803**

Table 2-2 reports the methods by which the program provides incentives to customers for each measure category.

Table 2-2: Incentive Delivery Method

Measure Category	Incentive Delivery
Appliances	Customer post-purchase rebate application
Building Shell	Customer post-purchase rebate application
Electronics	Customer post-purchase rebate application
Energy Kits	Customer requests free kit online for mail delivery
HVAC	Customer post-purchase rebate application Trade ally midmarket rebate application
Lighting	Point-of-sale pricing in retail upstream channel distribution
Transportation	Free distribution at special events and instant rebate coupons
Water Heating	Post-purchase rebate application
Whole Building and Whole Home	Builder rebate application

Lighting measures distributed through upstream distribution channels were offered at a discounted price at the point of sale. The program pays the discount incentive to the manufacturer. These point-of-sale incentives do not require the consumer to apply for the rebate; it is an efficient and cost-effective means to encourage customers to purchase high-volume, low-cost measures such as LEDs. Transportation measures were distributed for free at special events.

Higher value incentives for larger measures (appliances, HVAC, etc.) are processed through a post-purchase application form that is designed to verify that installed measures meet energy efficiency requirements. HVAC measures are also installed by midmarket trade allies who submit rebate applications. Home builders submit applications for new homes incentives after building completion.

2.2 Impact Evaluation Objective

The objective of the impact evaluation is to determine gross and net energy savings (kWh) that resulted from the program.

2.3 Process Evaluation Objective

The purpose of the process evaluation is to gain an understanding of the program and its challenges. The evaluation was completed through key staff interviews with RMP, and implementation contractors complemented with program documentation review.

The process evaluation was designed to answer the following research questions.

- What are key barriers and drivers to program success in RMP's Idaho service territory?
- How can those be addressed to improve program operations in the future?
- How well did RMP staff, implementation staff, participants, and trade allies work together?

3 Impact Evaluation

The 2021-2022 Wattsmart Homes Programs resulted in 1,592,760 kWh of net evaluated savings (see Table 3-1 through Table 3-3). Detailed impact evaluation results and analysis methodology for each measure category are included in subsequent sections.

Table 3-1: Total Program Savings 2021-2022

Measure Category	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Appliances	68	5,200	4,415	85%	89%	3,908
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Grand Total	**11,808**	**2,728,468**	**2,002,547**	**73%**	**95%**	**1,894,908**

3.1 Impact Evaluation Approach

ADM completed the following steps to evaluate the program.

- Reviewed and reconciled program tracking data to the claimed participation counts and ex-ante savings in 2021 and 2022 annual reports.
- Verified that claimed savings in tracking data matched ex-ante savings as documented in the Measure Library (ML).
- Verified that correct measures were identified for installed product specifications and supplemental data provided by the program implementer.
- Determined evaluated unit energy savings (UES) which incorporated verified variables, when possible.
- Achieved a minimum precision of better than ±10 percent with 90 percent statistical confidence (“90/10 precision”) for evaluated savings estimates by measure category.
- Administered a general population survey to collect installation data for upstream lighting measures.
- Estimated leakage rates for lighting measures using geospatial analysis.
- Administered energy kits participant survey to collect installation data about upstream lighting measures.
- Administered engine block heater controller participant survey to collect measure use data.
- Provided comprehensive documentation and transparency for all evaluation tasks.

- Provided inputs for cost benefit analyses.
- Provided ongoing technical reviews and guidance throughout the evaluation cycle.

ADM's evaluation of UES for each measure referenced savings values in the ML and associated reference files. ML reference files document savings values from sources such as the Regional Technical Forum (RTF) library of measures maintained by Northwest Power and Conservation Council and past RMP program evaluation reports.

ADM reviewed a census of records by measure category whenever possible, and a sample of records by measure category when required data elements were not available for all records in the program tracking data set.

For the following measure categories, ADM reviewed program data to verify that the correct measure was claimed for the documented project conditions:

- Appliances
- Building Shell
- Electronics
- HVAC
- Lighting
- Water Heating

For example, the savings for many measures are determined by the home heating system. In these cases, ADM reviewed the home heating system documented in the program tracking data set or the supplemental data set provided by the program implementer.

When measures specify a threshold efficiency rating for an incentivized product, ADM verified product specifications using product model numbers or AHRI numbers. When ADM found that documented product specifications or baseline conditions did not match claimed savings at the record level, ADM determined which, if any, measure included in the ML accurately reflected the conditions found and recorded ex-post saving for the correct measure.

Thus, ADM's analysis verified that the evaluated program savings are an accurate reflection of the correct prescribed savings for projects and products incentivized through the program.

When applicable, ADM incorporated verified variables such as in-service rates (ISRs), hours of use (HOUs), and weather data in place of ex-ante variables used in the calculation of RTF values.

3.2 Sample Design

ADM achieved a sampling precision of ±10 percent or better at the 90 percent confidence level – or 90/10 precision – for evaluated savings estimates for each measure category as reported in Table 3-4.

Table 3-4: Program Sampling Plan

Measure Category	Population Size	Sample Size	Claimed kWh	% of Claimed Program Savings	Relative Precision
Appliances	68	67	5,200	0.1%	1.22%
Building Shell[2]	44	25	30,590	0.8%	10.81%
Electronics	36	36	1,228	0.03%	0.00%
Energy Kits	736	736	111,321	3%	0.00%
HVAC	526	504	402,672	11%	0.75%
Lighting[3]	426	426	549,110	15%	0.00%
Transportation	1,530	1,530	2,357,730	65%	0.00%
Water Heating	27	22	42,509	1%	7.55%
Whole Building & Whole Home	87	53	108,205	3%	7.06%
Total	**3,480**	**3,399**	**3,608,565**	**100%**	**0.26%**

Additionally, a sample of RMP residential customers who were known to have not participated in any downstream offerings was surveyed using a general customer population survey to determine measure installation rates, installation locations, and process evaluation responses for upstream lighting measures. See Table 3-5 for survey participation.

Table 3-5: Survey Sample Response Size

Survey	Number of Survey Invitations Sent	Number of Completed Surveys	Response Rate
Engine Block Heater Control Survey	772	67	9%
General Population Survey	4,386	256	6%
Energy Saving Kit Survey	732	77	11%

[2] Quantities represent program records; quantities of building shell measures are reported in square feet elsewhere in this report.

[3] Quantities represent unique lighting product model numbers.

3.3 Determination of Impact Methodology

Table 3-6 shows the methodology used to calculate evaluated savings for each measure category. The primary source of savings values was the ML along with reference files included in the ML. Methodologies are documented in the following sections by measure category.

Table 3-6: Impact Evaluation Methodology Approach by Measure

Measure Category	Impact Evaluation Methodologies	Inputs to Evaluated Savings
Transportation	UES Review	• Savings values from ML reference files • Participant survey results (for ISRs)
Lighting	UES Review	• Savings values from ML reference files • General population survey results (for ISRs and HOUs)
HVAC	UES Review	• Savings values from ML reference files • Model specifications (from model or AHRI #s) • Program tracking data (for home type) • Supplemental data from implementer (for baseline condition)
Energy Kits	UES Review	• Savings values from ML reference files • 2019-2020 Energy Kits survey results
Whole Building & Whole Home	UES Review	• REM/Rate output files
Water Heating	UES Review	• Savings values from ML reference files • Model specifications (from model #s) • Supplemental data from implementer (for baseline condition)
Building Shell	UES Review	• Savings values from ML reference files • Supplemental data from implementer (for baseline condition)
Appliances	UES Review	• Savings values from ML reference files • Model specifications (from model #s) • Supplemental data from implementer (for baseline condition)
Electronics	UES Review	• Savings values from ML reference files • Model specifications (from model #s)

3.4 Net-to-Gross Ratios

Net-to-gross (NTG) ratios were calculated for Transportation, Lighting and Energy Kits measure categories. The remaining measure categories had too few participants or contributed too small a percentage of program savings to justify measure-category-level NTG investigations. Therefore, a weighted average NTG from Transportation, Lighting, and Energy Kits measure categories was calculated as a program wide NTG that was applied to the remaining measures categories. NTG methodologies are documented in the following sections by measure category.

3.5 Note on Measure Versions

Program measure specifications are periodically updated, as indicated by a version number in the ML. Each version is treated as a separate measure for evaluation purposes. When individual measures are documented in this report, version numbers are indicated after the measure name (e.g., *LED General Purpose - 9W - Retail - ID – 1* indicates version 1 of this measure).

3.6 Transportation

In the Transportation measure category, RMP offered free engine block heater controllers at special events and offered post-purchase rebates for controllers during the evaluated period. Program data included records for 1,530 controllers (primarily in 2022) resulting in total net evaluated savings of 1,584,395 kWh. Transportation measures accounted for 64 percent of net evaluated program savings, with a 70 percent realization rate, and a 96 percent net-to-gross ratio. Transportation measure category savings are reported in Table 3-7.

Table 3-7: Transportation Savings by Measure Type 2021-2022

Year	Quantity	Total Claimed Savings (kWh)	Total Gross Evaluated Savings (kWh)	Realization Rate	NTG	Total Net Evaluated Savings (kWh)
2021	3	4,623	3,236	70%	96%	3,107
2022	1,527	2,353,107	1,647,175	70%	96%	1,581,288
Total	**1,530**	**2,357,730**	**1,650,411**	**70%**	**96%**	1,584,395

3.6.1 Verification of Tracking Data

ADM reviewed the program tracking data to evaluate the following.

- Did the program tracking dataset include duplicate or erroneous data entries?
- Did the installed measures meet requirements documented in the ML reference files?

- Did controller models meet the energy efficiency requirements documented in the ML reference files?

ADM found the following in the dataset:

- The same model of controller was identified in all records in the program tracking data. It was characterized as three different controller types: engine mounted, extension cord type, and wall mounted (see Table 3-8). Note that the ex-ante UES is the same for all unit types, and therefore the inconsistent measure selection did not impact the claimed savings.

Table 3-8: Claimed UES for Engine Block Heater Control Measures

Measure	Quantity	UES documented in the ML
Engine Block Heater Control - Engine Mounted - Instant Rebate - ID - 1	1,422	1,541
Engine Block Heater Control - Extension Cord - Midstream - ID - 1	100	1,541
Engine Block Heater Control - Extension Cord - Downstream - ID - 1	3	1,541
Engine Block Heater Control - Extension Cord - Instant Rebate - ID - 1	3	1,541
Engine Block Heater Control - Wall Mounted - Downstream - ID - 2	1	1,541
Engine Block Heater Control - Engine Mounted - Downstream - ID - 1	1	1,541

3.6.2 Review of Claimed Savings

ADM verified that all records included UES indicated in the ML for claimed measures.

3.6.3 Determination of Evaluated Savings

Engine block heater controller ex-ante UES was sourced from RTF file *EngineBlockHeaterControlsv12.xlsm.* ADM calculated ISRs and NTG ratios using participant surveys conducted by ADM during October 2023. ADM invited all 772 participants to complete the survey; 67 (9 percent) responded to the survey.

The ISR was calculated by dividing the total number of engine block controllers currently in-use by customers with the total claimed quantity for those same customers. The in-service question did not ask how the controller was used, for example if they were used on a vehicle or in another application.

Table 3-9: ISR for Survey Respondents

Claimed quantity	129
Reported received quantity	119
Reported in use quantity	90
ISR	**70%**

3.6.4 Discussion of Realization Rates

The realization rate was impacted only by the ISR; claimed UES did not include an ISR factor, so the evaluated ISR of 70 percent directly caused the 70 percent realization rate.

3.6.5 Net-to-Gross Determination

To determine a net-to-gross ratio for controllers, the survey asked questions to determine if customers who received free or discounted controllers would have purchased them in the absence of the program.

Sixteen percent of customers were aware of Engine Block Heater Controllers before they received them at an event or learned about the rebate (see Table 3-10).

Table 3-10: Before receiving the engine block heater controller or the rebate from Rocky Mountain Power, did you know that controllers were available for engine block heaters?

Answer	%	Count
Yes	16%	20
No	84%	102
Total	100%	122

Fifty-three percent of customers who were aware of the controllers before receiving one reported that they *likely would not have* or *definitely would not have* bought the controller in the absence of the program. Twenty-nine percent indicated that they *likely would have* purchased the controller anyway. See Table 3-11.

Table 3-11: If you had not received the engine block heater controller or the rebate from Rocky Mountain Power, would you have purchased one anyway?

Answer	% (n=20)	FR score
Definitely would not have (FR=0.0)	18%	0.00
Likely would not have (FR=0.25)	35%	0.08
Likely would have (FR=0.75)	29%	0.18
Definitely would have (FR=1)	0%	0.00
Don't know	18%	0.00
Total	**100%**	**0.25**

Free Ridership was calculated using the following equation.

*Free Ridership = % Measure Awareness * Free Ridership Score*
*0.16 * 0.25 = 0.04*

Net-to-Gross ratio was calculated using the following equation:

Net-to-Gross ratio = 1 – Free Ridership
1 – 0.04 = 0.96

3.6.6 Review of RTF ex-ante savings calculation

ADM reviewed the RTF ex-ante savings calculation to inform future ex-ante savings values for the measure. The RTF methodology calculated baseline and efficient kWh use by summing the consumption for each hour that the engine block heater is in use during the year. The annual savings equal the sum of the hourly consumption of the engine block heater (baseline condition) minus the sum of the annual consumption using the controller (the efficient condition).

In the efficient condition, the controller turns the heater on only when temperatures are below a set point (50°F) and modulates the percentage of power used based on the temperature; the heater is used at a higher rate at lower ambient temperatures.

ADM recommends adjusting the following variables to calculate future claimed savings.

Weather Data

Ex-ante savings calculations use weather data from Kalispel, Montana. ADM recommends using TMY3 weather data from Idaho Falls and Pocatello to calculate ex-ante savings.

Savings Curves

The savings algorithm programmed into the controller determines the percentage of time the heater is turned on at any given ambient temperature; warmer temperatures require the heater to be on a smaller percentage of time to keep the engine warm. The ex-ante savings calculated by the RTF use the curve identified as the Engine-Mount Control Settings in the RTF reference file (EngineBlockHeaterControls_v2_0.xlsx); see Figure 3-1.

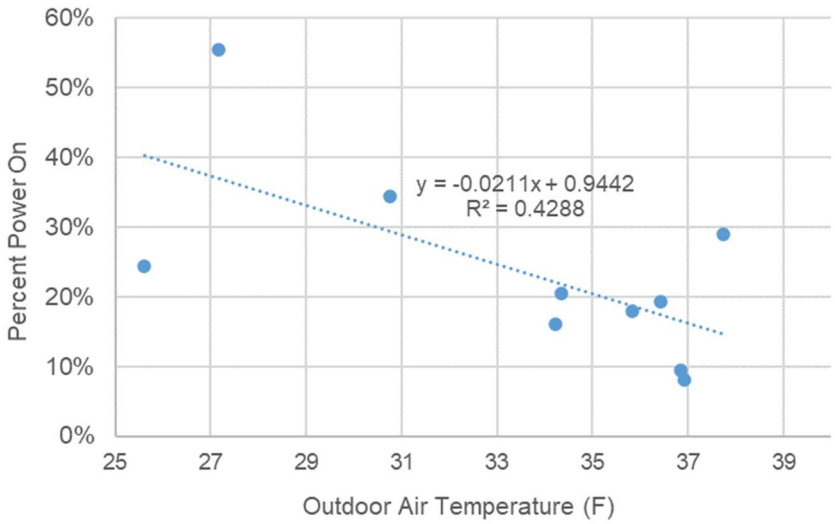


Figure 3-1: Engine-Mount Control Settings[4]

ADM recommends using the algorithms programmed into the specific model controller distributed through the program. The model has two operating modes, maintain ready and timed ready. Maintain ready mode is analogous to the engine-mount control algorithm from RTF in the ex-ante calculation. See Figure 3-2.

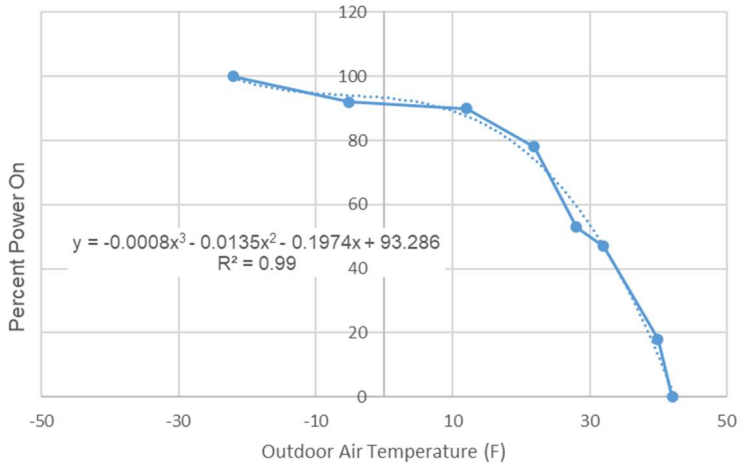


Figure 3-2: Maintain Ready Control Settings[5]

[4] Source: RTF analysis using 2016 Avista field study data ("Fleet Heat Short Haul Trucking testing evaluation 041516 wTOU.xlsx") included in RTF reference file EngineBlockHeaterControls_v2_0.xlsx.

[5] Source: Bostic Motors Inc.

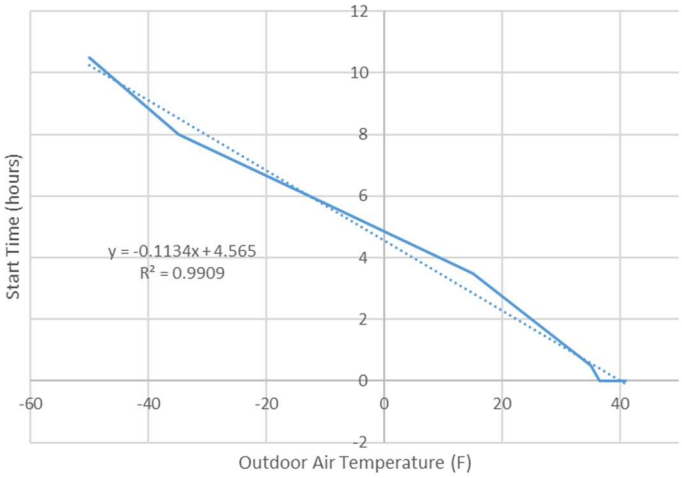


Figure 3-3: Timed Ready Control Settings[4]

In timed ready mode, the algorithm determines how many hours the heater will be on at full power before the specified ready time (see Figure 3-3.

All engine block heater controllers distributed through the program were the same model. ADM recommends that RMP use the control algorithms programmed into the specific distributed control product.

Operating Mode

ADM recommends further investigation to determine the percentage of users who elect each operating mode. ADM's survey data (n=22) indicated that fifty percent of customers use timed ready, and fifty percent reported use maintain ready mode. ADM calculated savings averaging savings from the two modes. ADM notes that mode use warrants further investigation.

Plug-in Time

The RTF ex-ante analysis assumes 100 percent of users use the engine block heater at full power from 5 p.m. until 9 a.m. and none use it between 9 a.m. and 5 p.m. from November through March (100 percent power to heater for 14 hours per day). ADM's customer survey asked customers what hours of the day they used the engine block heater, then calculated the percentage of customers who reported using the heater for each hour of the day to determine baseline plug-in time. Responses indicated that customers plugged their engine block heaters in for fewer and different hours than the ex-ante assumption (see Table 3-12).

ADM assessed that the baseline plug-in times found from survey results warrant additional investigation.

Table 3-12: Percentage of Engine Block Heaters Plugged In During Each Hour of the Day

Hour	RTF Ex-ante	Survey results % of users who reported using heater
12:00 AM	100%	25%
1:00 AM	100%	27%
2:00 AM	100%	29%
3:00 AM	100%	35%
4:00 AM	100%	53%
5:00 AM	100%	57%
6:00 AM	100%	55%
7:00 AM	100%	38%
8:00 AM	100%	27%
9:00 AM	0%	19%
10:00 AM	0%	13%
11:00 AM	0%	11%
12:00 PM	0%	9%
1:00 PM	0%	9%
2:00 PM	0%	8%
3:00 PM	0%	8%
4:00 PM	0%	9%
5:00 PM	100%	10%
6:00 PM	100%	13%
7:00 PM	100%	15%
8:00 PM	100%	16%
9:00 PM	100%	21%
10:00 PM	100%	22%
11:00 PM	100%	21%

Proposed UES

ADM recommends that RMP use the adjusted variables discussed above to calculate future ex-ante UES for Engine Block Heater Controllers. The resulting UES are reported in Table 3-13. Note that these savings values are based on an average of RTF's ex-ante baseline plug-in times and plug-in times determined from survey results. Additional investigation is recommended to determine more accurate baseline plug-in times.

Table 3-13: Proposed Ex-ante Engine Block Heater Controller UES by Location

Weather Location	UES
Idaho Falls	793
Pocatello	862

3.7 Lighting

RMP provided upstream discounts for LED lightbulbs and LED light fixtures sold at retail stores in the service area during 2021-2022. A total of 27,785 LED lighting measures were incentivized, resulting in 297,076 kWh of net evaluated savings. Lighting measures accounted for 12 percent of net evaluated program savings, with an 87 percent realization rate, and a 63 percent NTG ratio. Lighting measure category savings results are reported in Table 3-14 through Table 3-16.

Table 3-14: Lighting Program Savings 2021-2022

Measure Type	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Leakage	Net Evaluated Savings (kWh)[6]
LED lightbulb	27,705	547,120	473,730	87%	63%	2.3%	296,082
LED fixtures	53	1,990	1,523	77%	67%	2.3%	993
Total	**27,758**	**549,110**	**475,254**	**87%**	**63%**	**2.3%**	**297,076**

Table 3-15: Lighting Program Savings 2021

Measure Type	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Leakage	Net Evaluated Savings (kWh)[3]
LED lightbulb	27,694	543,343	470,112	87%	63%	2.3%	293,898
LED fixtures	53	1,990	1,523	77%	67%	2.3%	993
Total	**27,747**	**545,333**	**471,635**	**86%**	**63%**	**2.3%**	**294,892**

Table 3-16:Lighting Program Savings 2022

Measure Type	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Leakage	Net Evaluated Savings (kWh)[3]
LED lightbulb	11	3,777	3,618	96%	63%	2.3%	2,184
Total	**11**	**3,777**	**3,618**	**96%**	**63%**	**2.3%**	**2,184**

3.7.1 Verification of Tracking Data

ADM reviewed program tracking data and lighting memorandums of understanding (MOUs) with lighting measure manufacturers to evaluate the following.

[6] Net evaluated savings = Gross evaluated savings* NTG * (1 - Leakage rate).

- Did claimed energy savings match the applicable ML source documents and calculations?
- Did specific product model numbers sold through the program meet the measure requirements as documented in the ML reference files?
- Were retail stores that participated in the upstream lighting program located in the service area?

ADM found the following:

- Two percent of the sample of upstream lighting vendor invoices provided did not include model numbers and quantities. Therefore, ADM could not verify that claimed savings for these invoices are supported by vendor invoices.
- Seven model lighting fixture numbers were included on MOUs that did not meet ML fixture measure qualification requirements because they did not have integrated bulbs; the fixture had sockets with removable bulbs.
- Claimed savings for reviewed upstream lighting vendor invoices is 0.1 percent lower than supported by vendor invoices.
- Fifteen percent of the sample of upstream lighting vendor invoices included product descriptions but did not include vendor model numbers. Given the low rate of corrections found in reviewed invoices, ADM found that it was not cost effective to complete the labor-intensive process of reviewing these invoices.
- ADM notes that program implementer, CLEAResult, was not able to provide a dataset that corroborated total quantities of lighting products by model number that equaled claimed savings by measure in program tracking data.
- ADM did not adjust savings based on the findings of the model number verification process given that the results of the sample of MOUs found that RMP might have underclaimed savings by only 0.1 percent and there was also uncertainty to the exact number of each product model that was assigned to each claimed measure.

3.7.2 Review of Claimed Savings

ADM compared ex-ante values in ML reference documents with claimed savings included in program tracking data. All claimed savings matched savings indicated in the ML with the following exception.

- Claimed UES for *LED Fixture - ENERGY STAR – ID* was 40.94 kWh. ML indicates that the ex-ante UES for this measure is 24.56 kWh.

3.7.3 Determination of Evaluated Savings

ADM reviewed claimed savings included in tracking data and ex-ante savings values reported in ML reference files. It also calculated ISRs and HOUs for lighting measures using responses from a general population survey emailed to RMP customers. Additionally, ADM calculated and applied a leakage rate to gross evaluated savings to calculate net evaluated savings.

For each lighting measure, the total gross evaluated savings is the product of the gross evaluated UES, and the quantity of the measure sold through the program as documented in the program tracking data.

Gross evaluated UESs were calculated for each lighting measure in the program by adjusting the savings indicated in the ML reference files by the following factors.

- Verified ISRs
- Verified HOUs

ADM calculated verified ISRs and HOUs using responses to a general population survey conducted by ADM during January 2023 (see *Appendix B*).

Total net savings for lighting measures reflect an evaluated leakage rate (2.3 percent) that estimates the percentage of bulbs sold through the program that were not installed in the service area. The leakage rate was calculated using responses to the general population survey (see section 3.7.6).

Review of model number specifications

ADM reviewed a sample of 397 model numbers included in MOUs with retailers to determine if product specifications matched the specifications for the claimed measure. An incorrect measure was identified for seven model numbers. Savings were slightly underclaimed for these model numbers. ADM estimates that RMP could have claimed 0.1 percent more savings. However, ADM did not adjust savings because there was uncertainty about the exact quantity of any specific model number since the program implementer could not provide that degree of granularity to the data.

Determination of ISRs

Table 3-17 reports ISRs calculated using responses (n=141) from a general population survey using Equation 3-1.

Equation 3-1: ISR – Lighting Measures

$$ISR = (Qty\ currently\ installed + (Qty\ stored/3))/Qty\ Purchased$$

Determination of HOUs

Table 3-17 reports weighted average HOU calculated for lighting measure types using locations identified in the general population survey. HOU per room type were drawn from *Residential Lighting End-Use Consumption Study: Estimation Framework and Initial Estimates* prepared by DNV KEMA Energy and Sustainability Pacific Northwest National Laboratory *(December 2012)*.

Table 3-17: 2021-2022 Evaluated Lighting Measure ISRs and HOUs

Measure Type	ISR		HOU	
	Ex-ante	Ex-post	Ex-ante	Ex-post
LED lightbulbs	98%	83%	2.34	1.56
LED fixtures	100%	91%	2.34	1.83

3.7.4 Discussion of Realization Rates

Realization rates for lighting measures were impacted by the following factors.

- Ex-post ISRs calculated from survey responses were lower than ex-ante ISRs documented in upstream lighting measures, reducing realization rates.
- Ex-post HOUs for fixtures were higher than ex-ante HOUs; ex-post HOUs for lightbulbs were lower than ex-ante HOUs. ADM used a weighted average HOU by measure type, using the hours per room established in the DNV KEMA study.

3.7.5 Net-to-Gross Ratio

The NTG analysis estimated the share of program activity that would have occurred in the absence of the program (free ridership) and additional energy savings that were the result of the program for which the customer did not received an incentive (spillover). See Equation 3-2.

Equation 3-2: Net-to-Gross Calculation

$$NTG = 1 - Freeridership\ rate + Spillover\ rate$$

ADM surveyed RMP customers who purchased discounted upstream lighting measures to determine both free ridership and spillover estimates.

Free ridership

Free ridership was estimated using the methodology illustrated in Figure 3-4.

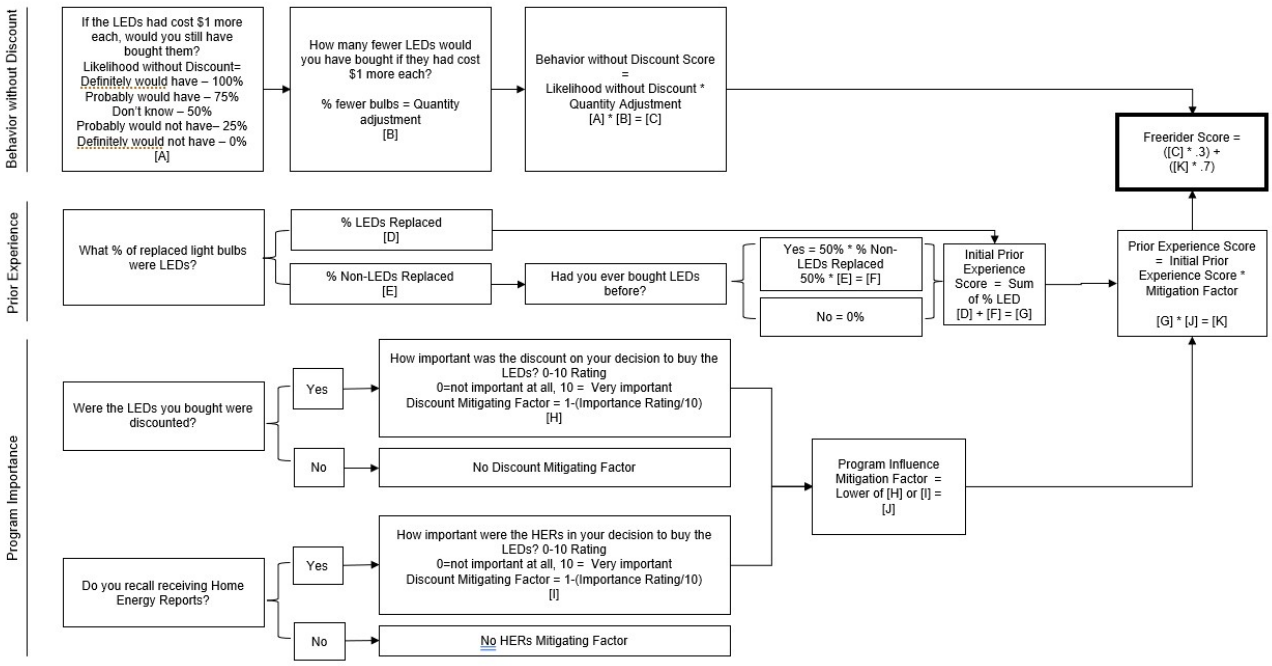


Figure 3-4: Free Ridership Methodology for Lighting

Spillover

Spillover estimates energy saving that resulted from additional measures without receiving a program incentive. ADM calculated both participant and non-participant spillover.

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 on one or more efficiency measures were then asked two additional questions for use in developing a spillover score:

SO1: On a scale of 1 to 5, where 1 represents "not important" and 5 represents "very important", how important was your experience with the Wattsmart program in your decision to purchase the items you just mentioned?

SO2: On a scale of 1 to 5, where 1 represents "very unlikely" and 5 represents "very likely" how likely would you have been to make the additional purchases you just mentioned even if you had not participated in the Wattsmart program?

The response to these questions were used to develop a spillover score as follows[7]:

$$Spillover = Average\ (SO1,\ 5 - SO2)$$

All the associated measure savings were considered attributable to the program if the resulting score was equal to or greater than 4.

Net-to-Gross Results

Results of the NTG analysis for lighting measures are included in Table 3-18. No lighting participant spillover savings were reported in the General Population Survey; no non-participant spillover savings were reported.

Table 3-18: Lighting Net-to-Gross Results

Measure Type	Free Ridership	Participant Spillover	Non-participant Spillover	NTG	n
LED Bulbs	0.51	0	0	0.49	78
LED Fixtures	0.44	0	0	0.56	33

3.7.6 Determination of Leakage Rate

Leakage is an estimate of the percentage of upstream measures sold through the program that were installed outside RMP's service area. ADM assessed leakage using geo-mapping data of participating and non-participating retailers combined with general population survey responses. The leakage rate was not applied to direct-install lighting measures.

First, ADM mapped 60-minute drive-time areas surrounding both participating and non-participating (competing) retailers[8] (see Table 3-19). If retailers had overlapping areas, ADM assumed that customers purchased measures from the closest store and modified retailers' drive-time areas.

Second, ADM determined the total population in each retailer's drive time area and the percentage of the population in each area that are RMP customers[9].

Thus, for each drive time circle, for each retail location, ADM determined the proportion of the population that falls inside and outside of RMP's service area.

[7] 1=0%, 2=25%, 3=50%, 4=75%, 5=100% to develop score

[8] 2020 data. Safe Graph Data: https://marketplace.arcgis.com/listing.html?id=3425348e4bee4059af2b353e52df43c2

[9] 2010 Census block data from Environmental System Research Institute (ESRI).

Third, ADM modified drive-time areas established in step one using general population survey[10] responses to define drive-time range categories to assess how many consumers were willing to drive and shop at each participating retail store. Drive-time behavior survey results are included in Table 3-19. Within each drive-time category, ADM calculated the percentage of the population that lives in RMP's service area.

Table 3-19: Drive Time Estimates

Retailer Type	0-5	5-10	10-15	15-20	20-25	25-30	30-40	40-50	50-60	60+
DIY	4%	14%	21%	22%	14%	5%	12%	6%	0%	2%
Big Box	7%	14%	26%	22%	12%	2%	9%	3%	0%	3%
Member	8%	7%	14%	16%	15%	4%	11%	8%	3%	13%
Discount	10%	27%	23%	20%	8%	1%	8%	2%	0%	1%

Fourth, for each drive-time category indicated in Table 3-19, for each retailer, ADM calculated the predicted population that was willing to drive to and shop at the retailer, and what percentage of that population lives in RMP's service area.

The resulting leakage percentage is the share of residents who are not RMP customers but are willing to drive to participating retailers. ADM calculated lighting program leakage by weighting each store's leakage by its evaluated savings (kWh).

ADM estimated that 2.3 percent of the upstream lighting measures sold at participating retailers were purchased by residents living outside of RMP's Idaho service area.

3.8 Heating, Ventilation, and Air Conditioning (HVAC)

RMP offered customers financial incentives to install energy efficient HVAC measures in their homes during 2021-2022. HVAC measures included smart thermostats, central air conditioners, evaporative coolers, heat pumps, and exhaust fans. A total of 526 HVAC measures were incentivized, resulting in 324,922 kWh of net evaluated savings. HVAC measures accounted for 13 percent of total net evaluated program savings, with a 91 percent realization rate. A program wide NTG ratio was applied to determine the net evaluated savings. HVAC measure category savings are reported in Table 3-20 through Table 3-22.

[10] ADM conducted the general population survey in Jan 2023.

Table 3-20: HVAC Program Savings 2021-2022

Measure Type	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Controls and Thermostats	**487**	**238,906**	**234,953**	**98%**	**89%**	**207,984**
Smart Thermostat	487	238,906	234,953	98%	89%	207,984
Cooling	**4**	**636**	**636**	**100%**	**89%**	**563**
Central Air Conditioner	3	268	268	100%	89%	237
Evaporative Cooler	1	368	368	100%	89%	326
Heat Pump	**34**	**163,102**	**131,465**	**81%**	**89%**	**116,375**
Air Source Heat Pump	4	24,990	11,538	46%	89%	10,214
Dual Fuel Heat Pump	8	73,622	62,083	84%	89%	54,957
Ductless Heat Pump	21	51,966	47,748	92%	89%	42,267
Ground Source Heat Pump	1	12,525	10,095	81%	89%	8,937
Ventilation	**1**	**27**	**-**	**0%**		**-**
Exhaust Fan	1	27	-	0%		-
Total	**526**	**402,672**	**367,053**	**91%**	**89%**	**324,922**

Table 3-21: HVAC Program Savings 2021

Measure Type	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Controls and Thermostats	**324**	**165,618**	**162,877**	**98%**	**89%**	**144,182**
Smart Thermostat	324	165,618	162,877	98%	89%	144,182
Cooling	**4**	**636**	**636**	**100%**	**89%**	**563**
Central Air Conditioner	3	268	268	100%	89%	237
Evaporative Cooler	1	368	368	100%	89%	326
Heat Pump	**11**	**26,813**	**22,174**	**83%**	**89%**	**19,629**
Ductless Heat Pump	10	14,288	12,078	85%	89%	10,692
Ground Source Heat Pump	1	12,525	10,095	81%	89%	8,937
Total	**339**	**193,067**	**185,687**	**96%**	**89%**	**164,373**

Table 3-22: HVAC Program Savings 2022

Measure Type	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Controls and Thermostats	**163**	**73,288**	**72,075**	**98%**	**89%**	**63,802**
Smart Thermostat	163	73,288	72,075	98%	89%	63,802
Heat Pump	**23**	**136,289**	**109,291**	**80%**	**89%**	**96,746**
Air Source Heat Pump	4	24,990	11,538	46%	89%	10,214
Dual Fuel Heat Pump	8	73,622	62,083	84%	89%	54,957
Ductless Heat Pump	11	37,678	35,670	95%	89%	31,575
Ventilation	**1**	**27**	**-**	**0%**		**-**
Exhaust Fan	1	27	-	0%		-
Total	**187**	**209,605**	**181,367**	**87%**	**89%**	**160,549**

3.8.1 Verification of Tracking Data

ADM reviewed program tracking data to evaluate the following.

- Did the tracking dataset include duplicate or erroneous data entries?
- Did claimed energy savings match the applicable ML source documents and calculations?
- Did data entries in the program dataset include all necessary fields for savings calculations?
- Did the installed measures meet efficiency requirements documented in the ML reference files?

In its review of program tracking data and supplemental data from the implementer, ADM found the following in the dataset.

Review of Heat Pump Records

The program data included claimed savings for 34 installed heat pumps. ADM reviewed AHRI certificate numbers and baseline heating and cooling systems for all records and found:

- 1 record (3 percent) had a non-electric baseline heating system.
- 4 records (12 percent) appear to be duplicates. Three HVAC units were indicated for each of two single family homes. The records follow the pattern of reconciliation transactions that appear in the dataset when an error is corrected by reentering the record with a negative quantity and entering the correct data in a new record. This is

what appears to have happened with two measures at each of these addresses, except that the reversing transaction quantity was not negative.

Review of Smart Thermostat Records

The program dataset included 491 records for smart thermostats. Model numbers were available for 321 records. ADM reviewed model specifications for the sample of available records and applied the resulting realization rate to the remaining records and found:

- 5 records included model numbers that did not meet measure requirements (Wi-Fi enabled and occupancy sensing).
- 6 records identified the incorrect measure name based on the documented heating type.
- 17 records identified the incorrect measure name based on the documented cooling type.

Review of Exhaust Fan Record

No model number was provided for the single exhaust fan measure record.

3.8.2 Review of Claimed Savings

ADM evaluated the UES values claimed by RMP to verify that claimed savings in each record were supported by the applicable ML documents for the claimed measure. Savings values reported in the tracking data matched the values reported in reference files included in the ML for the claimed measures.

3.8.3 Determination of Evaluated Savings

Evaluated savings, at the record level, equal the UES documented in the ML for the correct measure identified using program data, multiplied by the quantity indicated in the program data. When no measure in the ML could be identified to match the documented installed measure specifications, no evaluated savings were indicated.

When a record included an invalid AHRI number, or a model number that indicated that model did not meet measure requirements, no evaluated savings were indicated.

3.8.4 Discussion of Realization Rates

The realization rates were negatively impacted by the following factors.

- 1 heat pump replaced a non-electric heating system. No savings were recognized for that record.

- For 2 home addresses, 3 heat pumps were indicated on 3 separate records, 2 air source heat pumps and 1 dual fuel heat pumps. ADM recognized savings only for the dual fuel heat pump at each of these homes.
- No evaluated savings were recorded for the exhaust fan for which no model number was documented.
- 5 smart thermostat records included model numbers that did not meet measure specifications, and therefore no savings were recognized.
- 23 records included incorrect smart thermostat measures. Evaluated savings reflect the deemed savings for the correct measure as indicated in the ML.

3.8.5 Net-to-Gross Ratio

A weighted average, program wide NTG ratio was applied to HVAC measures.

3.9 Energy Saving Kits

RMP provided energy saving kits at no charge to eligible customers who requested them. All kits contained four standard LED bulbs; customers who indicated that they had an electric water heater also received two water saving aerators and a low-flow showerhead. RMP customer eligibility was determined through a web-based portal where customers ordered kits.

A total of 736 kits resulted in 95,304 kWh of net evaluated savings. Kits accounted for 4 percent of net evaluated program savings, with a 96 percent realization rate and an 89 percent net-to-gross ratio. Energy Savings Kit measure category savings are presented in Table 3-23 through Table 3-24.

Table 3-23: Energy Saving Kits Program Savings 2021-2022

Measure - Version	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Energy Savings Kit - Best - 1 Bathroom - ID - 4	250	73,610	61,678	84%	90%	55,631
Energy Savings Kit - Best - 1 Bathroom - v2 - ID - 1	148	26,939	35,241	131%	90%	31,846
Energy Savings Kit - LED - ID - 4	176	5,680	5,768	102%	74%	4,295
Energy Savings Kit - LED - ID - 5	162	5,304	4,743	89%	74%	3,532
Total	**736**	**111,532**	**107,430**	**96%**	**89%**	**95,304**

Table 3-24: Starter Kit Program Savings 2021

Measure - Version	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Energy Savings Kit - Best - 1 Bathroom - ID - 4	190	55,944	46,875	84%	90%	42,280
Energy Savings Kit - Best - 1 Bathroom - v2 - ID - 1	138	4,453	4,523	102%	74%	3,368
Total	**328**	**60,397**	**51,398**	**85%**	**89%**	**45,648**

Table 3-25: Starter Kit Program Savings 2022

Measure - Version	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Energy Savings Kit - Best - 1 Bathroom - ID - 4	60	17,666	14,803	84%	90%	13,352
Energy Savings Kit - Best - 1 Bathroom - v2 - ID - 1	148	26,939	35,241	131%	90%	31,846
Energy Savings Kit - LED - ID - 4	38	1,226	1,245	102%	74%	927
Energy Savings Kit - LED - ID - 5	162	5,304	4,743	89%	74%	3,532
Total	**408**	**51,136**	**56,032**	**110%**	**89%**	**49,657**

3.9.1 Verification of Tracking Data

ADM reviewed program tracking data to evaluate the following.

- Did the tracking dataset include duplicate or erroneous data entries?
- Did claimed energy savings match the applicable ML source documents and calculations?

ADM verified that there were no irregularities in the kit program data.

3.9.2 Review of Claimed Savings

ADM reviewed claimed savings of each kit component to verify that the program tracking data reflected the savings values documented in the ML reference documents. Reference files included additional embedded reference files for each kit component. ADM found no inconsistencies in this review.

3.9.3 Determination of Evaluated Savings

ADM calculated evaluated savings using ISRs and percentage of recipients with electric water heaters drawn from participant survey responses. Respondents reported installation information for each component, allowing ADM to calculate ISRs for each kit component separately. Only customers who received water savings measures were considered when calculating percentage of participants with electric water heaters for customers who received those measures. ADM replaced ex-ante ISRs and percentage of electric water heaters with correlated evaluated values. Starter Kit UESs are reported in Table 3-26.

Table 3-26: Energy Saving Kit UES

Kit Component	Claimed UES	Ex-ante ISR	Ex-post ISR	Ex-ante % Electric DHW	Ex-post % electric DWH	Evaluated UES (kWh)	Realization Rate	NTG	Net Evaluated UES kWh/yr
Energy Savings Kit - Best - 1 Bathroom - ID – 4									
LED 1 (9 Watt)	8.07	83%	93%			9.03	112%	74%	6.72
LED 2 (9 Watt)	8.07	83%	89%			8.61	107%	74%	6.41
LED 3 (9 Watt)	8.07	83%	80%			7.78	96%	74%	5.79
LED 4 (9 Watt)	8.07	83%	76%			7.36	91%	74%	5.48
Aerator Kitchen (1.5 gph)	47.76	58%	57%	100%	71%	33.33	70%	94%	31.29
Aerator Bath 1 (0.5 gpm)	46.60	63%	70%	100%	71%	36.99	79%	94%	34.72
Showerhead 1 (1.5 gpm)	167.80	61%	73%	100%	71%	143.62	86%	92%	132.12
TOTAL	**294.44**					**246.71**	**84%**	**90%**	**222.53**
Energy Savings Kit - Best - 1 Bathroom - v2 - ID – 1									
LED 1 (9.5 Watt)	8.51	98%	93%			8.06	95%	74%	6.00
LED 2 (9.5 Watt)	8.42	97%	89%			7.69	91%	74%	5.73
LED 3 (9.5 Watt)	7.99	92%	80%			6.95	87%	74%	5.17
LED 4 (9.5 Watt)	7.82	90%	76%			6.58	84%	74%	4.90
Aerator Kitchen (1.5 gph)	24.94	41%	57%	77%	71%	31.97	128%	94%	30.01
Aerator Bath 1 (0.5 gpm)	24.68	45%	70%	77%	71%	35.61	144%	94%	33.43
Showerhead 1 (1.5 gpm)	99.67	48%	73%	77%	71%	141.25	142%	92%	129.94
TOTAL	**182.02**					**238.11**	**131%**	**90%**	**215.18**
Energy Savings Kit - LED - ID – 4									
LED 1 (9 Watt)	8.07	83%	93%			9.03	112%	74%	6.72
LED 2 (9 Watt)	8.07	83%	89%			8.61	107%	74%	6.41
LED 3 (9 Watt)	8.07	83%	80%			7.78	96%	74%	5.79
LED 4 (9 Watt)	8.07	83%	76%			7.36	91%	74%	5.48
TOTAL	**32.27**					**32.77**	**102%**	**74%**	**24.40**
Energy Savings Kit - LED - ID - 5									
LED 1 (9.5 Watt)	8.51	98%	93%			8.06	95%	74%	6.00
LED 2 (9.5 Watt)	8.42	97%	89%			7.69	91%	74%	5.73
LED 3 (9.5 Watt)	7.99	92%	80%			6.95	87%	74%	5.17
LED 4 (9.5 Watt)	7.82	90%	76%			6.58	84%	74%	4.90
TOTAL	**32.74**					**29.28**	**89%**	**74%**	**21.80**

Sources Ex-ante values: *RMP Update - Res Kits - 10-23-2020.xlsx* and *RMP Update - Res Kits - 01-11-2022.xlsx*. Evaluated ISRs and % Electric DWH: ADM 2023 participant survey.

3.9.4 Discussion of Realization Rates

The following factors impacted realization rates for starter kits.

LEDs

ISRs for LEDs were calculated for each individual component.

LED ex-post ISRs were greater than ex-ante ISR for the earlier version kits (*Energy Savings Kit - Best - 1 Bathroom - ID – 4* and *Energy Savings Kit - LED - ID – 4*) resulting in a 102 percent realization rate for LEDs. For later kit versions (*Energy Savings Kit - Best - 1 Bathroom - v2 - ID – 1* and *Energy Savings Kit - LED - ID – 5*), the evaluated ISRs were slightly lower than the ex-ante ISRs, resulting in a realization rate of 89 percent for LEDs.

Aerators and Showerheads

ISRs for water saving measures were calculated for each individual component.

Evaluated ISRs were higher than ex-ante ISRs for aerators and showerheads which increased realization rates.

The evaluated percent of electric domestic hot water (DHW) for customers who received water saving measures was 71 percent. The ex-ante percent of electric DHW was 100 percent for one kit version and 77 percent for the later kit version. This difference had a negative impact on realization rates.

ADM notes that the program implementer revised the ordering process to reduce the number of customers with gas DHW who received water saving measures and improved realization rate for these measures over past years.

3.9.5 Net-to-Gross Ratio

ADM completed a net-to-gross analysis for starter kits using responses to the Starter Kit Participant Survey. A net-to-gross ratio captures the savings that would have occurred without the program intervention as well as additional savings that occurred as result of unincentivized actions participants took because of the program. The net-to-gross ratio is calculated as indicated in Equation 3-3.

Equation 3-3: Net-to-Gross Calculation

$$\textit{Net-to Gross Ratio} = 1 - \textit{Free Ridership Rate} + \textit{Spillover Rate}$$

3.9.5.1 Free Ridership

Free ridership estimates the percentage of participants who would have installed the same energy-saving measures if they had not received them through the program. To determine free ridership scores, ADM used participant survey responses about:

- Participant's prior plans to install kits components in their home
- Estimate of time when they would have installed the components
- Likelihood that the participant would have installed the components
- Prior installations of similar measures in the home

ADM calculated a free ridership score for each kit component using Equation 3-4 as illustrated in Figure 3-5. Each participant was assigned a free ridership score for each kit component. Participants' scores were averaged to calculate overall free ridership score for each component.

Equation 3-4:Kits Free Ridership

$$Free\ Ridership = Average\ (Prior\ Plans\ Score, Likelihood\ Score) * Previous\ experience\ adjustment$$

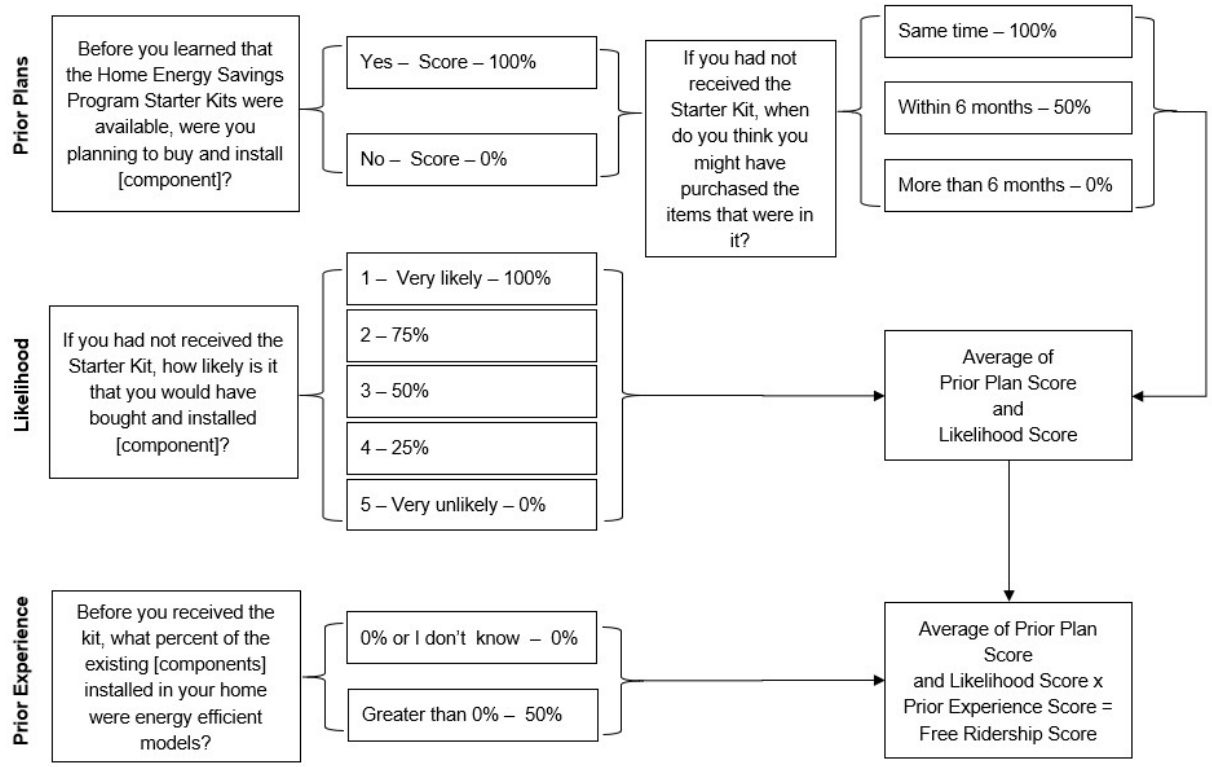


Figure 3-5: Kits Free Ridership Methodology

Free ridership scores by kit component are included in Table 3-27.

Table 3-27: Free Ridership Scores by Kit Component

Kit Component	Free Ridership Score
LEDs	30.4%
Aerators	11%
Low Flow Showerheads	12.9%

3.9.5.2 Spillover

Spillover represents energy savings that resulted indirectly from the program's influence on participants to implement additional energy saving measures without receiving a program incentive.

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. Participants who report implementing one or more efficiency measures are then asked two questions used to develop a spillover score:

SO1: How important was your experience with the Wattsmart Homes Program Starter Kits when you installed [spillover measure]?

SO2: How likely would you have been to take the additional steps to save energy if you had not received the Wattsmart Homes Program Starter Kit?

Responses were collected using a 5-point Likert Scale evaluating program influence on installing the additional energy saving measures. The spillover score is the average of the responses to the two questions (see Equation 3-5).

Equation 3-5: Spillover Score for Installed Measures

$$Spillover\ Score\ =\ Average(SO1, 5 - SO2)$$

Any energy saving measures with a spillover score of 4 or greater were included in spillover savings. Spillover is represented as the percentage of total spillover savings discovered through the survey divided by the total of kit savings generated by survey respondents. This ratio is applied as the spillover rate for kits (see Equation 3-6).

Equation 3-6: Spillover Ratio for Kits Program

$$Spillover\ Ratio = \\ Sum\ of\ savings\ from\ all\ measures\ with\ spillover\ scores \\ greater\ than\ 4\ \div\ Total\ kits\ savings\ generated\ by\ survey\ respondents)$$

The evaluated spillover for kits was 3 percent for the evaluation period (see Table 3-28).

Table 3-28: Kits Participant Spillover Rate: Survey Respondents

Claimed Savings (kWh)	Total Spillover Savings	Spillover Rate
8,047	395	4.9%

Net-to-gross results are presented in Table 3-29.

Table 3-29: Starter Kits Net-to-Gross Results by Kit Component

Kit component	Free ridership	Spillover	NTG
LEDs	30.4%	4.9%	74.5%
Aerators	11.0%	4.9%	93.9%
Low Flow Showerheads	12.9%	4.9%	92.0%

3.10 Whole Building and Whole Home

RMP offered financial incentives to build new single-family homes and manufactured homes that exceeded building code energy efficiency specifications. Measures included both ENERGY STAR and Home Energy Rating (HER) certified homes.

A total of 87 new homes were built using program incentives, totaling 103,004 kWh of net evaluated savings. Whole Building and Whole Home measures accounted for 4 percent of net program savings, with a 108 percent realization rate. A program wide NTG ratio was used to determine net evaluated savings. Whole Building and Whole Home savings are presented in Table 3-23 through Table 3-25.

Table 3-30: Whole Building Program Savings 2021-2022

Measure	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Whole Building						
HERS Index - 62 or lower - Gas Heat - SF - New Homes - v2 - ID	33	25,105	32,001	127%	89%	28,327
New Homes - HERS 62 (30%) or lower - Gas Heat - ID	19	21,565	21,562	100%	89%	19,087
New Homes - HERS 62 (30%) or lower - ENERGY STAR v3.0 - Gas Heat - ID	13	15,614	14,412	92%	89%	12,758
HERS Index - 55 or lower - Gas Heat - SF - New Homes - v2 - ID	9	7,237	9,665	134%	89%	8,555
ENERGY STAR 3.0 Certification - Gas Heat - SF - New Homes - v2 - ID	4	107	143	134%	89%	127
New Homes - ENERGY STAR - Any Electric - Manufactured Home - ID	4	17,868	17,868	100%	89%	15,817
Whole Home						
New Manufactured Home - ENERGY STAR - Any Electric - ID	5	20,710	20,710	100%	89%	18,333
Total	**87**	**108,205**	**116,361**	**108%**	**89%**	**103,004**

Table 3-31: Whole Building Program Savings 2021

Measure	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Whole Building						
New Homes - HERS 62 (30%) or lower - ENERGY STAR v3.0 - Gas Heat - ID	8	9,608	8,407	88%	89%	7,442
New Homes - HERS 62 (30%) or lower - Gas Heat - ID	6	6,810	12,064	177%	89%	6,028
New Homes - ENERGY STAR - Any Electric - Manufactured Home - ID	1	4,467	4,467	100%	89%	3,954
Whole Home						
New Manufactured Home - ENERGY STAR - Any Electric - ID	5	20,710	20,710	100%	89%	18,333
Total	**20**	**41,595**	**40,393**	**97%**	**89%**	**35,757**

Table 3-32: Whole Building Program Savings 2022

Measure	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Whole Building						
HERS Index - 62 or lower - Gas Heat - SF - New Homes - v2 - ID	33	25,105	32,001	127%	89%	28,327
New Homes - HERS 62 (30%) or lower - Gas Heat - ID	13	14,755	14,753	100%	89%	13,060
HERS Index - 55 or lower - Gas Heat - SF - New Homes - v2 - ID	9	7,237	9,665	134%	89%	8,555
New Homes - HERS 62 (30%) or lower - ENERGY STAR v3.0 - Gas Heat - ID	5	6,005	6,005	100%	89%	5,316
ENERGY STAR 3.0 Certification - Gas Heat - SF - New Homes - v2 - ID	4	107	143	134%	89%	127
New Homes - ENERGY STAR - Any Electric - Manufactured Home - ID	3	13,401	13,401	100%	89%	11,863
Total	**67**	**66,610**	**75,967**	**114%**	**89%**	**67,248**

3.10.1 Verification of Tracking Data

ADM reviewed a census of program tracking records to evaluate the following.

- Did the tracking dataset include duplicate or erroneous data entries?
- Did claimed energy savings match the applicable ML source documents and calculations?

ADM verified that there were no irregularities in the Whole Building or Whole Homes program data.

3.10.2 Review of Claimed Savings

ADM reviewed claimed savings to verify that the program tracking data reflected the savings values documented in the ML reference documents. ADM found no inconsistencies in this review.

3.10.3 Determination of Evaluated Savings

ADM reviewed supporting documentation for a stratified sample (n=88) of Whole Building and Whole Home records to verify that each home met the measure qualifications as documented in the ML. Supporting documentation consisted of outputs from Ekotrope, a RESNET-accredited home rater software application and ENERGY STAR certificates.

ADM stratified the evaluation sample by claimed savings and verified that the provided documentation supported the claimed measure selection. When it did not, evaluated savings were determined by selecting the correct measure from the ML. The calculated realization rate for each sample was applied to the remaining records in the population of the stratum.

3.10.4 Discussion of Realization Rates

One record had the incorrect measure identified for the home based on the provided documentation. The claimed measure *HERS Index - 62 or lower - Gas Heat - SF - New Homes - v2 - ID*; the corrected measure was *HERS Index or lower - Electric Heat - SF - New Homes - v2 – ID.* This increased the realization rate for all the records in the stratum.

3.10.5 Net-to-Gross Ratio

A weighted average, program wide NTG ratio was applied to Whole Building and Whole Home measures.

3.11 Water Heating

RMP offered rebates to customers who bought qualified heat pump water heaters during 2021-2022. Rebates were issued for 25 water heaters resulting in net evaluated savings of 31,377 kWh. Water Heating measures accounted for 1 percent of net program savings, with an 83 percent realization rate. A program wide NTG ratio was used to determine net evaluated savings. Water Heating measure category results are reported in Table 3-33.

Table 3-33: Water Heater Program Savings

Year	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
2021	10	16,150	14,558	90%	89%	12,887
2022	15	26,359	20,888	79%	89%	18,490
Total	**25**	**42,509**	**35,446**	**83%**	**89%**	**31,377**

3.11.1 Verification of Tracking Data

ADM reviewed the program tracking data to evaluate the following.

- Did the installed measures meet efficiency requirements documented in the ML reference files? Did the program tracking dataset include duplicate or erroneous data entries?

ADM found the following information was missing from the program tracking dataset:

- baseline conditions
- installation location or conditions as indicated by measure names
- manufacturer's model number was missing for 2 records

ADM found the following in the data set.

- Three water heaters were claimed for a single new home.
- The model number for one record did not meet measure eligibility requirements.

3.11.2 Review of Claimed Savings

ADM verified that the UES values claimed by RMP matched corresponding values for claimed measures as documented in ML reference files.

3.11.3 Determination of Evaluated Savings

Evaluated savings, at the record level, equal the UES documented in the ML for the correct measure identified using program data, multiplied by the quantity indicated in the program data. ADM reviewed the manufacturer's model specifications for each heat pump

water heater reported in the program tracking data to determine the correct measure. ADM assumed an ISR of 1.0 for water heating measures.

3.11.4 Discussion of Realization Rates

Realization rates were negatively impacted by the following:

- One record that included a model number that did not meet measure requirements (capacity for installed unit exceeded the 55-gallon measure definition)
- Savings were recognized for only one of the three claimed water heaters designated for a single address at a newly built home documented as having a single bathroom.

3.11.5 Net-to-Gross Ratio

A weighted average, program wide NTG ratio was applied to Water Heating measures.

3.12 Building Shell

RMP offered rebates to customers who installed insulation or energy efficient windows in their homes during the evaluated program period. A total of 19,263 square feet of wall, attic, and floor insulation and 3,774 square feet of upgraded windows were incentivized through the program. These measures resulted in net evaluated savings of 27,079 kWh. Building Shell measures accounted for 1 percent of net program savings, with a 100 percent realization rate. A program wide NTG ratio was used to determine net evaluated savings. Measure category results are reported in Table 3-34 through Table 3-36.

Table 3-34: Building Shell Program Savings 2021-2022

Measure Type	Quantity (sq ft)	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Insulation	**19,263**	**25,054**	**25,054**	**100%**	**89%**	**22,178**
Attic Insulation	14,683	13,004	13,004	100%	89%	11,512
Floor Insulation	2,575	8,695	8,695	100%	89%	7,697
Wall Insulation	2,005	3,355	3,355	100%	89%	2,970
Windows	**3,774**	**5,536**	**5,536**	**100%**	**89%**	**4,901**
Window Upgrade	3,774	5,536	5,536	100%	89%	4,901
Total	**23,037**	**30,590**	**30,590**	**100%**	**89%**	**27,079**

Table 3-35: Building Shell Program Savings 2021

Measure Type	Quantity (sq ft)	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Insulation	**11,416**	**14,691**	**14,691**	**100%**	**89%**	**13,005**
Attic Insulation	7,481	4,982	4,982	100%	89%	4,411
Floor Insulation	1,930	6,354	6,354	100%	89%	5,624
Wall Insulation	2,005	3,355	3,355	100%	89%	2,970
Windows	**2,100**	**1,775**	**1,775**	**100%**	**89%**	**1,571**
Window Upgrade	2,100	1,775	1,775	100%	89%	1,571
Total	**13,517**	**16,466**	**16,466**	**100%**	**89%**	**14,576**

Table 3-36: Building Shell Program Savings 2022

Measure Type	Quantity (sq ft)	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Insulation	**7,847**	**10,363**	**10,363**	**100%**	**89%**	**9,173**
Attic Insulation	7,202	8,022	8,022	100%	89%	7,101
Floor Insulation	645	2,341	2,341	100%	89%	2,072
Windows	**1,674**	**3,761**	**3,761**	**100%**	**89%**	**3,329**
Window Upgrade	1,674	3,761	3,761	100%	89%	3,329
Total	**9,520**	**14,124**	**14,124**	**100%**	**89%**	**12,503**

3.12.1 Verification of Tracking Data

ADM reviewed a census of building shell tracking data to evaluate the following.

- Did the program tracking dataset include duplicate or erroneous data?
- Were all energy savings claimed in accordance with the applicable ML source documents and calculations?

ADM found the following for claimed insulation measures:

- Baseline and installed R-values were not provided for 5 of 16 insulation records (31 percent).
- Heating and cooling systems were not provided for any claimed insulation records.

ADM found the following for claimed windows measures:

- Baseline and replacement U-values were not provided for window records to verify that installed measure met measure requirements.

- Heating and cooling systems were not provided in window records for 13 of 29 (45 percent) to verify that the correct measures were claimed.

3.12.2 Review of Claimed Savings

ADM verified that the UES values claimed by RMP matched the savings values documented in the applicable ML documents.

3.12.3 Determination of Evaluated Savings

ADM reviewed program data provided by RMP and the program implementer to verify claimed measures, and therefore savings, at the record level. ADM identified the correct measure and the corresponding savings documented in the ML. For records in the program data that included sufficient data, ADM verified that the correct measures were claimed. For the sample of windows that included data to verify that the correct measures were claimed, ADM found a 100 percent realization rate, which was applied to the remaining records in this measure category.

ADM used an ISR of 1.0 for building shell measures.

3.12.4 Discussion of Realization Rates

ADM found a 100 percent realization for the sample of verifiable records in this measure category.

3.12.5 Net-to-Gross Ratio

A weighted average, program wide NTG ratio was applied to Building Shell measures.

3.13 Appliances

RMP offered rebates to verified customers who bought qualified ENERGY STAR appliances during 2021-2022. Rebates were issued for 68 appliances resulting in net evaluated savings of 3,908 kWh. Appliance measures accounted for 0.2 percent of net program savings, with an 85 percent realization rate. A program wide NTG ratio was used to determine net evaluated savings. Appliance measure category savings results are reported in Table 3-37 through Table 3-39.

Table 3-37: Appliances Savings by Measure Type 2021-2022

Measure Type	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Clothes Washer	28	3,100	3,283	106%	89%	2,906
Dishwasher	31	1,074	1,037	97%	89%	918
Freezer	3	222	-	0%		-
Refrigerator	5	710	-	0%		-
Room Air Cleaner	1	95	95	100%	89%	84
Total	**68**	**5,200**	**4,415**	**85%**	**89%**	**3,908**

Table 3-38: Appliances Savings by Measure Type 2021

Measure Type	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Clothes Washer	16	1,784	1,872	105%	89%	1,657
Dishwasher	9	326	326	100%	89%	288
Freezer	1	74	-	0%		-
Refrigerator	3	426	-	0%		-
Total	**29**	**2,609**	**2,198**	**84%**	**89%**	**1,945**

Table 3-39: Appliances Savings by Measure Type 2022

Measure Type	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Clothes Washer	12	1,316	1,411	107%	89%	1,249
Dishwasher	22	748	711	95%	89%	630
Freezer	2	148	-	0%		-
Refrigerator	2	284	-	0%		-
Room Air Cleaner	1	95	95	100%	89%	84
Total	**39**	**2,591**	**2,218**	**86%**	**89%**	**1,963**

3.13.1 Verification of Tracking Data

ADM reviewed the program tracking data to evaluate the following.

- Did the program tracking dataset include duplicate or erroneous data entries?
- Did the installed measures meet the energy efficiency requirements as documented in the ML reference files?

ADM found the following in the dataset:

- 5 of 68 records (7 percent) included model numbers whose specifications did not meet measure requirements documented in the ML. No alternative measure was available in the ML that met model specifications.
- 1 record (1.5 percent) identified the incorrect measure based on documented DHW type.
- 4 records (6 percent) included model numbers that were not ENERGY STAR certified.
- 1 record (1.5 percent) did not include a model number.
- 10 records (15 percent) included models of clothes washers that qualified for measures with greater savings.

3.13.2 Review of Claimed Savings

ADM verified that all records included UES that matched UES in the ML for claimed measures.

3.13.3 Determination of Evaluated Savings

ADM reviewed manufacturer model specifications for a census of records to determine if the model specifications met claimed measure requirements as indicated in ML reference documents. When model specifications did not meet the claimed measure requirements, ADM determined the appropriate measure and corresponding savings as documented in the ML.

ADM assumed an ISR of 1.0 for appliances.

3.13.4 Discussion of Realization Rates

The realization rate was impacted by a record that included a model that did not meet efficiency requirements. The model specifications did not meet the requirements of any ML measure.

- 5 records with model numbers whose specifications did not meet measure requirements had no evaluated savings and had a negative impact on realization rate.

- 1 record identified the incorrect measure based on documented DHW type, savings for the corrected measure increased realization rate.
- 4 records included model numbers that were not ENERGY STAR certified resulting in no evaluated savings.
- 10 records included models of clothes washers that qualified for measures with greater savings, increasing the realization rate.

3.13.5 Net-to-Gross Ratio

A weighted average, program wide NTG ratio was applied to Appliance measures.

3.14 Electronics

RMP offered rebates to verified customers who bought qualified energy efficient smart plugs during 2021-2022. Rebates were issued for 36 smart plugs resulting in net evaluated savings of 1,087 kWh. Electronics measures accounted for 0.04 percent of program savings and had a 100 percent realization rate. A program wide NTG ratio was used to determine net evaluated savings. Electronics measure category savings results are reported in Table 3-40.

Table 3-40: Electronics Savings by Measure Type 2021-2022

Year	Qty	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
2021	2	68	68	100%	89%	60
2022	34	1,159	1,159	100%	89%	1,026
Total	**36**	**1,228**	**1,228**	**100%**	**89%**	**1,087**

3.14.1 Verification of Tracking Data

ADM reviewed the program tracking data to evaluate the following.

- Did the program tracking dataset include duplicate or erroneous data entries?
- Did installed measures meet the energy efficiency requirements as documented in the ML reference files?

ADM verified that there were no irregularities in the Whole Building or Whole Homes program data.

3.14.2 Review of Claimed Savings

ADM verified that all records included UES that matched UES in the ML for claimed measures.

3.14.3 Determination of Evaluated Savings

ADM reviewed manufacturer model specifications for a census of records and determined that all incentivized models met claimed measure requirements as indicated in ML reference documents.

3.14.4 Discussion of Realization Rates

Electronic measures resulted in a 100 percent realization rate.

3.14.5 Net-to-Gross Ratio

A weighted average, program wide NTG ratio was applied to Electronics measures.

4 Process Evaluation

4.1 Review of Program Materials and Staff Interviews

ADM completed a process analysis of the program which included semi-monthly meetings with the RMP's Wattsmart Homes Program Manager and Evaluation Manager, conversations with implementation staff and three surveys: a general population survey, a participant survey of customers who received engine block heater controllers, and a survey of customers who received energy saving kits. ADM also reviewed program materials. ADM notes that the evaluation was conducted primarily during 2023 after the transition had taken place to a new program implementer.

4.1.1 Roles and Responsibilities

The RMP program manager is responsible for the Wattsmart Homes programs in Idaho, Wyoming, and Utah, including oversight of the regulatory process, assessment of program cost effectiveness, review and approval of marketing campaigns, program participation and procedures, and design and implementation of procedures.

The implementation partners during 2021-2022 were CLEAResult and Evergreen, who were responsible for program implementation, program data management, contract management, client management, and overseeing day-to-day operations. CLEAResult was responsible for incentive processing and data management.

4.1.2 Program Design and Goals

RMP operates the Wattsmart Homes program to communicate the value of energy efficiency, provide information regarding low-cost, no-cost energy efficiency measures and to educate customers on the availability of technical assistance, services, and incentives. The overall goal is to engage customers to reduce their energy usage through behavioral changes as well as changes in equipment, appliances, and structures.

The program offers upstream, midmarket, and downstream energy efficient measures to reduce residential consumption of electricity. Upstream measures are products that are discounted at retail stores, no rebate application is required to gain the financial incentive to buy the discounted products. Upstream lighting measures were offered in 2021. Midmarket measures, mostly HVAC equipment, are offered through contractors who offer program incentives to RMP customers. Downstream measures offer residential customers post-purchase product rebates; rebate applications are available through the RMP website.

4.1.3 Tracking and Reporting

RMP savings documentation is comprised of the ML and its associated files, and the program data uploaded to RMP by the implementer. Additional program data is collected and managed by the implementer, though not transferred to RMP. ADM used program tracking data provided by RMP and supplemental data provided by CLEAResult to complete this program evaluation.

Measure Library (ML)

Ex-ante program savings, as well as measure specifications, are documented in RMP's ML. The ML is comprised of records about all program measures and all versions of each measure. Measure specifications are updated as required by changing regulatory and market conditions. The ML file is maintained jointly by RMP and its contracted program implementer. Each measure listed includes specifications for the measure and version number, including reference files that document UES values or savings calculation methodologies.

ML reference files are frequently briefs that summarize relevant measures included in the RTF library of measures maintained by Northwest Power and Conservation Council to verify and evaluate energy efficiency savings. RTF reference files include the basis for unit energy savings values. RTF reference documents are frequently updated.

Program Tracking Dataset

RMP maintains a program tracking dataset that includes:

- Measure name and corresponding data that ties to the ML
- Record or application status and relevant dates
- Customer and account information for downstream measures

The following data elements are not required in the dataset that the implementer uploads to RMP:

- Product manufacturer, model numbers, efficiency ratings
- Retail sales location for upstream measures
- Baseline and efficient conditions

Some, though not all, of these data elements were provided by the program implementer for this evaluation.

4.1.4 Communication

RMP uses earned media, customer communications, paid media, and program-specific media to communicate the value of energy efficiency, provide information regarding low-

cost, no-cost energy efficiency measures and to educate customers on the availability of technical assistance, services, and incentives. RMP communicated to its customers through newsletters, bill inserts, email, social media (Facebook and Twitter), its website, and paid media. Paid media included the following channels: TV, digital streaming services, radio, print, digital media, and social media.

RMP has weekly meetings with implementation staff and frequent ad hoc communication. Weekly meeting topics include program status and performance, long-term strategy, day-to-day tactical decisions, and marketing activities. RMP program staff and implementer staff work closely with each other and are in nearly daily communication about program operations and performance.

4.2 Engine Block Heater Control Survey Results

ADM surveyed RMP customers in Idaho, Wyoming and Utah who received Engine Block Heater Controllers through the Wattsmart Homes program during 2021 or 2022. The survey was conducted in October 2023 after customers had controllers for either one or two winters.

Table 4-1 reports survey response rates by state. Survey results were used to verify ex-ante savings assumptions, to inform future program design, and to calculate ISRs.

Table 4-1:Survey Response Rate

State	Number of Customers Who Received Controllers	Number of Responses	Response Rate
ID	772	67	9%
UT	66	12	18%
WY	641	63	10%
Total	**1,479**	**142**	**10%**

ADM collected data about how many diesel vehicles each survey respondent owned to inform future program design on limits to how many controllers each customer may receive. Results are reported in Table 4-2.

.

Table 4-2: Reported number of diesel vehicles owned by recipients of controllers

Quantity of Reported Diesel Vehicles	Number of Customers Who Reported Quantity of Diesel Vehicles	% of Question Respondents (n=64)
0	9	14%
1	24	38%
2	19	30%
3	3	5%
4	3	5%
7	1	2%
8	1	2%
9	1	2%
10	1	2%
12	1	2%

Table 4-3 reports the number of customers who received each quantity of controllers. Customers were limited to two controllers per billing account number. Customers who were listed with a unique name and email address were identified as a single customer regardless of how many residential billing account numbers were associated with them.

Table 4-3: Quantity of Controllers received by customer in Idaho

Qty of Controllers Customer Received	Number of Customers
1	64
2	688
4	16
6	3
8	1
Total	**772**

The survey collected responses on receipt and ISRs, as reported in Table 4-4. The ISR was calculated by dividing the total number of engine block controllers currently in-use by customers with the total claimed quantity for those same customers. The in-service question did not ask how the controller was used, for example if they were used on a vehicle or in another application.

Table 4-4: ISR for Survey Respondents

Claimed quantity	129
Reported received quantity	119
Reported in use quantity	90
ISR	**70%**

Table 4-5 reports responses about how customers use the controllers. The survey asked customers to indicate how they use each controller they received through the program. Note that the number of responses for each controller (first, second, and third controller) drops off significantly. ADM assumed in its analysis that all controllers were used on residential meters.

Table 4-5: Reported Controller Use

Reported Controller Use	Controller 1 (n=127)	Controller 2 (n=49)	Controller 3 (n=4)	Total
Personal Vehicle	75%	49%	25%	67%
Other Vehicle	19%	33%	75%	24%
Other than a Vehicle	5%	18%	0%	9%

Customers were asked to report how they use controllers that are not used on vehicles. Table 4-6 includes write-in responses.

Table 4-6: Reported Use of Controllers (Non-Vehicle)

Write in responses
Water heater for livestock troughs
Air compressor
Heater in garage
Pipe wrap freeze protection
Lights
Pool filter

Ten customers reported reasons for not using the controller they received (see Table 4-7). Though the number of responses is limited, the responses indicate that some customers struggled with controller operating instructions and some customers did not have a diesel vehicle nor an engine block heater.

Table 4-7: Reasons for Not Using Controller

Write in responses
I don't have an engine block heater
I can't figure out how to use the controller
The controller does not work
I want my vehicle ready all the time
I gave it away
I don't have a diesel engine vehicle now
I don't drive the vehicle that needs the heater very often.
I got the rebate certificates but was not able to purchase the controllers

The survey collected data about the frequency that customers use their heaters, as reported in Table 4-8.

Table 4-8: How frequently do you use your engine block heater(s) during cold weather months?

Answer	% (n=123)
Every day	52%
3-4 days a week	24%
Once a week	16%
2 times a month	2%
Once a month or less	5%
I don't use an engine block heater	1%

The survey also asked what percentage of time customers use the controller in conjunction with the engine block heater. Customers responded that they used the controllers an average of 76 percent of the time they used their engine block heater.

Table 4-9:Average number of days per week engine block heater and controller used during cold weather months

Average number of days per week engine customer reported using block heater	4.6
Average reported percentage of time that customer uses controller when using engine block heater	76%
Calculated average number of days per week customer uses controller with heater	3.5

Survey results about the reported months when engine block heaters are in use align well with RTF assumptions.

Table 4-10: What month do you typically start using an engine block heater?

Month Start Using Engine Block Heater	% (n=115)
September	0%
October	24%
November	45%
December	30%
I do not use an engine block heater	1%

Table 4-11: What month do you typically stop using an engine block heater?

Month Stop Using Engine Block Heater	% (n=115)
January	1%
February	9%
March	42%
April	37%
May	11%
I do not use an engine block heater	1%

The survey requested data about the baseline plug-in hours for engine block heaters. Responses indicate that before using the provided controllers, customers were already finding ways to limit the use of engine block heaters during hours when the power consumption was unnecessary. Many customers reported turning on their engine heater during early morning hours instead of leaving it on from 5 p.m. to 8 a.m. as assumed in ex-ante savings estimates.

Table 4-12: Reported hours of day when engine block heater is in use

Hour of Day	% of heaters on survey results	% of heaters on Ex-ante
12:00 AM	27%	100%
1:00 AM	29%	100%
2:00 AM	32%	100%
3:00 AM	36%	100%
4:00 AM	53%	100%
5:00 AM	59%	100%
6:00 AM	58%	100%
7:00 AM	44%	100%
8:00 AM	30%	0%
9:00 AM	19%	0%
10:00 AM	12%	0%
11:00 AM	11%	0%
12:00 PM	9%	0%
1:00 PM	9%	0%
2:00 PM	7%	0%
3:00 PM	7%	0%
4:00 PM	9%	0%
5:00 PM	10%	0%
6:00 PM	13%	100%
7:00 PM	15%	100%
8:00 PM	17%	100%
9:00 PM	22%	100%
10:00 PM	25%	100%
11:00 PM	24%	100%

The survey also included questions used to determine free ridership and net-to-gross values. See Section 3.6.5 for those results.

Customers were asked what other actions they had taken or purchases they had made to save energy. The question did not ask if the actions were influenced by the receipt of the controllers, therefore spillover is not established by the responses. ADM notes that the customer responses provided in Table 4-13 could inform the selection of future measures.

Table 4-13: Energy-saving products customers purchased?

Energy Saving Actions Taken or Products Purchased	Number of Customers Reporting
LED Lighting	15
Appliance or lighting timers	9
Solar panels	7
More efficient home heating/cooling	6
Engine block heater controller	3
Insulation	2
Window/Door replacement	2
Limit engine block heater use	2
Livestock water heater	2
Thermostat controller for livestock	1
Smart thermostats	1
Smart appliances	1
Thermostat settings	1
Heat with wood	1
Pool filter	1

When asked for feedback about the controllers, customers indicated that they wanted the controller to be programmable through a Wi-Fi phone application. Customers appreciated the free controllers and the Wattsmart Homes offers.

4.3 General Population Survey

ADM administered a general population survey to RMP customers in October and November 2022.

The survey asked respondents whether they had bought measures induced through RMP at a participating retailer in 2020 or 2021. It also asked whether they or anyone in their household had participated in RMP's other energy efficiency programs. A total of 256 nonparticipant and upstream participant survey responses were collected. Table 4-14 displays survey response rate information.

Table 4-14: Survey Response Rate Information

Metric	Total
Initial email contact list	4,500
Bounced/undeliverable	114
Invalid email (%)	*2.5%*
Email invitations sent (unique valid)	4,386
Completed surveys	256
Response rate (%)	5.8%

The survey also investigated household characteristics and demographic information. The typical respondent owned a single-family home and relied on natural gas for home and water heating (see Table 4-15). Fifty-five percent of respondents characterized their communities as rural, 31 percent as suburban, and 11 percent as urban. The remainder did not know how to characterize their community or describe it in some other way (1 percent).

Table 4-15: Survey Respondent Home Characteristics

Question	Response	Percent (n=256)
Do you rent or your home?	Rent	20%
	Own	80%
	Prefer not to say	<0%
Which of the following best describe your home?	Single-family home	76%
	Manufactured or mobile home	7%
	Duplex or triplex	2%
	Apartment in an apartment building or complex	10%
	Condominium or townhome	5%
What is the main fuel used to heat your water?	Electricity	26%
	Natural Gas	54%
	Propane	13%
	Wood	4%
	Don't heat home	<0%
	I don't know	2%
What is the main fuel used to heat your water?	Natural gas storage tank water heater	42%
	Electric storage tank water heater	35%
	Heat pump water heater	3%
	Natural gas tankless water heater	3%
	Electric tankless water heater	2%
	Propane storage tank/tankless water heater	6%
	I don't know	9%
When was your home built?	Before 1960	17%
	1960 to 1979	17%
	1980 to 1999	10%
	2000-2009	20%
	2010 or later	29%
	I don't know	7%
Including yourself, how many people currently live in your household?	1	8%
	2	34%
	3	12%
	4	12%
	5	14%
	6 or more	13%
	Prefer not to say	2%

ADM also asked respondents to provide information regarding their average monthly electric bill, educational background, ethnicity, and age (Table 4-16) Most respondents identified as Caucasian or white and reported having completed some education beyond high school. Eighty percent of respondents estimated that their average monthly electric bill was $150 or less. Ninety-eight percent of respondents said English was the primary language spoken at home. The other respondents said Spanish (1 percent) was the

primary language spoken at home or preferred not to say the primary language spoken at their home (1 percent). Twenty-six percent of respondents indicated their household income was less than 200 percent of the federal poverty line (n=251).

Table 4-16: Additional Survey Respondent Characteristics

Question	Response	Percent (n=256)
What is your age?	18-24 years old	8%
	25-34 years old	15%
	35-44 years old	23%
	45-54 years old	16%
	55-64 years old	16%
	65-74 years old	13%
	75-85 years old	6%
	86 years old or older	0%
	Prefer not to answer	3%
How would you identify your race or ethnicity? [11]	Asian	<1%
	Black/African American	<1%
	Caucasian/White	88%
	Hispanic or Latino	4%
	Native American or Alaska Native	0%
	Prefer not to say	9%
Approximately how much is your average monthly electric bill?	$0-$50	14%
	$51-$100	45%
	$101-$150	21%
	$151-$200	10%
	$201-$250	6%
	$251 or more	3%
	I don't know/Prefer not to say	1%
What's the highest level of education you've completed?	Less than high school	1%
	High school graduate/GED	14%
	Associate degree, vocation/technical school, or some college	31%
	Four-year college degree	32%
	Graduate or professional degree	19%
	I don't know/Prefer not to say	4%

ADM collected 81 survey responses from customers that indicated they purchased LED lighting discounted by RMP at a participating retailer in 2020 or 2021 and 175 responses

[11] Sums to more than 100 percent because respondents could select more than one race or ethnicity.

from customers that said they did not buy any discounted lighting products and had not participated in RMP's other energy efficiency programs. Eighty percent of respondents indicated they were satisfied with RMP as their electric utility.[12]

4.3.1 LED Purchases at Participating Retailers

Customers who bought LED measures were asked if they purchased their measures from retail stores that had participated in the upstream lighting program in 2021 or 2022 (n=145).[13] The top retail stores among the survey respondents were Walmart (38 percent), Ace Hardware (28 percent), and Home Depot (21 percent). Fifty-seven percent of customers who indicated they purchased LEDs in 2021 or 2022 said they purchased them at a participating retailer.

Forty-two percent of respondents that reported purchasing LEDs in 2021 or 2022 indicated purchasing LEDs from a non-participating retailer; of these 34 percent only purchased LEDs from non-participating retailers and 8 percent said they purchased bulbs from both a participating retailer and a non-participating retailer.

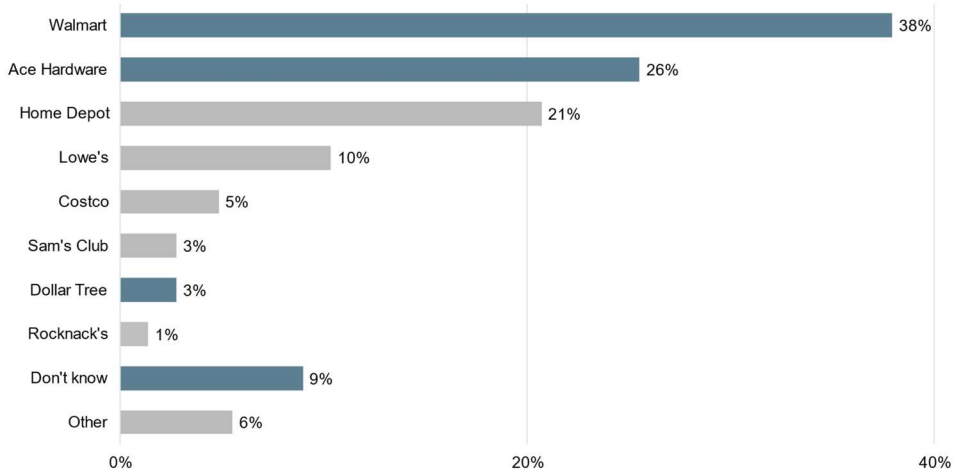


Figure 4-1: Which stores did you buy your ENERGY STAR® LED lighting from?[14]

[12] n=256. Rated their satisfaction with Rocky Mountain Power a 7 or higher on a scale from 0 (extremely dissatisfied) to 10 (extremely satisfied).

[13] Participating stores in Rocky Mountain Power's Idaho territory included Walmart, Ace Hardware, Do it Best, and the Dollar Tree.

[14] Non-participating stores are displayed in grey and participating stores in blue. Other retailers included Fred Meyer, Wolfe Lighting, True Value Hardware, D&S Electrical, Target, Batteries Plus Bulbs, and Purelight Distributor.

ADM asked survey-takers what kind of lightbulbs or fixtures they replace with the LEDs they bought in 2021 or 2022. Table 4-17 displays the types of lightbulbs or fixtures respondents reported replacing with the discounted LEDs. Nearly the same portion of LED bulb respondents indicated replacing CFL, incandescent or halogen bulbs as said they had replaced LED bulbs.

Table 4-17: What types of bulbs did respondents replace with discounted LEDs?[15]

Response	Percent of LED Bulb Respondents (n=76)	Percent of LED Fixture Respondents (n=35)
Bulbs that were not LEDs (CFL, incandescent, halogen, etc.)	59%	46%
LED bulbs	58%	26%
Installed bulbs in fixture or socket where there was none before	26%	14%
I don't know	5%	20%

The reasons respondents gave for buying LED lightbulb(s) are displayed in Table 4-18. The most cited reasons were the bulbs' price, brightness, and longevity.

Table 4-18: Which characteristic do you consider when purchasing light bulbs?[16]

Response	Percent of Respondents (n=81)
Price	62%
Brightness of the bulb	62%
How long the bulb lasts	60%
Energy efficiency	60%
Color of the light	48%
ENERGY STAR certification	17%
The ability to dim the bulb	10%

Seventy-seven percent of LED respondents said that they replaced burnt-out lights, while 32 percent noted they bought LED lightbulb(s) to replace working lightbulbs (n=81). Other respondents noted purchasing the bulbs to install new fixtures or lamps (26 percent), to add or replace lighting with improved, brighter, or different color lights (6 percent), or take advantage of the discounted pricing (5 percent).

Eighty-seven percent of respondents could not recall whether the LED lightbulb(s) they bought were discounted (n=77). Similarly, 78 percent could not recall whether the LED fixture(s) they bought were discounted (n=36). Of the customers that *did* recall that their

[15] Sums to more than 100 percent because respondents could select more than replacement response.

[16] Respondents could select more than one characteristic.

LED bulb or fixture purchase was discounted none recalled seeing a label or sign letting customers know that RMP provided the discount (n=22).

Seventy percent of respondents who bought LED bulbs at a participating retail store said they would have probably or definitely still bought them if the bulbs had cost $1 more per bulb (see Figure 4-2). Fifty-two percent of respondents reported that they had bought LED bulbs or fixtures before 2021 (n=81).

Eighty-three percent of upstream LED participants said they recalled receiving Home Energy Reports from RMP. Of these customers (n=67), 25 percent indicated that the Home Energy report was important in their decision to purchase the LED lighting.[17]

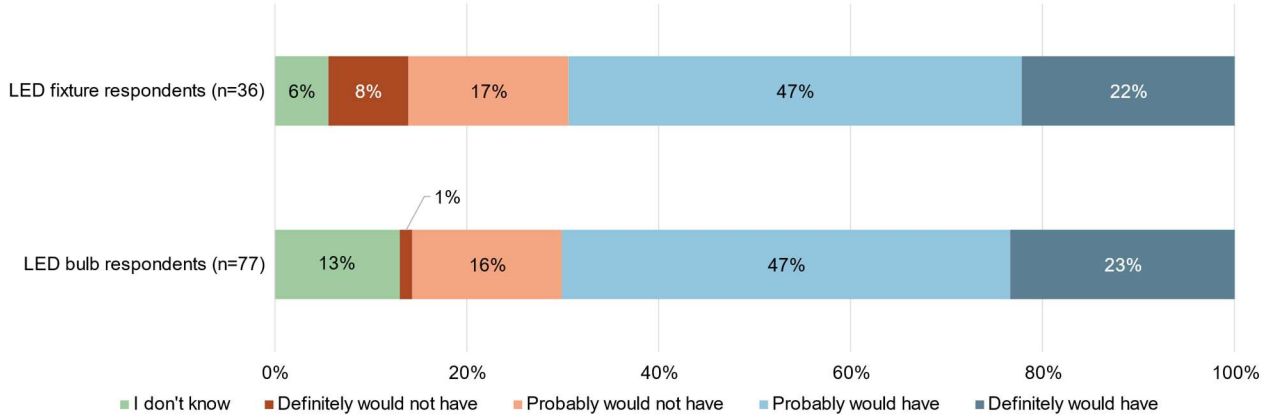


Figure 4-2: If the ENERGY STAR LEDs you bought had cost $1 more each, would you still have bought them?

4.3.2 Non-participants and RMP Advertising and Influence

ADM collected 174 responses from customers that said they did not buy any discounted lighting products and had not participated in RMP's other energy efficiency programs. To investigate non-participant spillover, these customers were asked if they had received any outreach from RMP, if they had purchased any energy-efficient products, and if the outreach from RMP had influenced their purchase decision(s).

Ninety-three percent of non-participants said they had received information from RMP about how to save energy. Eighty-four percent of non-participants recalled receiving a Home Energy Report (HER) from RMP. Outside of HER, the most frequently cited sources of information were messages on bills, bill inserts, and the RMP website (see Figure 4-3).

[17] Rated the importance of the discount a 7 or higher on a scale from 0 (not at all important) to 10 (very important).

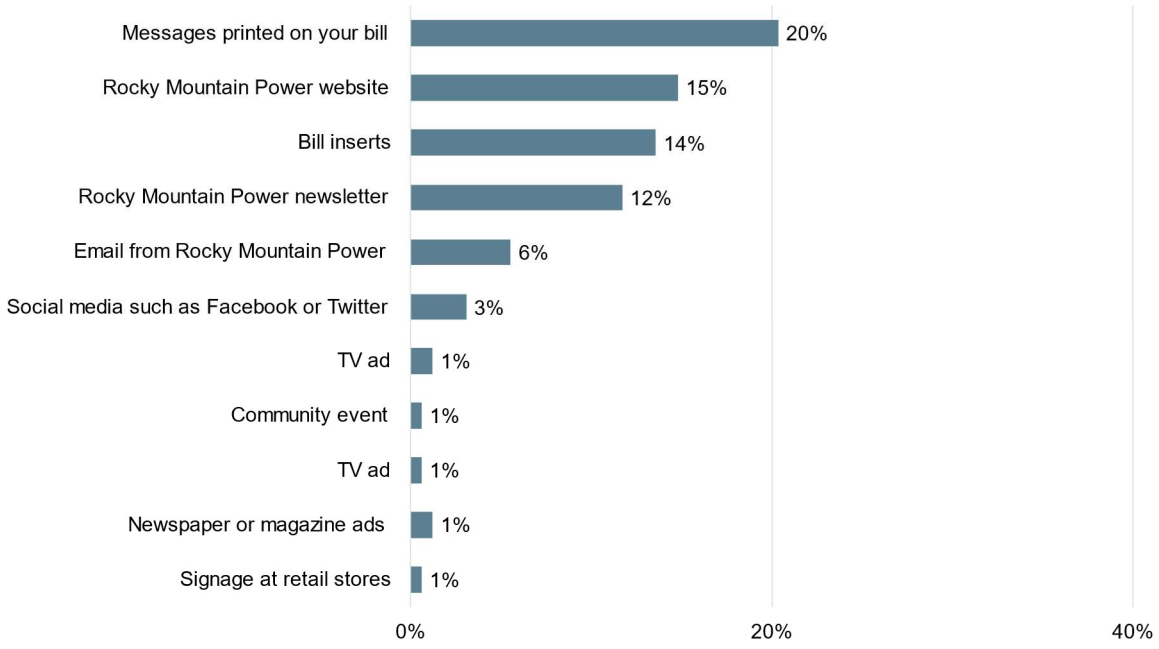


Figure 4-3: Non-participant Sources of Information from RMP[18]

4.4 Energy Kits Participant Survey Results

This section presents key findings from energy kit surveys, which were administered online by ADM. The surveys were completed by 71 customers who received energy kits in 2021 or 2022. Of these respondents, all customers reported that they had received an energy kit. The survey gathered information regarding program awareness, measures installed and ISRs, decision making and overall satisfaction.

4.4.1 Program Awareness

Respondents provided information and feedback regarding how they learned about the energy kits. Over 65 percent of participants reported hearing about the program from the RMP website; another 26 percent learned about the kits from bill inserts. A summary of survey responses appears in Table 4-19.

.

[18] n=79.

Table 4-19: How did respondents learn about the program?

How did you hear about the energy kits?	Percent of Responses (n = 66)
RMP website	65%
Utility bill insert	26%
My bill	20%
Word of mouth (friend, relative, coworker, etc.)	5%
RMP newsletter	3%
Home Energy Report	3%
Other, please specify:	3%
RMP representative	2%
Retailer/store	0%
Community event	0%
Social media such as Facebook or Twitter	0%
Contractor or plumber	0%
TV ad	0%
Newspaper/magazine/print media	0%

4.4.2 Participant Experience and Installation of Measures

Survey respondents answered questions regarding when they installed the energy kit components. Most respondents reported installing the first LED light bulb (64 percent), the second LED light bulb (51 percent) within one week of receiving the kit. Approximately 53 percent of respondents reported installing kitchen aerators and 70 percent reported installing bathroom aerators. Approximately 73 percent of respondents reported installing the showerhead. Figure 4-4 displays respondents' timeline for installing various energy kit measures.

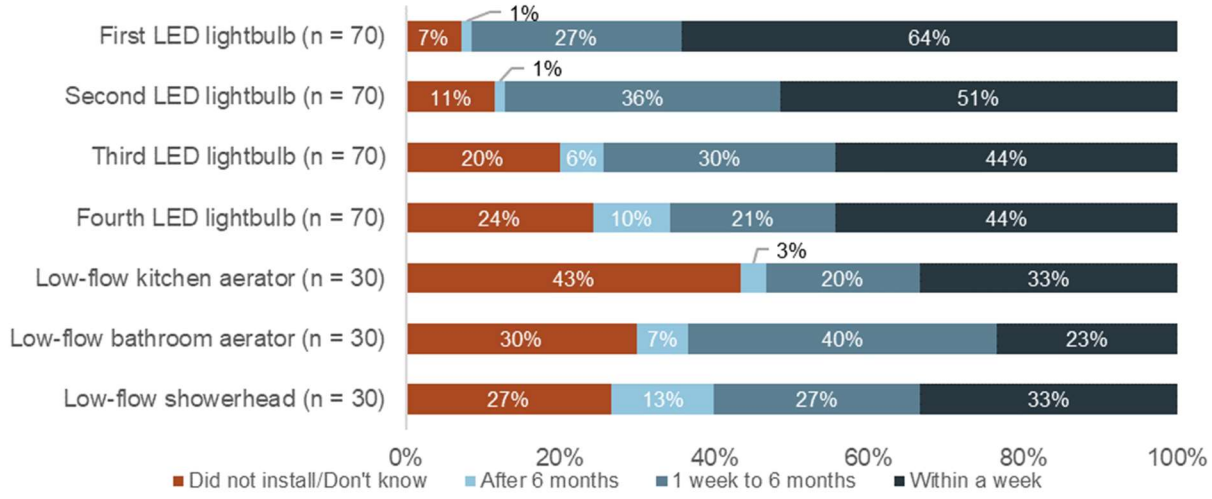


Figure 4-4: Respondent Timeline for Installing Energy Kit Measures

Energy kit recipients who reported that they had not installed certain measures provided the reasons that these measures were not installed. See Table 4-20 for complete results.

Table 4-20: Reasons for not Installing Energy Kit Components

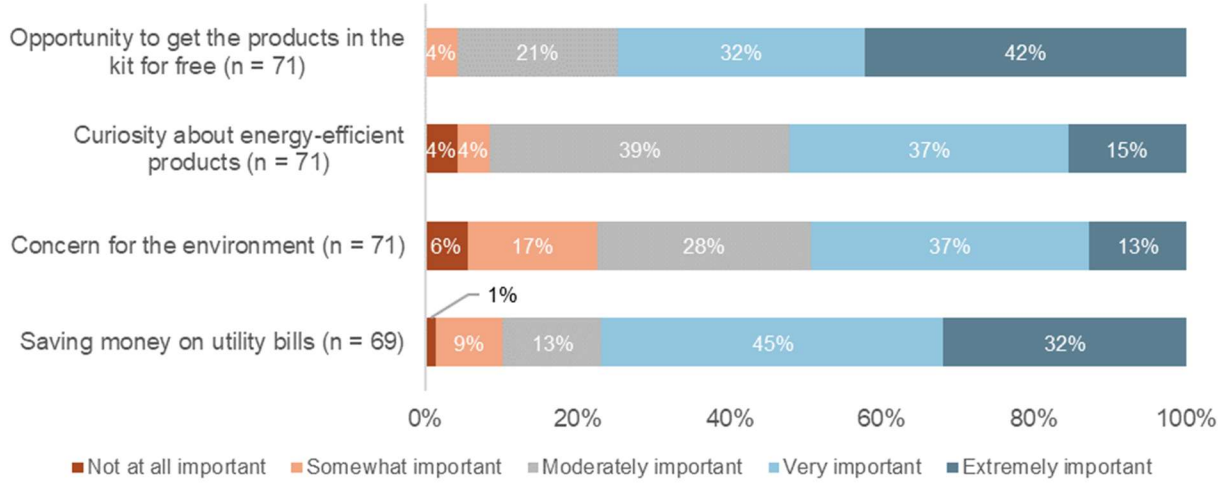
Reason for not installing measure	Percentage of Responses
LEDs (n = 10)	
Waiting for current lights to burn out	70%
Disliked the color tone/quality of the emitted light	10%
Wasn't bright enough	10%
Don't Know / Other	10%
Faucet Aerators (n = 16)	
It did not fit in my faucet	44%
Low-flow faucet aerators are already installed in all sinks	38%
I dislike the water pressure when using it	6%
I dislike the way it looks	6%
Othe	6%
Showerheads (n = 6)	
Low-flow showerheads were already installed in all showers	33%
I dislike the water pressure when using it	33%
I dislike the way it looks	17%
Other, please specify:	17%

Note: The sum of percentages is not always 100% because respondents could choose more than one response.

4.4.3 Participant Motivations

Respondents provided feedback regarding what influenced them to request the energy kit. Approximately two-thirds (77%) of respondents ranked "saving money on utility bills" as their strongest motivation to request a kit. Figure 4-5 displays respondents' ranking of reasons for requesting an energy kit.

Figure 4-5: Survey Respondents' Ranking of Reasons for Requesting an Energy Kit



4.4.4 Participant Satisfaction

Respondents provided feedback regarding their level of satisfaction with specific aspects of the program, as well as their overall experience with the program. Respondents were satisfied or highly satisfied with all aspects of the kits that were investigated (see Figure 4-6).

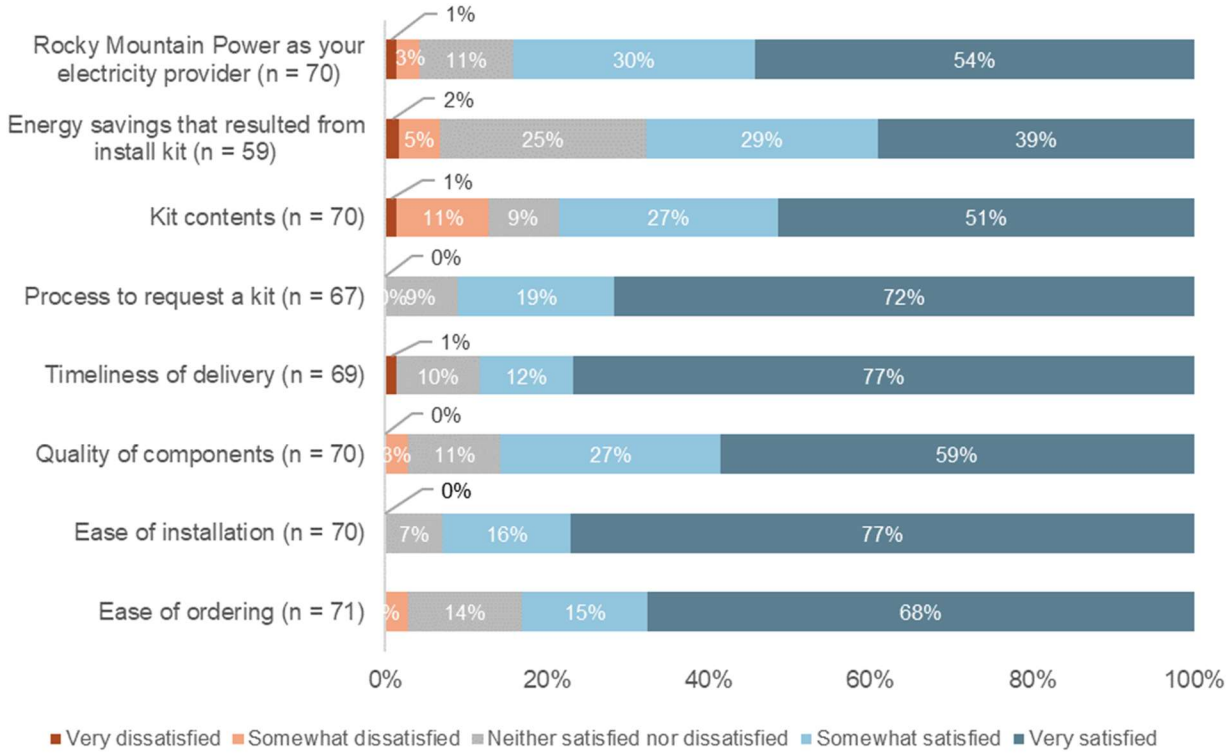


Figure 4-6: Kits program participants satisfaction

4.4.5 Home Characteristics

Respondents most often reported living in single-family, detached homes (75 percent) and most often owned their home (60 percent). Approximately 48 percent of respondents indicated natural gas is their primary home heating fuel and 56 percent indicated natural gas is their primary water heating fuel. Thirty-two percent of respondents indicated that their income fell below 200 percent of the federal poverty level. Respondents' home characteristics are summarized in Table 4-21.

Table 4-21: Energy Kit Participants Home Characteristics

Home Characteristics	Percentage of Respondents (n = 71)
Single family home	75%
Manufactured/modular home	11%
Apartment in building with 4 or more units	7%
Duplex or townhouse	7%
Own or Rent	
Own	60%
Rent	14%
Own and rent to someone else	1%
Year Built	
Before 1960	17%
1960-1979	14%
1980-1999	11%
2000-2009	26%
2010-2019	20%
2020 to Present	11%
What is the main fuel used for heating your home?	
Natural Gas	48%
Electricity	45%
Propane	7%
Other/I don't know	2%
What fuel does your main water heater use?	
Natural Gas	56%
Electricity	30%
Propane	7%
Other/I don't know	7%

5 Cost-Effectiveness Results

AEG estimated the cost-effectiveness results for the Idaho Wattsmart Homes Program based on 2021 and 2022 costs and savings estimates provided by RMP. The program did not pass the cost-effectiveness tests. Cost-effectiveness inputs are included in Table 5-1.

Table 5-1: Cost-Effectiveness Analysis Inputs

Parameter	Value
Discount Rate	6.88%
Residential Line Loss	9.06%
Residential Energy Rate ($/kWh)	$0.1013
Inflation Rate[19]	2.16%

Cost-effectiveness results are reported in Table 5-2 through Table 5-7.

5.1.1 Program Cost-Effectiveness Results (without NEBs)

Cost-effectiveness without NEBs results are reported in Table 5-2 through Table 5-4

Table 5-2: Program Cost-Effectiveness Results (Without NEBs) – 2021-2022

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.1345	$2,772,961	$1,316,169	-$1,456,792	0.47
Total Resource Cost Test (TRC) No Adder	$0.1345	$2,772,961	$1,196,517	-$1,576,444	0.43
Utility Cost Test (UCT)	$0.0622	$1,282,875	$1,196,517	-$86,358	0.93
Participant Cost Test (PCT)		$2,028,862	$2,823,037	$794,175	1.39
Rate Impact Test (RIM)		$3,798,364	$1,196,517	-$2,601,847	0.32
Lifecycle Revenue Impacts ($/kWh)					$0.0001011
Discounted Participant Payback (years)					7.97

[19] Future rates determined using a 2.16% annual escalator.

Table 5-3: Program Cost-Effectiveness Results (Without NEBs) – 2021

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.3130	$1,645,857	$497,373	-$1,148,485	0.30
Total Resource Cost Test (TRC) No Adder	$0.3130	$1,645,857	$452,157	-$1,193,700	0.27
Utility Cost Test (UCT)	$0.0932	$489,854	$452,157	-$37,697	0.92
Participant Cost Test (PCT)		$1,433,195	$864,473	-$568,721	0.60
Rate Impact Test (RIM)		$1,264,739	$452,157	-$812,582	0.36
Lifecycle Revenue Impacts ($/kWh)	$0.0000337				
Discounted Participant Payback (years)	19.10				

Table 5-4: Program Cost-Effectiveness Results (Without NEBs) – 2022

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.07	$1,165,305	$880,946	-$284,359	0.76
Total Resource Cost Test (TRC) No Adder	$0.07	$1,165,305	$800,860	-$364,445	0.69
Utility Cost Test (UCT)	$0.05	$808,104	$800,860	-$7,243	0.99
Participant Cost Test (PCT)		$636,888	$2,044,245	$1,407,357	3.21
Rate Impact Test (RIM)		$2,619,306	$800,860	-$1,818,445	0.31
Lifecycle Revenue Impacts ($/kWh)	0.00007				
Discounted Participant Payback (years)	3.36				

5.1.2 Program Cost-Effectiveness Results (with NEBs)

Cost-effectiveness with NEBs results are reported in Table 5-5 through Table 5-7.

Table 5-5: Program Cost-Effectiveness Results (With NEBs) – 2021-2022

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.1345	$2,772,961	$1,391,691	-$1,381,269	0.50
Total Resource Cost Test (TRC) No Adder	$0.1345	$2,772,961	$1,272,040	-$1,500,921	0.46
Utility Cost Test (UCT)	$0.0622	$1,282,875	$1,196,517	-$86,358	0.93
Participant Cost Test (PCT)		$2,028,862	$2,908,168	$879,306	1.43
Rate Impact Test (RIM)		$3,798,364	$1,196,517	-$2,601,847	0.32
Lifecycle Revenue Impacts ($/kWh)	$0.0001011				
Discounted Participant Payback (years)	7.72				

Table 5-6: Program Cost-Effectiveness Results (With NEBs) – 2021

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.3130	$1,645,857	$536,796	-$1,109,062	0.33
Total Resource Cost Test (TRC) No Adder	$0.3130	$1,645,857	$491,580	-$1,154,278	0.30
Utility Cost Test (UCT)	$0.0932	$489,854	$452,157	-$37,697	0.92
Participant Cost Test (PCT)		$1,433,195	$908,867	-$524,328	0.63
Rate Impact Test (RIM)		$1,264,739	$452,157	-$812,582	0.36
Lifecycle Revenue Impacts ($/kWh)	$0.0000337				
Discounted Participant Payback (years)	18.05				

Table 5-7: Program Cost-Effectiveness Results (With NEBs) – 2022

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.07	$1,165,305	$919,445	-$245,860	0.79
Total Resource Cost Test (TRC) No Adder	$0.07	$1,165,305	$839,358	-$325,946	0.72
Utility Cost Test (UCT)	$0.05	$808,104	$800,860	-$7,243	0.99
Participant Cost Test (PCT)		$636,888	$2,087,688	$1,450,800	3.28
Rate Impact Test (RIM)		$2,619,306	$800,860	-$1,818,445	0.31
Lifecycle Revenue Impacts ($/kWh)					0.00007
Discounted Participant Payback (years)					3.29

6 Conclusions and Recommendations

ADM provides the following conclusions and recommendations from its evaluation of the 2021-2022 Idaho Wattsmart Homes program.

6.1 Conclusions

ADM draws the following conclusions from its evaluation.

- RMP's 2021-2022 Wattsmart Homes program resulted in a net evaluated savings of 2,468,152 kWh with a realization rate of 77 percent as reported in Table 6-1.

Table 6-1: Total Program Savings by Year

Year	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
2021	880,308	785,639	89%	73%	573,245
2022	2,728,468	2,002,547	73%	95%	1,894,908
Total	**3,608,776**	**2,788,186**	**77%**	**89%**	**2,468,152**

- The Transportation measure category accounted for 86 percent of claimed program results in 2022. This is a new measure category with a single measure, the Engine Block Heater Control. The measure had a 70 percent realization rate, which drove savings and realization rate for the Wattsmart Homes program in 2022. See Figure 6-1.
- The program claimed savings for 2022 (2,728,468 kWh) was three times the claimed savings for 2021 (880,308 kWh). Therefore, the 73 percent realization rate for 2022 heavily influenced the realization rate for the two-year evaluation period (77 percent).

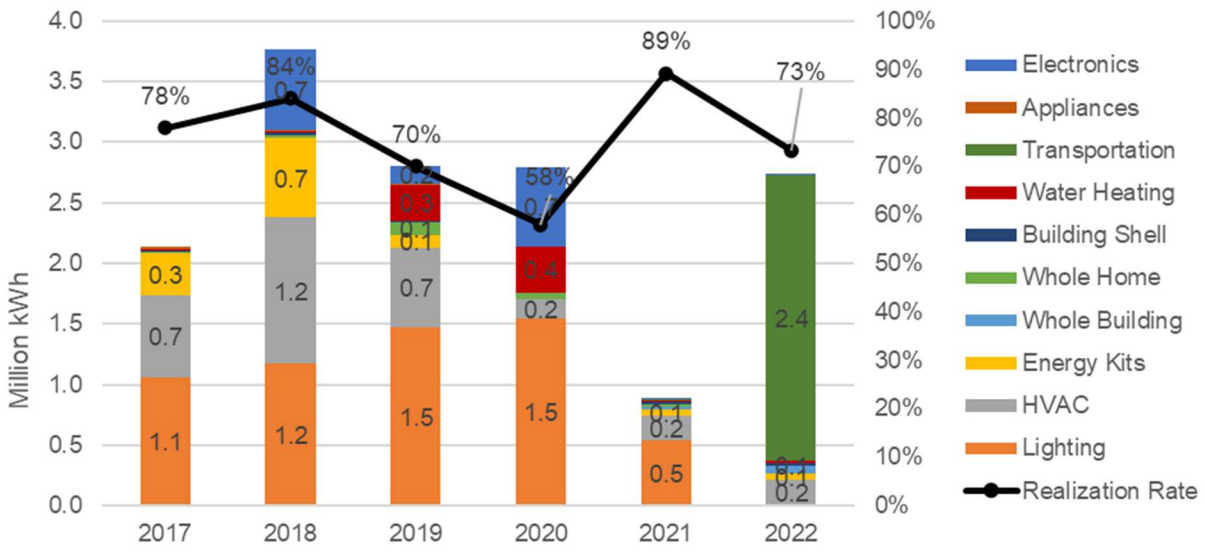


Figure 6-1: Claimed Program Savings by Measure Category 2017-2022

- The annual 2021 net-to-gross ratio (73 percent) was heavily impacted by lighting measures, an indication of LED saturation of the lighting market. Lighting measures were not offered during the 2022 program. The annual 2022 net-to-gross ratio increased to 95 percent, largely because of the engine block heater controller measures reflecting the high impact the program had on the measure adoption (see Figure 6-2).

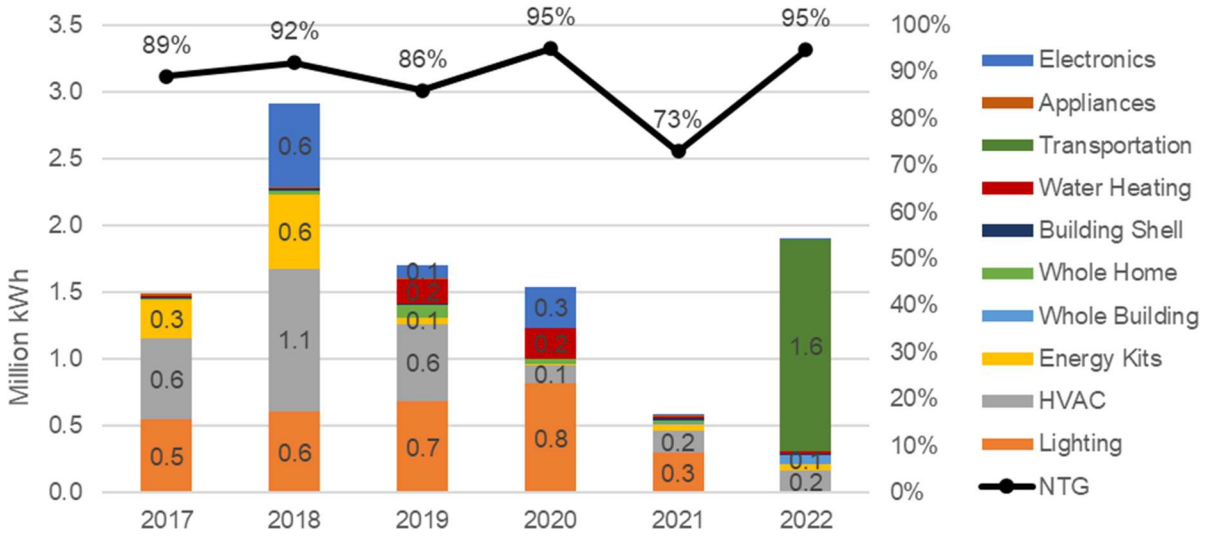


Figure 6-2: Net Evaluated Program Savings by Measure Category 2017-2022

6.2 Recommendations

ADM provides the following recommendations to improve future program implementation.

Update Engine Block Heater Control measures ex-ante savings. ADM recommends updating the following Engine Block Heater Controller calculation variables.

- **Update weather data locations** with locations that more accurately estimate customers' climate conditions.
- **Review baseline plug-in hours**. Survey results indicate that ex-ante baseline plug-in hours overestimate savings. Prior to receiving the controllers, many customers did not leave their engine block heaters on from 5 pm to 8 am as assumed in the RTF savings calculations.
- **Collect mode-use data.** The controller model distributed through the program has two mode settings: maintain ready and timed ready modes. ADM recommends investigating if additional savings are realized by customers who use the timed ready mode.

Update Engine Block Heater Control measures. A single model of controller was offered during the evaluated program years. ADM recommends that PacifiCorp's ML and Qualified Product List be updated to reflect the type of controller offered through the program. ADM recommends a review of measure definitions and qualified product lists so that incentivized products clearly meet measure eligibility requirements documented in the ML and the RTF reference files.

Develop consistent measure identification practice. ADM recommends that measure identification is standardized in the program tracking data. Currently, a single controller model is identified as wall-mounted, engine-mounted, and extension-cord-type controllers. ADM recommends that the program implementer use consistent conventions to identify measures in program tracking data.

Diversify program measure offerings. ADM recommends restoring a diversity of measure category offerings to reduce program evaluation risk.

Require implementation contractors to include measure-defining data elements in uploaded program dataset. The current dataset provided to RMP by the implementer does not include all data elements that are required to verify and calculate program savings. ADM recommends that RMP require program implementers to provide the following data elements in addition to the data currently included in program data uploads:

- For all measures, measure-defining data elements. For example, the measure *Single Family - Heat Pump Conversion to 9.0 HSPF/14.0 SEER - Convert FAF w/CAC*

includes the following measure-defining elements: home type, installed equipment, efficiency rating, baseline heating system, and baseline cooling system.

- For non-HVAC measures, product manufacturer and model number or ENERGY STAR identification number.
- For HVAC measures, AHRI certification number.
- For upstream measures, sales or distribution location and product model number at the record level.
- Additional data fields, as required, to identify the correct measure (e.g., heating and cooling system type, baseline conditions, installation location, U- and R-values, etc.).

Storing these key data elements with RMP's program data will result in the following benefits:

- Adds data management industry best practices to RMP's energy efficiency programs.
- Allows verification of a census of program data rather than relying on sampling. A central dataset can undergo census review, while a census review of discrete image application files (.pdf formatted files) is often cost prohibitive.
- Reduce evaluation risk by requiring implementer to document measure selection.
- Improve internal program planning by having more accurate program measure participation data.

Appendix A: Energy Block Heater Controller Participant Survey

1. Our records show that you received [Qty received] engine block heater controllers. Is this correct?

    - Yes
    - No
    - No, I received a different number
    - I don’t know

2. How many engine block heater controllers or rebates did you receive?

3. How many diesel vehicles do you have?

4. During cold weather, how many of the [Qty received] engine block heater controller(s) do you use?

5. How do you use the engine block heat controller(s)? [Response matrix for each controller received.]

    - I use the controller on a personal vehicle
    - I use the controller on a commercial vehicle
    - I use the controller on an agricultural vehicle
    - I use the controller on something other than a vehicle [Fill in]
    - I don’t use the controller
    - I don’t know

6. Why don’t you use the engine block heater controller?

    - I don’t have an engine block heater
    - I can’t figure out how to use the controller
    - The controller does not work
    - I want my vehicle ready all the time
    - Other [Open ended]

7. How frequently do you use your engine block heater(s) during cold weather months? Please select all that apply if you have more than one controller.

    - Every day
    - 3-4 days a week
    - Once a week
    - 2 times a month
    - Once a month or less

8. How frequently do you use the controller when you use the engine block heater?

    - Scale from 100% of the time to 0% of the time

9. What month do you typically START using an Engine Block Heater?

    - [DROP DOWN BOX: Month (September-December)]

10. What month do you typically STOP using an Engine Block Heater?

    - [DROP DOWN BOX: Month (January-June)]

11. On a normal day, what hour of the day would you Turn-On your Engine Block Heater?

    - [DROP DOWN BOX: Time of Day]

12. On a normal day, what hour of the day would you Turn-Off your Engine Block Heater?

    - [DROP DOWN BOX: Time of Day]

13. Before receiving the engine block heater controller from Rocky Mountain Power, did you know that controllers were available for engine block heaters?

    - Yes
    - No

14. If you had not received the engine block heater controller or the rebate from Rocky Mountain Power, would you have purchased one?

    - Definitely would have
    - Don’t know
    - Definitely would not have

15. How influential was the Rocky Mountain Power rebate (or give away) in your decision to get an engine block heater controller? 5-point scale Not influential at all to Extremely influential.

16. Has receiving the controller or the rebate for the controller influenced you to take any other actions to save energy?

    - Yes
    - No

17. What additional energy saving actions have you taken?

Thank you for participating in the engine block heater controller customers survey!

Appendix B: 2022 General Population Survey

1. Did you buy any ENERGY STAR LED lightbulbs, light fixtures, or floodlights in a physical store in 2021 or 2022? Please do not include online purchases.

    - Yes
    - No
    - I don’t recall

2. Which stores did you buy your ENERGY STAR LED lighting from?

    - Ace Hardware
    - Do It Best
    - Dollar Tree
    - Walmart
    - Other (Please specify)
    - I don’t know

3. What type of ENERGY STAR LED lighting products did you buy? Select all that apply.

    - LED bulb(s)
    - LED fixture(s) or floodlight(s)
    - I don’t know

4. When did you buy the ENERGY STAR LED bulbs? Select all that apply.

    - 2021
    - 2022

5. How many ENERGY STAR LED bulbs did you buy during 2021-2022? If you are unsure of the exact number, an estimate is okay.

    - Number of Bulbs

6. Of the [number bought] bulbs you bought how many are currently:

    - Installed:
    - In storage:
    - Removed, discarded, or given away:
    - Total:

7. Of the [number installed] bulbs that you have installed, how many replaced LEDs and how many replaced bulbs that were not LEDs?

    - Number of replaced LED bulbs:
    - Number of replaced bulbs that were not LEDs (CFL, incandescent, halogen)
    - Number installed in new lamps, fixtures, or floodlights:
    - I don't know:

8. If the ENERGY STAR LED light bulbs you bought had cost $1 more each, would you still have bought them?

    - Definitely would have
    - Probably would have
    - Probably would not have
    - Definitely would not have
    - Don't know

9. Again, imagine the LEDs you bought cost $1 more per bulb than they did. Which is more likely that you would have bought the same number or fewer?

    - I would have bought fewer
    - I would have bought the same quantity
    - I don't know

10. You indicated that you bought [X] ENERGY STAR LED bulbs. How many fewer would you have bought if they had cost $1 more each?

11. Do you recall if the ENERGY STAR LED bulbs you bought were discounted?

    - Yes, there were discounted
    - No, they were not discounted
    - I don't remember

12. Do remember seeing a label or sign letting customers know that Rocky Mountain Power provided the discount?

    - Yes
    - No
    - I don't remember

13. Were any of the ENERGY STAR LED bulbs you purchased in 2021 or 2022 installed in a business or commercial building?

    - Yes
    - No
    - I don't know

14. Approximately how many of the ENERGY STAR LED bulbs you purchased were installed in a business or commercial building?

15. How many of the [number installed] installed LED bulbs are in each of the following locations?

    - Bathroom:
    - Bedroom:
    - Dining room:
    - Exterior:
    - Garage:
    - Hallway:
    - Kitchen:
    - Living room:
    - Office:
    - Other room:
    - Installed at building other than home:
    - Don't know:
    - Total:

16. When did you buy the ENERGY STAR LED fixtures or floodlights? Select all that apply.

    - 2021
    - 2022

17. How many ENERGY STAR LED fixtures or floodlights did you buy during 2021-2022? If you are unsure of the exact number, an estimate is okay.

    - Number of fixtures or floodlights

18. Of the [number installed] fixtures or floodlights you bought how many are currently:

    - Installed:
    - In storage:
    - Removed, discarded, or given away:
    - Total:

19. Of the [number installed] fixtures or floodlights that you have installed, how many replaced LEDs and how many replaced bulbs that were not LEDs?

    - Number of replaced bulbs that were LEDs:
    - Number of replaced bulbs that were not LEDs (CFL, incandescent, halogen):
    - Number installed in new lamps fixtures, or floodlights:
    - I don't know:

20. If the ENERGY STAR LED fixtures or floodlights you bought had cost $1 more each, would you still have bought them?

    - Definitely would have
    - Probably would have
    - Probably would not have
    - Definitely would not have
    - Don’t know

21. Again, imagine the fixtures or floodlights you bought cost $1 more per bulb than they did. Which is more likely that you would have bought the same number or fewer?

    - I would have bought fewer
    - I would have bought the same quantity
    - I don’t know

22. Do you recall if the ENERGY STAR LED fixtures or floodlights you bought were discounted?

    - Yes, there were discounted
    - No, they were not discounted
    - I don’t remember

23. Do remember seeing a label or sign letting customers know that Rocky Mountain Power provided the discount?

    - Yes
    - No
    - I don’t remember

24. Were any of the ENERGY STAR LED fixtures or floodlights you purchased in 2021-2022 installed in a business or commercial building?

    - Yes
    - No
    - I don’t know

25. Approximately how many of the ENERGY STAR LED fixtures or floodlights you purchased were installed in a business or commercial building?

    - Number of bulbs:

26. How many of the [number installed] LED fixtures or floodlights that are installed are in your home are in each of the following locations?

    - Bathroom:
    - Bedroom:
    - Dining room:
    - Exterior:
    - Garage:
    - Hallway:
    - Kitchen:
    - Living room:
    - Office:
    - Other room:
    - Installed in a building other than home:
    - I don’t know:

1. Had you bought any ENERGY STAR LED light bulbs, fixtures, or floodlights before 2021?

    - Yes
    - No
    - I don't know

27. Which characteristic do you consider when purchasing light bulbs? Select all that apply.

- Price
- Energy efficiency
- ENERGY STAR certification
- Brightness of the bulb
- How long the bulb lasts
- The ability to dim the bulb
- Color of the light
- Other (Please specify)
- I don't know

28. Why did you purchase the ENERGY STAR LED lighting? Select all that apply.

- To replace burned out bulbs
- To replace working bulbs to lower energy use
- To add new light fixtures or floodlights in my home
- To take advantage discounted pricing
- Other (please specify)
- I don’t know

29. Do you recall receiving Home Energy Reports from Rocky Mountain Power like the one below? They include information about your home energy use, compare your energy use to similar homes, share energy saving tips, and let you know about Rocky Mountain Power offers on energy savings products. You would have received them either by email or mail.

30. How important were the Home Energy Reports in your decision to buy the LEDs? (Scale 0-10, 0 = Not important at all, 10 = Very important)

31. After buying the discounted LEDs in 2021 or 2022, did you buy any of the following products? Select all the apply.

- ENERGY STAR (vs standard efficiency) appliance (clothes washer, dishwasher, refrigerator)
- ENERGY STAR heat pump (vs standard efficiency)
- ENERGY STAR home cooling system (e.g., evaporative cooler, air conditioner, heat pump) (vs standard efficiency)
- ENERGY STAR heat pump water heater (vs standard efficiency)
- Home insulation
- Window upgrades
- Hot water pipe insulation
- Smart plug(s)
- Smart thermostat (example EcoBee, Nest, etc.)
- Duct sealing or insulation
- Furnace fan
- Whole house fan
- LED lightbulbs, fixtures, or floodlights
- Engine block heater control
- Low flow faucet aerator
- Low flow showerhead
- Other (please specify)
- I did not purchase any additional items

32. Did you receive a discount to buy the following product(s)? Please select any item you received a rebate or discount on [purchase].

- ENERGY STAR (vs standard efficiency) appliance (clothes washer, dishwasher, refrigerator)
- ENERGY STAR heat pump (vs standard efficiency)
- ENERGY STAR home cooling system (e.g., evaporative cooler, air conditioner, heat pump) (vs standard efficiency)
- ENERGY STAR heat pump water heater (vs standard efficiency)
- Home insulation
- Window upgrades
- Hot water pipe insulation

- Smart plug(s)
- Smart thermostat (example EcoBee, Nest, etc.)
- Duct sealing or insulation
- Furnace fan
- Whole house fan
- LED lightbulbs, fixtures, or floodlights
- Engine block heater control
- Low flow faucet aerator
- Low flow showerhead
- Other (please specify)
- I did not receive a rebate or discount for any of these items

33. How important were the Home Energy Reports you received from Rocky Mountain Power in your decision to purchase the following products?

- ENERGY STAR appliance (clothes washer, dishwasher, refrigerator)
- ENERGY STAR heat pump
- ENERGY STAR home cooling system (e.g., evaporative cooler, air conditioner, heat pump)
- Heat pump water heater (vs standard efficiency)
- Home insulation
- Window upgrades
- Hot water pipe insulation
- Smart plug(s)
- Smart thermostat (example EcoBee, Nest, etc.)
- Duct sealing or insulation
- Furnace fan
- Whole house fan
- LED lightbulbs, fixtures, or floodlights
- Engine block heater control
- Low flow faucet aerator
- Low flow showerhead

34. If you had not received the Home Energy Reports, how likely is it that you would still have bought the following products?

- ENERGY STAR appliance (clothes washer, dishwasher, refrigerator)
- ENERGY STAR heat pump
- ENERGY STAR home cooling system (e.g., evaporative cooler, air conditioner, heat pump)

- Heat pump water heater (vs standard efficiency)
- Home insulation
- Window upgrades
- Hot water pipe insulation
- Smart plug(s)
- Smart thermostat (example EcoBee, Nest, etc.)
- Duct sealing or insulation
- Furnace fan
- Whole house fan
- LED lightbulbs, fixtures, or floodlights
- Engine block heater control
- Low flow faucet aerator
- Low flow showerhead

35. After buying the discounted LEDs in 2021 or 2022, did you buy any of the following products?

- ENERGY STAR appliance (clothes washer, dishwasher, refrigerator)
- ENERGY STAR heat pump
- ENERGY STAR home cooling system (e.g., evaporative cooler, air conditioner, heat pump)
- Heat pump water heater (vs standard efficiency)
- Home insulation
- Window upgrades
- Hot water pipe insulation
- Smart plug(s)
- Smart thermostat (example EcoBee, Nest, etc.)
- Duct sealing or insulation
- Furnace fan
- Whole house fan
- LED lightbulbs, fixtures, or floodlights
- Engine block heater control
- Low flow faucet aerator
- Low flow showerhead

36. How important was your experience buying discounted LEDs in your decision to purchase the following products?

37. If you had not received the discount on the LEDs how likely is it that would you still have bought the following products(s)?

38. What type of ENERGY STAR certified appliance did you purchase?

- Refrigerator
- Dishwasher
- Clothes washer
- Clothes dryer
- Other (Please specify)
- I don't know

39. What model of refrigerator did you *install*?

- Brand
- Model number

40. What model of dishwasher did you *install*?

- Brand
- Model number

41. What model of clothes washer did you *install*?

- Brand
- Model number

42. What model of clothes dryer did you *install*?

- Brand
- Model number

43. What model of appliance did you install?

- Brand
- Model number

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

- Quantity

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

- Quantity

46. How many low flow showerheads did you install?

- Quantity:

47. How many smart plugs did you install?

    - Quantity:

48. What type of ENERGY STAR water heater did you install?

    - Natural gas storage tank water heater
    - Electric storage tank water heater
    - Heat pump water heater
    - Natural gas tankless water heater
    - Electric tankless water heater
    - Other (please specify)
    - I don't know

49. What type of water heater did you replace?

    - Natural gas storage tank water heater
    - Electric storage tank water heater
    - Heat pump water heater
    - Natural gas tankless water heater
    - Electric tankless water heater
    - Other (please specify)
    - I don't know

50. What type of cooling system did you install?

    - Room air conditioner
    - Central air conditioner
    - Ductless heat pump
    - Ducted heat pump
    - Evaporative cooler
    - I don't know

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

    - Quantity:

52. What type of cooling system did you replace?

    - Room air conditioner
    - Evaporative cooler
    - Heat pump
    - Central air conditioner

- Fans
- Room was not cooled before
- Other (please specify)
- I don’t know

53. What type of heating system did you replace?

- Electric baseboard heaters
- Electric furnace
- Gas furnace
- Oil furnace
- Heat pump
- Other (please specify)
- I don't know

54. What kind of heat pump did you install?

- Air source heat pump
- Ground source heat pump
- Ductless or ducted heat pump
- Dual fuel heat pump

55. What model of heat pump or cooling system did you install? Please enter as much information as you can.

- Brand
- Model number
- BTUs
- Seasonal Energy Efficiency Ratio (SEER)
- Energy Efficiency Ratio (EER)
- Heating Seasonal Performance Factor (HSPF) rating (heat pumps only)

56. What kind of whole house fan did you install?

- Brand
- Model number

57. What kind of furnace fan did you install?

- Brand
- Model number

58. Approximately how many feet of pipe insulation did you install?

    - Quantity:

59. Approximately how many feet of ducting did you seal or insulate?

    - Quantity:

60. Please tell us more about the insulation you installed.

    R value before you installed new insulation R value after you installed new insulation

    - Total square footage of added insulation

61. Please tell us more about the windows you installed.

    - How many windows did you install?
    - U value of new windows
    - Total square footage of all new windows (a best estimate is fine)

62. What kind of smart thermostat did you install?

    - Brand
    - Model number

63. In 2021 or 2022, did you participate in any of the following Rocky Mountain Power programs that promoted energy saving? **Select all that apply.**

    - Received a rebate or discount from Rocky Mountain Power energy efficient appliances, heating or cooling products, or home insulation or weatherization products and services.
    - Received a rebate or discount from Rocky Mountain Power on energy efficient products included in a new home that you purchased.
    - Received a Rocky Mountain Power Wattsmart Homes Starter Kit that included LED light bulbs and may have included low flow faucet aerators and a showerhead.
    - No one in my home participated in any Rocky Mountain Power energy efficiency program.

64. Have you received information from Rocky Mountain Power about how to save energy in your home from any of these sources? Select all apply.

- Signage at retail stores
- Newspaper or magazine ads
- Bill inserts
- Messages printed on your bill
- Rocky Mountain Power website
- TV ad
- Rocky Mountain Power representative
- Rocky Mountain Power newsletter
- Community event
- Social media such as Facebook or Twitter
- No, I have not received any information from Rocky Mountain Power about how to save energy
- Other (Please specify)

65. After receiving information from Rocky Mountain Power about how to save energy, did you buy any of the following products? Select all the apply.

- ENERGY STAR appliance (e.g., clothes washer, dishwasher, refrigerator)
- ENERGY STAR heat pump
- ENERGY STAR home cooling system (e.g., evaporative cooler, air conditioner, heat pump)
- Heat pump water heater (vs standard efficiency)
- Home insulation
- Window upgrades
- Hot water pipe insulation
- Smart plug(s)
- Smart thermostat (example EcoBee, Nest, etc.)
- Duct sealing or insulation
- Furnace fan(s)
- Whole house fan(s)
- LED lightbulbs, fixtures, or floodlights
- Engine block heater control
- Low flow faucet aerator(s)
- Low flow showerhead(s)
- Other (please specify)
- None of the above

66. Did you receive a discount to buy the following product(s)? Please select any item you received a rebate or discount on.

- ENERGY STAR appliance (clothes washer, dishwasher, refrigerator)
- ENERGY STAR heat pump
- ENERGY STAR home cooling system (e.g., evaporative cooler, air conditioner, heat pump)
- Heat pump water heater
- Home insulation
- Window upgrades
- Hot water pipe insulation
- Smart plug(s)
- Smart thermostat (example EcoBee, Nest, etc.)
- Duct sealing or insulation
- Furnace fan(s)
- Whole house fan(s)
- LED lightbulbs, fixtures, or floodlights
- Engine block heater control
- Low flow faucet aerator(s)
- Low flow showerhead(s)
- Other (Please specify)
- None of the above

67. How important was the information you received from Rocky Mountain Power about saving energy in your decision to purchase the following product(s)?

- ENERGY STAR appliance (clothes washer, dishwasher, refrigerator)
- ENERGY STAR heat pump
- ENERGY STAR home cooling system (e.g., evaporative cooler, air conditioner, heat pump)
- Heat pump water heater
- Home insulation
- Window upgrades
- Hot water pipe insulation
- Smart plug(s)
- Smart thermostat (example EcoBee, Nest, etc.)
- Duct sealing or insulation
- Furnace fan(s)
- Whole house fan(s)
- LED lightbulbs, fixtures, or floodlights

- Engine block heater control
- Low flow faucet aerator(s)
- Low flow showerhead(s)

68. If you had not received the information from Rocky Mountain Power about savings energy, how likely is it that would you still have bought the following product(s)?

- ENERGY STAR appliance (clothes washer, dishwasher, refrigerator)
- ENERGY STAR heat pump
- ENERGY STAR home cooling system (e.g., evaporative cooler, air conditioner, heat pump)
- Heat pump water heater
- Home insulation
- Window upgrades
- Hot water pipe insulation
- Smart plug(s)
- Smart thermostat (example EcoBee, Nest, etc.)
- Duct sealing or insulation
- Furnace fan(s)
- Whole house fan(s)
- LED lightbulbs, fixtures, or floodlights
- Engine block heater control
- Low flow faucet aerator(s)
- Low flow showerhead(s)

69. What type of ENERGY STAR certified appliance did you purchase?

- Refrigerator
- Dishwasher
- Clothes washer
- Clothes dryer
- Other (Please specify)
- I don’t know

70. What model of refrigerator did you install?

- Brand
- Model number

71. What model of dishwasher did you install?

- Brand
- Model number

72. What model of clothes washer did you install?

- Brand
- Model number

73. What model of clothes dryer did you install?

- Brand
- Model number

74. What model of appliance did you install?

- Brand
- Model number

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

- Quantity:

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

- Quantity:

77. How many low flow showerheads did you install?

- Quantity:

78. How many smart plugs did you install?

- Quantity:

79. What type of ENERGY STAR water heater did you install?

- Natural gas storage tank water heater
- Electric storage tank water heater
- Heat pump water heater
- Natural gas tankless water heater
- Electric tankless water heater
- Other (please specify)
- I don’t know

80. What type of water heater did you replace?

- Natural gas storage tank water heater
- Electric storage tank water heater
- Heat pump water heater
- Natural gas tankless water heater
- Electric tankless water heater
- Other (please specify)
- I don't know

81. What type of cooling system did you install?

- Room air conditioner
- Central air conditioner
- Ductless heat pump
- Ducted heat pump
- Evaporative cooler
- I don't know

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

83. What type of cooling system did you replace?

- Room air conditioner
- Evaporative cooler
- Heat pump
- Central air conditioner
- Fans
- Room was not cooled before
- Other (please specify)
- I don't know

84. What type of heating system did you replace?

- Electric baseboard heaters
- Electric furnace
- Gas furnace
- Oil furnace
- Heat pump
- Other (please specify)

85. What kind of heat pump did you install?

- Air source heat pump
- Ground source heat pump
- Ductless or ducted heat pump
- Dual fuel heat pump

86. What model of heat pump or cooling system did you install? Please enter as much information as you can.

- Brand
- Model number
- BTUs
- Seasonal Energy Efficiency Ratio (SEER)
- Energy Efficiency Ratio (EER)
- Heating Seasonal Performance Factor (HSPF) rating (heat pumps only)

87. What kind of whole house fan did you install?

- Brand
- Model number
- Other information

88. What kind of furnace fan did you install?

- Brand
- Model number
- Other information

89. Approximately how many feet of pipe insulation did you install?

- Quantity

90. Approximately how many feet of ducting did you seal or insulate?

- Quantity:

91. Please tell us more about the insulation you installed.

- R value before you installed new insulation
- R value after you installed new insulation
- Total square footage of added insulation

92. Please tell us more about the windows you installed.

- How many windows did you install?
- U value of new windows
- Total square footage of all new windows (a best estimate is fine)

93. What kind of smart thermostat did you *install*?

- Brand
- Model number

94. How long you would drive in minutes to reach each of the following types of stores?

- Grocery
- Do-It-Yourself or DIY retailer (e.g., Home Depot, Lowe's etc.)
- Mass merchant (e.g., Walmart, Target)
- Warehouse Club (e.g., Costco, Sam's Club)

95. Now, thinking about your experiences with Rocky Mountain Power as your electric utility, how satisfied would you say you are with Rocky Mountain Power overall? Please use a scale from 0 to 10 where "0" means "extremely dissatisfied" and "10" means "extremely satisfied."

96. What can Rocky Mountain Power do better? [open ended]

97. Do you rent or own your home?

- Rent
- Own
- Prefer not to answer

98. Which of the following best describes your home?

- Single-family home
- Manufactured or mobile home
- Duplex or triplex
- Apartment in an apartment building or complex
- Condominium or townhome
- Other (Please specify)
- I don't know

99. When was your home built?

- Before 1960
- 1960-1979
- 1980-1999
- 2000-2009
- 2010 or later
- I don't know

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

- Electricity
- Natural Gas
- Propane
- Heating Oil
- Wood
- Don't heat home
- Other (Please specify)
- I don't know

101. What kind of water heating system do you have?

- Natural gas storage tank water heater
- Electric storage tank water heater
- Heat pump water heater
- Natural gas tankless water heater
- Electric tankless water heater
- Other (please specify)
- I don't know

102. What kind of cooling system do you use in your home?

- No cooling system
- Central air conditioner
- Room air conditioner
- Evaporative cooler
- Heat pump
- Fans
- Other (please specify)

103. Approximately how much is your average monthly electric bill?

104. What is the primary language spoken in your home?

- English
- Spanish
- Chinese
- German
- Native American language
- Vietnamese
- Russian
- Tagalog
- Hmong
- Korean
- African language
- French
- Japanese
- Other (Please specify)
- Prefer not to answer

105. How would you characterize the community that you live in?

- Urban (relatively densely populated area)
- Rural (sparsely populated open area)
- Suburban (area outside downtown of city, primarily residential area)
- Other (Please specify)
- I don’t know

106. How old are you?

107. Which of the following best describes the highest level of education you’ve completed in school?

- Less than high school
- High school graduate/GED
- Associate degree, vocation/technical school, or some college
- Four-year college degree
- Graduate or professional degree
- I don’t know
- Prefer not to answer

108. Part of our goal in this survey is to help Rocky Mountain Power ensure it is serving everyone in its territory. To help us better understand who Rocky Mountain Power is serving, we are interested in the ethnicity of survey respondents. I identify my ethnicity as…
Please select all that apply.

- Asian
- Black/African American
- Caucasian/White
- Hispanic or Latino
- Native American or Alaska Native
- Pacific Islander or Native Hawaiian
- Middle Eastern or North African
- Other (Please specify)
- Prefer not to answer

109. Including yourself, how many people are living in your household?

110. Is your annual household income over or under $[Threshold income]?

- Over
- Under
- I don’t know
- Prefer not to answer

111. Thank you for your valuable feedback. In exchange for your time, we’d like to send you a $5 electronic gift card that you can use at one of dozens of retailers. We will email your gift card to: [customer email]

- If you would like us to send it to a different email address, enter it here:
- No thanks, I'll pass on the gift card

Appendix C: Energy Saving Kits Participant Survey

1. Our records indicate that you received a Rocky Mountain Power Wattsmart Homes Program Starter Kit in 2019. Starter Kits contain four LED light bulbs, and customers with electric water heating also receive high-performance showerheads and kitchen and bathroom faucet aerators. Did you receive Wattsmart Homes Program Starter Kit in the mail?

    - Yes
    - No
    - I don't know

2. What fuel does your main water heater use?

    - Electricity
    - Natural gas
    - Propane
    - Other (Please specify)
    - I don’t know

3. How satisfied were you with the following aspects of your Wattsmart Homes Program Starter Kit?

    - Ease of ordering
    - Ease of installation
    - Quality of components
    - Timeliness of delivery
    - Process to request a kit
    - Kit contents
    - Energy savings that resulted from install kit
    - Rocky Mountain Power as your electricity provider

4. Why were you dissatisfied?

    - [OPEN-ENDED]

5. How important were each of the following reasons for requesting a kit?

    - Saving money on utility bills
    - Concern for the environment
    - Curiosity about energy-efficient products
    - Opportunity to get the products in the kit for free

6. How did you hear about the Starter Kits?

- Newspaper/magazine/print media
- Utility bill insert
- My bill
- Rocky Mountain Power website
- Word of mouth (friend, relative, coworker, etc.)
- Contractor or plumber
- TV ad
- Rocky Mountain Power representative
- Rocky Mountain Power newsletter
- Retailer/store
- Community event
- Social media such as Facebook or Twitter
- Home Energy Report
- Other (Please specify)
- I don't know

7. How long after receiving your kit did you install its contents?

- First LED light bulb
- Second LED light bulb
- Third LED light bulb
- Fourth LED light bulb
- Kitchen aerator
- Bathroom aerator
- High-efficiency showerhead
- Second high-efficiency showerhead

8. Why did you decide not to use all the LEDs yet? [SELECT ALL THAT APPLY]

- Waiting for current lights to burn out
- Not the correct wattage
- Disliked the color tone/quality of the emitted light
- Did not fit into my fixtures
- Other (Please specify)

9. Why did you decide not to use the faucet aerator(s) that came in your kit? [SELECT ALL THAT APPLY]

- Faucet aerators were already installed in all sinks

- Did not integrate well with current plumbing
- Disliked the pressure/water volume
- Disliked the way it looked
- Other (Please specify)

10. Why did you decide not to use the high-efficiency shower head(s) included in the kit? [SELECT ALL THAT APPLY]

    - High-efficiency showerheads were already installed in all showers
    - Did not integrate well with current plumbing
    - Disliked the pressure/water volume
    - Disliked the way it looked
    - Other (Please specify)

11. Before you learned that the Starter Kits were available, were you planning to buy and install LED light bulbs?

    - Yes
    - No
    - I don’t know

12. Before you received the kit, what percent of lights in your home were LED bulbs?

    - 0%
    - 25%
    - 50%
    - 75%
    - 100%
    - I don’t know

13. If you had not received the Starter Kit, how likely is it that you would have bought and installed the items you received

    - LED light bulb
    - Faucet aerator
    - High-efficiency showerhead

14. If you had not received the Starter Kit, when do you think you might have purchased the items that were in it?

    - LED light bulb
    - Faucet aerator

- High-efficiency showerhead

15. Before you received the kit, what percent of sinks in your home had faucet aerators installed?

- 0%
- 25%
- 50%
- 75%
- 100%
- I don't know

16. Before you received the kit, what percent of showers in your home had high-efficiency showerheads installed?

- 0%
- 25%
- 50%
- 75%
- 100%
- I don't know

17. Since receiving your Home Starter Kit, have you taken any of the following additional steps to save energy? [SELECT ALL THAT APPLY]

- Installed additional LED Light Bulbs
- Installed an ENERGY STAR® appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer.
- Installed water heater jacket, blanket, or insulation
- Installed additional low flow faucet aerators
- Installed additional low flow showerheads
- Installed an ENERGY STAR® room air conditioner
- Installed an energy efficient water heater
- Installed an energy efficient central air conditioner, heat pump, or evaporative cooler
- Installed a Smart Thermostat (for example, EcoBee or Nest)
- Other (Please specify)
- I have not taken any additional energy saving steps
- I don't know

18. How many LEDs have you purchased and installed?

- Quantity: ___
- I don't know

19. Were any of the additional LED bulbs you purchased discounted from their normal price?

- Yes
- No
- I don't know

20. Do you know if Rocky Mountain Power sponsored the discount for the light bulb(s) you purchased?

- Yes, the discount was sponsored by Rocky Mountain Power
- No, the discount was not sponsored by Rocky Mountain Power
- I don't know

21. What kind of appliance did you purchase?

- Appliance type: ___
- I don't know

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

- Quantity: ___
- I don't know

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

- Quantity: ___
- I don't know

24. How many low flow showerheads did you install?

- Quantity: ___
- I don't know

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

- Quantity: ___
- I don't know

26. What type of water heater did you install?

- Natural gas storage tank water heater
- Electric storage tank water heater
- Heat pump water heater
- Natural gas tankless water heater
- Electric tankless water heater
- Other (Please specify)
- I don't know

27. Was the new central cooling system that you installed an air conditioner, heat pump, evaporative cooler?

- Air conditioner
- Heat pump
- Evaporative cooler
- I don't know

28. Air conditioners and heat pumps have an energy efficiency rating called Seasonal Energy Efficiency Ratio (SEER) that is displayed on the Energy Guide label. What is the SEER rating of the unit you installed?

- SEER rating: ___
- I don't know

29. Heat pumps have an energy efficiency rating called a Heating Seasonal Performance Factor (HSPF) that is displayed on the Energy Guide label. What is the HSPF of the unit you installed?

- HSPF rating: ___
- I don't know

30. Evaporative coolers have an energy efficiency rating called an Energy Efficiency Ratio (EER) that is displayed on the Energy Guide label. What is the EER of the unit you installed?

- EER rating: ___
- I don't know

31. What kind of heating system do you have?

- Air source heat pump
- Electric forced air furnace
- Electric forced air furnace plus central air conditioner

- Gas forced air furnace plus central air conditioner
- I don’t know

32. Did you receive a Rocky Mountain Power incentive, rebate, or discount when you [Q17 SPILL_MEASURE]?

    - Yes
    - No
    - I don’t know

33. How important was your experience with Starter Kits when you [SPILL_MEASURE]?

34. How likely would you have been to take the additional steps to save energy if you had not received the Starter Kit?

35. Which of the following best describes your home?

    - Manufactured or mobile home
    - Single-family home
    - Duplex or townhouse
    - Apartment or condominium
    - Other (please specify)
    - Don’t know

36. When was your home built?

    - Before 1960
    - 1960-1979
    - 1980-1999
    - 2000-2009
    - 2010 or later
    - Don't know

37. Do you own or rent your home?

    - Own
    - Rent
    - Prefer not to answer

38. What is the main fuel used to heat your home?

    - Electricity

- Natural gas
- Propane
- Oil
- Other (Please specify)
- Don’t heat home
- Don’t know

39. What fuel does your main water heater use?

- Electricity
- Natural gas
- Propane
- Other (Please specify)
- Don’t know

40. Including yourself, how many people are living in your household?

41. Is your annual household income over or under [CUTOFF]?

- Over
- Under
- Don’t know
- Prefer not to answer

42. We appreciate your time and would like to send you a $5 electronic gift card to thank you. We will send it to [EMAIL]. If you would like us to send your gift card to a different address, please enter the new address below. You should receive an email with the link to your gift card within 10 days.

- Please send my gift card to the above email address.
- Please send my electronic gift card to the following email address: __
- I do not wish to receive a gift card

If you have questions regarding this survey or would like to know the status of your gift card, you can send an email to adm-surveys@admenergy.com. On behalf of Rocky Mountain Power, thank you for participating. Have a great day!