Evaluation, Verification and Measurement Report
Residential Wattsmart Homes Program
Wyoming

PROGRAM YEARS 2019-2020

Prepared for:

Rocky Mountain Power

November 2021

Prepared by:

ADM Associates, Inc.

3239 Ramos Circle

Sacramento, CA 95827

916-363-8383

Table of Contents

1 Executive Summary 1

1.1 Description of Programs 1
1.2 Impact Evaluation Results 2
1.3 Process Evaluation Results 4
1.4 Cost Effectiveness Results 4
1.5 Conclusions and Recommendations 6

2 Introduction and Purpose of Study 9

2.1 Description of Programs 9
2.2 Process Evaluation Objectives 12

3 Impact Evaluation 13

3.1 Impact Evaluation Approach 14
3.2 Sample Design 15
3.3 Foodbank Distribution Program 17
3.4 Measure version numbers 18
3.5 Lighting 19
3.6 Electronics 37
3.7 Water Heating 40
3.8 HVAC 45
3.9 Starter Kits 54
3.10 Building Shell 61
3.11 Appliances 64

4 Process Evaluation 67

4.1 Roles and Responsibilities 67
4.2 Program Design and Goals 67
4.3 Tracking and Reporting 67
4.4 Communication 68
4.5 Outreach 69
4.6 General Population Survey Results 70
4.7 Starter Kits Program Participant Survey Results 82
4.8 Process Evaluation Key Findings 91

5 Cost-Effectiveness 92

5.1 Cost Effectiveness Results for Total Program Excluding Measures Distributed through Foodbanks 2019-2020 92
5.2 Cost Effectiveness Results for Total Program Measures Distributed through Foodbanks 2019-2020 94
5.3 Cost Effectiveness Results for Total Program 95

6 Conclusions and Recommendations 96

6.1 Conclusions 96
6.2 Recommendations 97

Appendix A – TRL Reference Documents 99

Appendix B – General Population Survey 103

Appendix C – Starter Kit Survey 133

1 Executive Summary

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 Rocky Mountain Power's 2019-2020 Wattsmart Homes Program in Wyoming. This report documents ADM's findings.

Program year 2019 (PY 2019) and program year 2020 (PY 2020) coincide with the respective calendar years. 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 of the program focusing on participant and program staff perspectives regarding the program's implementation and ADM's observations about the program.

1.1 Description of Programs

ADM determined the evaluated energy (kWh) savings achieved through Rocky Mountain Power's 2019-2020 Wattsmart Homes Program in Wyoming. Rocky Mountain Power contracted with Guidehouse to assess program cost-effectiveness. The results of the cost-effectiveness assessment are also included in this report. For the process evaluation, ADM gained an in-depth understanding of program operations, challenges and evaluation needs through Rocky Mountain Power and implementation contractor key staff interviews, complemented with program documentation review and program participant surveys.

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

The onset of the covid-19 pandemic occurred 15 months into the 24-month evaluation period. In response, Rocky Mountain Power distributed energy saving products through foodbanks to target its customers who were hardest hit by the economic downturn to help them reduce their energy costs. The foodbank distributions were a quick-response approach to assisting customers during an acute crisis. Products included in the program are reported in Table 1-1.

Table 1-1: Quantities of Measures Delivered through Program by Measure Category

Measure Category	2019	2020	Total
Energy Kits	**298**	**16**	**314**
Lighting	170	6	176
Lighting and Plumbing	128	10	138
HVAC	**448**	**842**	**1,290**
Controls and Thermostats	93	246	339
Cooling	262	585	847
Ducting	1	-	1
Heat Pump	18	10	28
Smart Thermostat	62	1	63
Ventilation	12	-	12
Lighting	**273,680**	**368,088**	**641,768**
General Service Fixtures	2,091	3,486	5,577
General Service Lamps	224,387	216,432	440,819
Specialty Lamps	47,202	148,170	195,372
Appliances	**39**	**27**	**66**
Clothes Washers	25	25	50
Freezers	8	2	10
Refrigerators	6	-	6
Building Shell	**19,568**	**11,566**	**31,134**
Insulation	16,377	11,479	27,856
Windows	3,191	87	3,278
Water Heating	**19,600**	**13,245**	**32,845**
Flow Control	19,598	13,239	32,837
Water Heater	2	6	8
Electronics	**619**	**52,956**	**53,575**
Advanced Power Strips	619	52,956	53,575
Grand Total	**314,252**	**446,740**	**760,992**

1.2 Impact Evaluation Results

The Wattsmart program resulted in a net evaluated savings of 7,899,927 kWh during the evaluation period with a 54 percent realization rate. Gross and net evaluated savings (kWh) are presented in Table 1-2 through Table 1-4.

Table 1-2: Total Program Savings by Measure Category 2019-2020

Measure Category	Quantity	Claimed Saving (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)	% Total Program Savings
Lighting	641,768	12,704,004	6,541,316	51%	70%	4,561,710	55%
Electronics	53,575	3,840,624	1,857,603	48%	99%	1,836,400	22%
HVAC	1,290	1,359,044	1,359,044	100%	75%	1,019,283	12%
Water Heating	32,845	1,937,754	876,900	45%	100%	873,964	10%
Energy Kits	314	105,608	59,698	57%	100%	59,858	1%
Building Shell	31,134	33,657	17,412	52%	78%	13,598	0.16%
Appliances	66	7,757	5,971	77%	78%	4,663	0.06%
Grand Total	**760,992**	**19,988,448**	**10,717,944**	**54%**	**78%**	**8,369,478**	**100%**

Table 1-3: Total Program Savings by Measure Category 2019

Measure Category	Quantity	Claimed Saving (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)	% Total Program Savings
Lighting	273,680	5,029,789	2,930,358	58%	63%	1,839,251	65%
HVAC	448	585,495	585,495	100%	75%	439,121	15%
Water Heating	19,600	894,626	409,737	46%	100%	409,098	14%
Electronics	619	133,704	96,816	72%	78%	75,613	3%
Energy Kits	298	98,190	55,755	57%	100%	55,907	2%
Building Shell	19,568	24,140	17,412	72%	78%	13,598	0.48%
Appliances	39	4,086	2,821	69%	78%	2,203	0.08%
Grand Total	**314,252**	**6,770,030**	**4,098,392**	**61%**	**69%**	**2,834,792**	**100%**

Table 1-4: Total Program Savings by Measure Category 2020

Measure Category	Quantity	Claimed Saving (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)	% Total Program Savings
Lighting	368,088	7,674,216	3,610,958	47%	75%	2,722,458	49%
Electronics	52,956	3,706,920	1,760,787	48%	100%	1,760,787	32%
HVAC	842	773,549	773,549	100%	75%	580,162	10%
Water Heating	13,245	1,043,128	467,163	45%	100%	464,867	8%
Energy Kits	16	7,418	3,944	53%	100%	3,951	0%
Appliances	27	3,671	3,151	86%	78%	2,461	0.04%
Building Shell	11,566	9,517	-	0%	0%	-	0.00%
Grand Total	**446,740**	**13,218,419**	**6,619,551**	**50%**	**84%**	**5,534,686**	**100%**

1.3 Process Evaluation Results

ADM made the following key findings during its process analysis.

- Energy efficient measures that were distributed through foodbanks were generally well received.
- The nature of the foodbank program did not include the ability to control for duplicate deliveries or collect field data to verify installation rates.
- The technical reference library (TRL) is a key program reference resource that documents ex ante savings values for all versions of all measures included in the program. Maintaining TRL version control, timeliness and completeness is a challenge.. Rocky Mountain Power has initiated process improvements to address these challenges.
- Rocky Mountain Power receives and maintains program tracking dataset. Additional information, such as upstream sales details, downstream product model specifications, and new home model details, are maintained by the implementer.
- Some data elements required to verify that measures met efficiency requirements were missing from the program tracking dataset which impacted some measure category realization rates.
- Rocky Mountain Power attribution for upstream program discounts is relatively low. Only six percent of customers who reported purchasing discounted standard LED light bulbs from participating retailers recalled that the discount was provided by Rocky Mountain Power.
- General satisfaction with the Rocky Mountain Power as their utility company was high.
- Twenty percent of general customer survey respondents indicated their income was below the federal poverty level.

1.4 Cost Effectiveness Results

Guidehouse estimated the cost-effectiveness results for the program based on 2019 and 2020 costs and savings estimates provided by PacifiCorp. Cost-effectiveness was tested using the 2017 and 2019 IRP decrement for all measure categories. The program passes the cost-effectiveness for the UCT and PCT tests.

The onset of the covid-19 pandemic occurred 15 months into the 24-month evaluation period. In response, Rocky Mountain Power increased its distribution of energy saving products through foodbanks to target its customers who were hardest hit by the economic downturn to help them reduce their energy costs. The foodbank distributions were a quick-response approach to assisting customers during an acute crisis.

Cost effectiveness results are presented separately for:

- Total program excluding measures distributed through foodbanks
- Measures distributed through foodbanks
- Total program

Program cost effectiveness results are reported in Table 1-5 through Table 1-7.

Table 1-5: Cost-Effectiveness Results – PY2019-2020
Excluding Measures Distributed through Foodbanks

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0349	$1,205,334	$1,911,500	$706,166	1.59
Total Resource Cost Test (TRC) No Adder	$0.0349	$1,205,334	$1,737,727	$532,394	1.44
Utility Cost Test (UCT)	$0.0401	$1,386,134	$1,737,727	$351,593	1.25
Rate Impact Test (RIM)		$5,338,845	$1,737,727	-$3,601,117	0.33
Participant Cost Test (PCT)		$943,690	$7,016,954	$6,073,264	7.44
Lifecycle Revenue Impacts ($/kWh)					$0.0000017388
Discounted Participant Payback (years)					1.00

Table 1-6: Cost-Effectiveness Results – PY2019-2020
for Measures Distributed through Foodbanks

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.1373	$4,272,837	$1,551,435	-$2,721,402	0.36
Total Resource Cost Test (TRC) No Adder	$0.1373	$4,272,837	$1,410,395	-$2,862,442	0.33
Utility Cost Test (UCT)	$0.0773	$2,407,407	$1,410,395	-$997,012	0.59
Rate Impact Test (RIM)		$5,964,223	$1,410,395	-$4,553,828	0.24
Participant Cost Test (PCT)		$3,046,275	$4,737,661	$1,691,386	1.56
Lifecycle Revenue Impacts ($/kWh)					$0.0000094071
Discounted Participant Payback (years)					4.42

Table 1-7: Total Program Level Cost-Effectiveness Results – PY2019-2020

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0814	$5,343,180	$3,462,935	-$1,880,245	0.65
Total Resource Cost Test (TRC) No Adder	$0.0814	$5,343,180	$3,148,123	-$2,195,057	0.59
Utility Cost Test (UCT)	$0.0578	$3,793,541	$3,148,123	-$645,419	0.83
Rate Impact Test (RIM)		$11,303,068	$3,148,123	-$8,154,945	0.28
Participant Cost Test (PCT)		$3,989,965	$11,754,616	$7,764,650	2.95
Lifecycle Revenue Impacts ($/kWh)					$0.0000039375
Discounted Participant Payback (years)					2.45

1.5 Conclusions and Recommendations

ADM makes the following conclusions and recommendations from its evaluation.

1.5.1 Conclusions

Rocky Mountain Power's 2019-2020 Wattsmart Homes program in Wyoming resulted in 8,369,478 kWh of net savings with a 54 percent realization rate and a 78 percent net-to-gross ratio (see Table 1-8).

Table 1-8: Total Program Savings by Year

Year	Claimed Saving (kWh)	Gross Evaluated Savings (kWh)	Net Evaluated Savings (kWh)	Realization Rate	NTG
2019	6,770,030	4,098,392	2,834,792	61%	69%
2020	13,218,419	6,619,551	5,534,686	50%	84%
Total	**19,988,448**	**10,717,944**	**8,369,478**	**54%**	**78%**

Lighting measures accounted for 55 percent of program savings; electronics (advanced power strips) accounted for 22 percent; HVAC measures accounted for 12 percent, and water heating measures accounted for 10 percent. The remaining measure categories, starter kits, building shell and appliances, accounted for less than 1.5 percent collectively. Measures that were distributed through the foodbank program (APSs, flow control measures, and LEDs) account for 53 percent of total net program savings. The total program realization rate was heavily impacted by the realization rate of the foodbank program.

These results demonstrate the continuing importance of lighting measures and the impact the foodbank program had during the pandemic. A comparison of savings during this and the previous evaluation are reported in Table 1-9.

Table 1-9: Total 2019-2020 Program Savings Compared to 2017-2018

Measure Category	2019-2020					2017-2018		
	Claimed Saving (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	% Total Program Savings	Net Evaluated Savings (kWh)	Realization Rate	% Total Program Savings	Net Evaluated Savings (kWh)
Lighting	12,704,004	6,541,316	51%	55%	4,561,710	69%	58%	3,279,367
Electronics	3,840,624	1,857,603	48%	22%	1,836,400	100%	8%	475,805
HVAC	1,359,044	1,359,044	100%	12%	1,019,283	100%	5%	286,630
Water Heating	1,937,754	876,900	45%	10%	873,964	100%	0.2%	11,476
Energy Kits	105,608	59,698	57%	1%	59,858	80%	26%	1,456,394
Building Shell	33,657	17,412	52%	0.16%	13,598	100%	2%	128,219
Appliances	7,757	5,971	77%	0.06%	4,663	100%	0.2%	9,564
Total	**19,988,448**	**10,717,944**	**54%**	**100%**	**8,369,478**	**81%**	**100%**	**5,647,455**

1.5.2 Recommendations

ADM recommends that Rocky Mountain Power consider the following actions.

Create separate measures definitions for products distributed through alternative distribution channels

ADM recommends that Rocky Mountain Power track measures that are distributed through foodbanks as separate measures with modified installation rates.

Create bundled measures that reflect programmatic design

Measures that were distributed through foodbanks were recorded as separate components in the program tracking data. ADM recommends that Rocky Mountain Power create bundled measures that reflect program design (for example, foodbank kits like starter kits) so that they can be tracked and evaluated as a distinct program.

Update ex ante savings to reflect electric water heater market saturation

Ex ante savings for water saving measures include the percentage of electric water heaters as a key variable. Customer surveys and the US Energy Information Administration Residential Energy Consumption Survey all point to a lower percentage of electric water heaters than the ex ante percentage in RTF reference files. ADM recommends that Rocky Mountain Power updates ex ante estimates of the percentage of customers with electric water heaters.

Consider repeat recipients of kits distributed through foodbanks and community centers

Staff at foodbanks where measures were distributed indicated that there is a high degree of client retention at food assistance programs resulting in households receiving more than one kit. ADM recommends that when distributing measures without collecting

recipient data, Rocky Mountain Power account for duplication of recipients when estimating savings.

Add data elements to tracking and reporting

Rocky Mountain Power relies on implementation partners to collect and store critical data that is required to evaluate the program and verify the resulting energy savings. ADM recommends that Rocky Mountain Power adds the following data elements to its internal program tracking datasets:

- Product manufacturer and model numbers, or minimally efficiency specifications
- Sales or distribution location for all upstream measures
- Baseline conditions (specifics varies by measure)

Add process controls to program implementation

ADM recommends that Rocky Mountain Power work with program implementers to revise program controls to ensure that all data elements required to verify savings are included in the dataset and that program eligibility requirements are met for all measures.

Evaluate program on an annual basis

Annual evaluations would allow Rocky Mountain Power to monitor program controls and data collection throughout the program year, allowing the utility to respond to program performance midcycle. ADM recommends that Rocky Mountain Power implement annual rather than biannual program evaluations.

Add TRL version control process

The TRL is a complex set of documents that provides the basis for program planning and evaluation. ADM recommends that Rocky Mountain Power implement a more stringent version control process to ensure that complete, accurate TRL data is maintained.

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 Rocky Mountain Power's 2019-2020 Wattsmart Homes Program in Wyoming. This report documents ADM's findings.

Program year 2019 (PY 2019) and program year 2020 (PY 2020) coincide with the respective calendar years. The purpose of this report is to present ADM's impact analysis of the energy savings (kWh) that resulted from the program and ADM's process evaluation of the program, focusing on participant and program staff perspectives regarding the program's implementation and ADM's observations about the program.

2.1 Description of Programs

The program provides financial incentives (discounts, rebates, and free products) for Rocky Mountain Power residential customers to purchase and 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 of Measures
Delivered through Program by Measure Category

Measure Category	2019	2020	Total
Energy Kits	**298**	**16**	**314**
Lighting	170	6	176
Lighting and Plumbing	128	10	138
HVAC	**448**	**842**	**1,290**
Controls and Thermostats	93	246	339
Cooling	262	585	847
Ducting	1	-	1
Heat Pump	18	10	28
Smart Thermostat	62	1	63
Ventilation	12	-	12
Lighting	**273,680**	**368,088**	**641,768**
General Service Fixtures	2,091	3,486	5,577
General Service Lamps	224,387	216,432	440,819
Specialty Lamps	47,202	148,170	195,372
Appliances	**39**	**27**	**66**
Clothes Washers	25	25	50
Freezers	8	2	10
Refrigerators	6	-	6

Measure Category	2019	2020	Total
Building Shell	**19,568**	**11,566**	**31,134**
Insulation	16,377	11,479	27,856
Windows	3,191	87	3,278
Water Heating	**19,600**	**13,245**	**32,845**
Flow Control	19,598	13,239	32,837
Water Heater	2	6	8
Electronics	**619**	**52,956**	**53,575**
Advanced Power Strips	619	52,956	53,575
Grand Total	**314,252**	**446,740**	**760,992**

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
HVAC	Point of sale (upstream) Post purchase rebate application
Energy Kits	Free kit requested for mail delivery
Electronics (APSs)	Distribution through foodbanks and senior centers
Lighting	Point-of-sale pricing Distribution through foodbanks
Water Heating	Post purchase rebate application (HPWHs) Distribution through community assistance programs (flow control)
Appliances	Post purchase rebate application
Building Shell	Post purchase rebate application

Upstream LED lighting measures were offered at a discounted price at the point of sale. The program paid the discount incentive to the manufacturer. These point-of-sale incentives did not require the consumer to apply for the financial benefit; it is an efficient and cost-effective means to encourage customers to purchase relatively high-volume, low-cost measures such as LEDs.

Additional appliances and HVAC measures were processed through a post-purchase application form designed to verify that incentives were delivered only for eligible measures. HVAC measures were sold as upstream measures through retail sales and as downstream measure through trade allies.

Rocky Mountain Power also offered customers the opportunity to request free Starter Kits comprised of energy saving lighting and water saving measures through an online application process. And finally, Rocky Mountain Power provided free Advance Power Strips (APSs), low-flow showerheads, faucet aerators and LEDs distributed through foodbanks and Meals on Wheels.

The primary objective of the impact evaluation is to determine the gross and net energy savings (kWh) that resulted from the program. Gross energy savings reflect the estimated amount of energy savings resulting from the installation of measures that incentives were paid for. Net energy savings reflect gross savings multiplied by evaluated net-to-gross (NTG) ratios. Net-to-gross ratios estimate the percentage of gross evaluated savings that would have occurred in the absence of the program.

ADM completed the following steps to determine the evaluated gross and net energy savings (kWh) that resulted from the program.

- Reviewed and reconciled program tracking data to the claimed savings reported in 2019 and 2020 annual reports.
- Administered customer surveys to determine installation rates at the measure level. Online surveys were administered for both program participants and non-participant Rocky Mountain Power customers.
- Determined gross unit energy savings (UES), which incorporated verified variables.
- Net-to-gross ratios were calculated by measure category and in some categories with greater granularity.
- Achieved a minimum precision of better than ±10 percent with 90 percent statistical confidence (“90/10 precision”) for gross realized savings estimates.
- Provided comprehensive documentation and transparency for all evaluation tasks.
- Estimated leakage rates for lighting measures using geospatial analysis.
- Provided inputs for cost benefit analyses.
- Provided ongoing technical reviews and guidance throughout the evaluation cycle.
- ADM did not conduct on-site verification or equipment monitoring as part of this evaluation.

2.2 Process Evaluation Objectives

The purpose of the process evaluation is to gain an in-depth understanding of program operations and the challenges and evaluation needs. ADM conducted key staff interviews with Rocky Mountain Power and implementers, complemented with a program documentation review and program participant surveys.

Specifically, the process evaluation was designed to answer the following research questions.

- What are key barriers and drivers to program success in Rocky Mountain Power's Wyoming service territory?
- How can those be addressed to improve program operations in the future?
- How well did Rocky Mountain Power staff, implementation staff, participants, and trade allies work together?
- How do participants learn about the program? What percentage is contacted directly by Rocky Mountain Power or implementation staff? What percentage hears about the program through another avenue and then contacts Rocky Mountain Power?
- Were program participants satisfied with their experiences?

3 Impact Evaluation

The Wattsmart program resulted in a net evaluated savings of 7,899,927 kWh during the evaluation period with a 54 percent realization rate. Gross and net evaluated savings (kWh) are presented in Table 3-1 through Table 3-3. Detailed impact evaluation results and analysis methodology for each category are included in subsequent sections.

Table 3-1: Total Program Savings by Measure Category 2019-2020

Measure Category	Quantity	Claimed Saving (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)	% Total Program Savings
Lighting	641,768	12,704,004	6,541,316	51%	70%	4,561,710	55%
Electronics	53,575	3,840,624	1,857,603	48%	99%	1,836,400	22%
HVAC	1,290	1,359,044	1,359,044	100%	75%	1,019,283	12%
Water Heating	32,845	1,937,754	876,900	45%	100%	873,964	10%
Energy Kits	314	105,608	59,698	57%	100%	59,858	1%
Building Shell	31,134	33,657	17,412	52%	78%	13,598	0.16%
Appliances	66	7,757	5,971	77%	78%	4,663	0.06%
Grand Total	760,992	19,988,448	**10,717,944**	**54%**	**78%**	**8,369,478**	**100%**

Table 3-2: Total Program Savings by Measure Category 2019

Measure Category	Quantity	Claimed Saving (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)	% 2019 Program Savings
Lighting	273,680	5,029,789	2,930,358	58%	63%	1,839,251	65%
HVAC	448	585,495	585,495	100%	75%	439,121	15%
Water Heating	19,600	894,626	409,737	46%	100%	409,098	14%
Electronics	619	133,704	96,816	72%	78%	75,613	3%
Energy Kits	298	98,190	55,755	57%	100%	55,907	2%
Building Shell	19,568	24,140	17,412	72%	78%	13,598	0.48%
Appliances	39	4,086	2,821	69%	78%	2,203	0.08%
Total	**314,252**	**6,770,030**	**4,098,392**	**61%**	**69%**	**2,834,792**	**100%**

Table 3-3: Total Program Savings by Measure Category 2020

Measure Category	Quantity	Claimed Saving (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)	% 2020 Program Savings
Lighting	368,088	7,674,216	3,610,958	47%	75%	2,722,458	49%
Electronics	52,956	3,706,920	1,760,787	48%	100%	1,760,787	32%
HVAC	842	773,549	773,549	100%	75%	580,162	10%
Water Heating	13,245	1,043,128	467,163	45%	100%	464,867	8%
Energy Kits	16	7,418	3,944	53%	100%	3,951	0%
Appliances	27	3,671	3,151	86%	78%	2,461	0.04%
Building Shell	11,566	9,517	-	0%	0%	-	0.00%
Total	**446,740**	**13,218,419**	**6,619,551**	**50%**	**84%**	**5,534,686**	**100%**

3.1 Impact Evaluation Approach

ADM's evaluated unit energy savings (UES) for each measure takes into consideration savings values presented in TRL reference files. TRL reference files generally rely on the Regional Technical Forum's (RTF) library of measures maintained by the Northwest Power and Conservation Council to verify and evaluate energy efficiency savings.

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

When determining savings that resulted from HVAC measures, in addition to reporting evaluated savings based on savings values sourced from TRL reference files, ADM completed a usage data analysis to provide insights to consider for future program design.

ADM reviewed a census of program tracking data, associated savings values, input assumptions and calculations contained in the Technical Resource Library (TRL) files provided by Rocky Mountain Power. ADM issued data requests as needed to ensure that all data was collected that could be reasonably expected or required for this evaluation.

ADM surveyed a representative sample of known participants and employed a general population survey for participants who purchased upstream measures to collect installation data.

ADM completed the following activities as part of the evaluation, measurement, and verification process.

- Review a census of program tracking dataset for completeness, consistency, and compliance with the provided TRL files.
- Review of measure savings assumptions and calculations maintained in the Technical Reference Library (TRL). The TRL files include measure savings assumptions, calculations, source papers or files (e.g., from the Regional Technical Forum), and additional documentation that together comprise the generally accepted rules and guidance for evaluating the program.
- Review all TRL documentation and include in this report any errors, missing data, or inconsistencies identified during ADM's review.
- ADM includes a list of TRL reference files used in this evaluation in Appendix A.
- ADM requested program tracking data, TRL reports and reference files, in addition to other program data and verification, as necessary.
- ADM collected primary data from Rocky Mountain Power customers through three online surveys; one to customers who received energy kits, one to the general

customer population to collect data about upstream measures, and a third to collect data from customers who received incentives for HVAC measures.

3.2 Sample Design

ADM achieved a sampling precision of ±10 percent or better with 90 percent statistical confidence – or "90/10 precision" – for gross realized savings estimates at the measure category level for all significant measures, including lighting and HVAC measure categories.

For upstream lighting measures, for which participants are not known, ADM employed a General Population Survey where the sampling frame is the population of Rocky Mountain Power residential customers in Wyoming with valid email address, excluding known participants in any energy efficiency programs that Rocky Mountain Power implemented in 2019 or 2020. Four hundred customers responded to the survey. These responses were used to collect data used in the impact analysis for lighting measures and to determine non-participant net-to-gross spillover savings.

For starter kits, the sampling frame is the population of participants who received a kit for whom the tracking dataset includes valid email addresses. Sixty-eight starter kit program participants completed an online survey.

A census of HVAC tracking data was reviewed in detail, and an alternative analysis was completed using a census of billing data from customers who received a smart thermostat incentive.

ADM included the following datasets in its evaluation:

- Census review of all measures in the program tracking dataset to ensure appropriate use of UES values sourced from TRL files.
- Review of a sample of HVAC measure manufacturer model numbers and specifications to verify that measures met the criteria established in the TRL reference files.
- Census review of lighting measures by manufacturer and product model number to verify that lighting products for which incentives were paid met the efficiency criteria established in the TRL reference files.
- Census review of heat pump water heater and other appliance manufacturer model numbers and specifications to verify that measures for which incentives were paid met efficiency criteria established in the TRL reference files.
- A sample of program participants who received energy kits was surveyed for measure installation rates, installation location, and process evaluation responses.

- A sample of Rocky Mountain Power residential customers who were not known to have participated in any downstream or request-by-mail Wattsmart program offering was surveyed using a general customer population survey to determine measure installation rates, installation location, and process evaluation responses for upstream lighting measures. Survey response rates are reported in Table 3-4.

Table 3-4: Survey Sample Response Size

Survey	Number of Survey Invites Sent	Number of Completed Surveys	Response Rate
General Population Survey	7980	400	5%
Energy Kits Survey	222	31	14%
HVAC Participant Survey	431	94	22%

3.2.1 Impact Evaluation Approach by Measure Category

Table 3-5 shows the methodology used to calculate evaluated savings for each measure category. ADM reviewed TRL UES values, their assumptions and calculations, modeling files, and additional information contained in the TRL reference files and underlying Regional Technical Forum (RTF) files. Additional reference sources are indicated in the descriptions of evaluated savings for some measure categories. ADM calculated NTG values from participant surveys for all major measure categories. A program-wide average NTG was calculated for remaining small-savings categories.

Table 3-5: Impact Evaluation Methodology Approach by Measure

Measure Category	Impact Evaluation Methodologies	Inputs to Gross Evaluated Savings
HVAC	Unit Energy Savings Review Supplemental Billing Analysis	• TRL reference files verified savings values • Customer billing data
Energy Kits	Unit Energy Savings Review	• TRL reference files verified savings values • Energy Kits Survey
Electronics	Unit Energy Savings Review	• TRL reference files verified savings values
Lighting	Unit Energy Savings Review	• TRL reference files verified savings values • General population survey
Water Heating	Unit Energy Savings Review	• TRL reference files verified savings values
Appliances	Unit Energy Savings Review	• TRL reference files verified savings values
Building Shell	Unit Energy Savings Review	• TRL reference files verified savings values

3.3 Foodbank Distribution Program

The onset of the covid-19 pandemic occurred 15 months into the 24-month evaluation period. In response, Rocky Mountain Power increased its distribution of energy saving products through foodbanks to target its customers who were hardest hit by the economic downturn to help them reduce their energy costs. The foodbank distributions were a quick-response approach to assisting customers during an acute crisis.

Measures that were distributed through foodbanks appear in the program tracking data as individual measures rather than as kits. To gain a more comprehensive perspective on the measures that were distributed through foodbanks, Table 3-6 summarizes the collective impact of these kit components. Foodbank kit components resulted in 4,453,755 kWh savings accounting for 53 percent of total program savings with 40 percent realization rate and 100 percent net-to-gross ratio.

Table 3-6: Foodbank Program Savings

Measure	Quantity	Claimed Saving (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	Net Evaluated Savings (kWh)	% Total Program Savings
Advanced Power Strip - Occupancy Sensing - Owner Installed - WY - 1	52,956	3,706,920	1,760,787	48%	1,760,787	21%
LED General Purpose: 9 watts - Retail - WY - 2 - FOODBANK	184,304	2,543,395	825,728	32%	825,728	10%
LED Downlight: 11 watts - Retail - WY - 2 - FOODBANK	52,956	1,973,670	684,037	35%	684,037	8%
Low-Flow Shower Head - Any DHW - 1.50 GPM - Midstream - WY - 2	13,239	1,032,642	456,677	44%	456,677	5%
Low-Flow Shower Head - Any DHW - 1.50 GPM - Midstream - WY - 1	9,799	764,322	338,015	44%	338,015	4%
LED Specialty - Candelabra: 5 watts - Retail - WY - 2 - FOODBANK	26,478	639,708	199,848	31%	199,848	2%
LED Specialty - Candelabra: 4 watts - Retail - WY - 2 - FOODBANK	26,478	383,666	119,859	31%	119,859	1%
Faucet Aerators - Any DHW - 1.0 GPM or Less - Midstream - WY - 1	9,799	127,387	68,805	54%	68,805	1%
Total	**376,009**	**11,171,711**	**4,453,755**	**40%**	**4,453,755**	**53%**

Impact analysis details for each component are described in later sections.

3.3.1 Discussion of Realization Rates

Foodbank kit component claimed savings were generally based on distribution channels with higher in-service rates (ISRs) than would be expected for unrequested giveaway

measures. For example, the ex ante ISR for showerheads was designed for retail sales and the ex ante ISR for advanced power strips was 100 percent. Additionally, the realization rate for water saving measures was reduced by evaluated percentage of electric water heaters in the service area.

3.4 Measure version numbers

Measures are included in the program with different version numbers. Each version is treated as a separate measure for evaluation purposes. Measure and version number are concatenated in the following tables, for example *LED Downlight: 10 watts - Retail - WY – 1* and *LED Downlight: 10 watts - Retail - WY – 2* are versions 1 and 2 of the same measure, with different ex ante and ex post variables.

3.5 Lighting

A total of 641,768 LED lighting measures were distributed through the program resulting in net savings of 4,076,433 kWh accounting for 52 percent of total program savings with a realization rate of 48 percent and a net-to-gross ratio of 67 percent. LEDs were sold through retail locations in Rocky Mountain Power's Wyoming service area through the upstream lighting program during the evaluation period. Lighting measures were also distributed for free through foodbanks.

ADM reviewed claimed savings included in tracking data and ex ante savings values reported in TRL reference files. It also calculated in-service rates (ISRs) and hours of use (HOUs) for lighting measures using responses from a general population survey emailed to Rocky Mountain Power customers. Additionally, ADM calculated and applied a leakage rate and net-to-gross ratios to gross evaluated savings to calculate net evaluated savings. Total program savings from lighting measures are reported in Table 3-7.

Table 3-7: Total Lighting Program Savings by Year

Program Year	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
2019	273,680	5,029,789	2,930,358	58%	2%	**63%**
2020	368,088	7,674,216	3,610,958	47%	2%	**75%**
Total	**641,768**	**12,704,004**	**6,541,316**	**51%**		**70%**

3.5.1 Tracking Data Verification

ADM reviewed program tracking data to evaluate:

- if the tracking dataset included duplicate or erroneous data entries,
- if data entries in the program tracking dataset included all necessary fields for savings calculations,
- if claimed energy savings match the applicable TRL source documents and calculations,
- if specific product model numbers sold through the program met the requirements of the measure definition as documented in the TRL reference files,
- if upstream lighting measures were sold through retail stores in the service area.

ADM found the following inconsistencies in the dataset:

- Lighting measures that were distributed for free through foodbanks and community centers had claimed savings calculated using an in service rate (ISR) estimated for retail sales distribution.
- A portion of lighting fixtures sold through the program did not meet the requirements established in the TRL reference files. They had removable rather than integrated bulbs.

3.5.2 Ex Ante Review

ADM compared ex ante values in TRL reference documents with claimed savings included in program tracking data. Up to two different versions of each measure were included in the tracking data; ADM reviewed each version. ADM added four new measures to record measures distributed for free through foodbanks and community centers for the purpose of the evaluation.

Three measures had claimed savings values that were not documented in the TRL because the listed reference documents did not contain them. Therefore, ADM used documented savings for their gross evaluated UESs. Claimed UES values for all three measures was higher than evaluated gross UES, resulting in lower realization rates. The following measures were impacted:

- LED Specialty - Candelabra: 3 watts - Retail - WY - 1
- LED Specialty - Candelabra: 7 watts - Retail - WY - 1
- LED Specialty - Globe: 6 watts - Retail - WY - 1

3.5.3 Evaluated Unit Energy Savings

Unit energy savings (UES) were evaluated for each lighting measure sold through the upstream program using ex ante savings (kWH) values from the indicated reference file for each version of each measure. Evaluated UES reflect ISRs and HOUs collected from general population survey responses. The total gross evaluated savings by measure is the product of the evaluated UES and the quantity of the measure sold through the program as documented in the program tracking data.

Total net savings for lighting measures applies an evaluated leakage rate and the evaluate net-to-gross ratio. The leakage rate reflects an estimate of the percentage of bulbs sold through the program that are not installed in the service area (buyers who live outside the service area have purchase the bulbs from participating retail stores).

ADM calculated ISRs and HOUs from customer survey responses for each of four categories of lighting measures: standard bulbs, specialty bulbs, downlights, and fixtures.

In Service Rates (ISR)

For lighting measures that were sold through retail stores, ISRs were calculated using Equation 3-1 using responses gathered from a 2020 General Population Survey of Rocky Mountain Power customers in the service area.

Equation 3-1: In-Service Rate – Lighting Measures

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

For measures that were distributed for free through foodbanks and community centers, the installation rate of 80.3 percent was used, as indicated in the *Illinois Statewide Technical Reference Manual for Energy Efficiency Version 10* for bulbs distributed through foodbanks.

Hours of Use (HOU)

ADM used a weighted average HOU calculated for each lighting measure type (standard bulbs, specialty bulbs, downlights, and fixtures), using locations identified in the general population survey. Hours per room were drawn from Residential Lighting End-Use Consumption Study (*DNV KEMA Energy and Sustainability, Pacific Northwest National Laboratory; December 2012)*.

Unit and Total Evaluated Savings

Evaluated UES for lighting measures are included in Table 3-8. Total gross and net evaluated program savings for lighting measures, by measure, are reported in Table 3-9 through Table 3-11.

Table 3-8: Lighting Unit Energy Savings (UES) by Measure

Measure Name - Measure Version	Ex ante UES (kWh)	Ex ante HOU	Ex post HOU	Ex ante ISR	Ex post ISR	Evaluated UES (kWh)	Realization Rate	NTG	Source
LED Downlight: 10 watts - Retail - WY - 1	39.65	2.18	1.64	100%	93%	27.70	70%	58%	1
LED Downlight: 10 watts - Retail - WY - 2	37.96	1.92	1.64	98%	93%	30.73	81%	58%	3
LED Downlight: 11 watts - Retail - WY - 1	38.93	2.18	1.64	100%	93%	27.20	70%	58%	1
LED Downlight: 11 watts - Retail - WY - 2	37.27	1.92	1.64	98%	93%	30.17	81%	58%	3
LED Downlight: 11 watts - Retail - WY - 2 - FOODBANK	37.27	1.92	1.64	198%	80%	12.92	35%	100%	3
LED Downlight: 12 watts - Retail - WY - 1	38.21	2.18	1.64	100%	93%	26.69	70%	58%	1
LED Downlight: 12 watts - Retail - WY - 2	36.58	1.92	1.64	98%	93%	29.61	81%	58%	3
LED Downlight: 13 watts - Retail - WY - 1	37.49	2.18	1.64	100%	93%	26.19	70%	58%	1
LED Downlight: 13 watts - Retail - WY - 2	35.89	1.92	1.64	98%	93%	29.05	81%	58%	3
LED Downlight: 14 watts - Retail - WY - 1	36.77	2.18	1.64	100%	93%	25.69	70%	58%	1
LED Downlight: 14 watts - Retail - WY - 2	35.20	1.92	1.64	98%	93%	28.49	81%	58%	3
LED Downlight: 15 watts - Retail - WY - 2	34.51	1.92	1.64	98%	93%	27.93	81%	58%	3
LED Downlight: 16 watts - Retail - WY - 1	42.53	2.18	1.64	100%	93%	29.71	70%	58%	1
LED Downlight: 16 watts - Retail - WY - 2	40.72	1.92	1.64	98%	93%	32.96	81%	58%	3
LED Downlight: 18 watts - Retail - WY - 1	41.09	2.18	1.64	100%	93%	28.71	70%	58%	1
LED Downlight: 18 watts - Retail - WY - 2	39.34	1.92	1.64	98%	93%	31.84	81%	58%	3
LED Downlight: 19 watts - Retail - WY - 1	40.37	2.18	1.64	100%	93%	28.20	70%	58%	1
LED Downlight: 19 watts - Retail - WY - 2	38.65	1.92	1.64	98%	93%	31.28	81%	58%	3
LED Downlight: 20 watts - Retail - WY - 2	37.96	1.92	1.64	98%	93%	30.73	81%	58%	3
LED Downlight: 23 watts - Retail - WY - 1	48.30	2.18	1.64	100%	93%	33.74	70%	58%	1
LED Downlight: 23 watts - Retail - WY - 2	46.24	1.92	1.64	98%	93%	37.43	81%	58%	3
LED Downlight: 5 watts - Retail - WY - 2	48.32	1.92	1.64	98%	93%	39.11	81%	58%	3
LED Downlight: 6 watts - Retail - WY - 1	17.30	2.18	1.64	100%	93%	12.09	70%	58%	1
LED Downlight: 6 watts - Retail - WY - 2	16.57	1.92	1.64	98%	93%	13.41	81%	58%	3
LED Downlight: 7 watts - Retail - WY - 1	16.58	2.18	1.64	100%	93%	11.58	70%	58%	1
LED Downlight: 7 watts - Retail - WY - 2	15.88	1.92	1.64	98%	93%	12.85	81%	58%	3
LED Downlight: 8 watts - Retail - WY - 1	26.67	2.18	1.64	100%	93%	18.63	70%	58%	1
LED Downlight: 8 watts - Retail - WY - 2	25.54	1.92	1.64	98%	93%	20.67	81%	58%	3
LED Downlight: 9 watts - Retail - WY - 1	25.95	2.18	1.64	100%	93%	18.13	70%	58%	1
LED Downlight: 9 watts - Retail - WY - 2	24.85	1.92	1.64	98%	93%	20.11	81%	58%	3
LED Fixture - ENERGY STAR - WY - 2	26.50	1.904	1.64	100%	86%	19.58	74%	99%	2
LED General Purpose: 10 watts - Retail - WY - 2	22.78	1.92	1.54	98%	74%	13.75	60%	58%	3
LED General Purpose: 10.5 watts - Retail - WY - 1	22.43	1.92	1.54	98%	74%	13.54	60%	58%	3

Measure Name - Measure Version	Ex ante UES (kWh)	Ex ante HOU	Ex post HOU	Ex ante ISR	Ex post ISR	Evaluated UES (kWh)	Realization Rate	NTG	Source
LED General Purpose: 11 watts - Retail - WY - 2	22.09	1.92	1.54	98%	74%	13.34	60%	58%	3
LED General Purpose: 12 watts - Retail - WY - 2	21.40	1.92	1.54	98%	74%	12.92	60%	58%	3
LED General Purpose: 13 watts - Retail - WY - 2	20.71	1.92	1.54	98%	74%	12.50	60%	58%	3
LED General Purpose: 15 watts - Retail - WY - 2	19.33	1.92	1.54	98%	74%	11.67	60%	58%	3
LED General Purpose: 16 watts - Retail - WY - 2	25.54	1.92	1.54	98%	74%	15.42	60%	58%	3
LED General Purpose: 17 watts - Retail - WY - 2	24.85	1.92	1.54	98%	74%	15.00	60%	58%	3
LED General Purpose: 18 watts - Retail - WY - 2	37.27	1.92	1.54	98%	74%	22.50	60%	58%	3
LED General Purpose: 6 watts - Retail - WY - 2	15.88	1.92	1.54	98%	74%	9.59	60%	58%	3
LED General Purpose: 7 watts - Retail - WY - 2	15.18	1.92	1.54	98%	74%	9.16	60%	58%	3
LED General Purpose: 8 watts - Retail - WY - 2	14.49	1.92	1.54	98%	74%	8.75	60%	58%	3
LED General Purpose: 9 watts - Retail - WY - 2	13.80	1.92	1.54	98%	74%	8.33	60%	58%	3
LED General Purpose: 9 watts - Retail - WY - 2 - FOODBANK	13.80	1.92	1.54	198%	80%	4.48	32%	100%	3
LED General: 10 watts - Retail - WY - 1	23.79	2.18	1.54	100%	74%	12.40	52%	58%	1
LED General: 11 watts - Retail - WY - 1	23.07	2.18	1.54	100%	74%	12.02	52%	58%	1
LED General: 12 watts - Retail - WY - 1	22.35	2.18	1.54	100%	74%	11.65	52%	58%	1
LED General: 13 watts - Retail - WY - 1	21.63	2.18	1.54	100%	74%	11.27	52%	58%	1
LED General: 15 watts - Retail - WY - 1	20.19	2.18	1.54	100%	74%	10.52	52%	58%	1
LED General: 16 watts - Retail - WY - 1	26.67	2.18	1.54	100%	74%	13.90	52%	58%	1
LED General: 17 watts - Retail - WY - 1	25.95	2.18	1.54	100%	74%	13.52	52%	58%	1
LED General: 6 watts - Retail - WY - 1	16.58	2.18	1.54	100%	74%	8.64	52%	58%	1
LED General: 7 watts - Retail - WY - 1	15.86	2.18	1.54	100%	74%	8.26	52%	58%	1
LED General: 8 watts - Retail - WY - 1	15.14	2.18	1.54	100%	74%	7.89	52%	58%	1
LED General: 9 watts - Retail - WY - 1	14.42	2.18	1.54	100%	74%	7.51	52%	58%	1
LED Specialty - 3-Way: 5,9,20 watts - Retail - WY - 2	35.20	1.92	1.48	98%	84%	23.37	66%	58%	3
LED Specialty - Candelabra: 2 watts - Retail - WY - 2	15.88	1.92	1.48	98%	84%	10.54	66%	58%	3
LED Specialty - Candelabra: 3 watts - Retail - WY - 1	15.18	1.92	1.48	98%	84%	10.08	66%	58%	3
LED Specialty - Candelabra: 3 watts - Retail - WY - 2	15.18	1.92	1.48	98%	84%	10.08	66%	58%	3
LED Specialty - Candelabra: 4 watts - Retail - WY - 1	15.14	2.18	1.48	100%	84%	8.68	57%	58%	1
LED Specialty - Candelabra: 4 watts - Retail - WY - 2	14.49	1.92	1.48	98%	84%	9.62	66%	58%	3
LED Specialty - Candelabra: 4 watts - Retail - WY - 2 - FOODBANK	14.49	1.92	1.48	198%	80%	4.53	31%	100%	3
LED Specialty - Candelabra: 5 watts - Retail - WY - 1	25.23	2.18	1.48	100%	84%	14.46	57%	58%	1
LED Specialty - Candelabra: 5 watts - Retail - WY - 2	24.16	1.92	1.48	98%	84%	16.04	66%	58%	3
LED Specialty - Candelabra: 5 watts - Retail - WY - 2 - FOODBANK	24.16	1.92	1.48	198%	80%	7.55	31%	100%	3
LED Specialty - Candelabra: 7 watts - Retail - WY - 1	23.51	2.34	1.48	98%	84%	12.81	54%	58%	4
LED Specialty - Candelabra: 7 watts - Retail - WY - 2	22.78	1.92	1.48	98%	84%	15.12	66%	58%	3

Measure Name - Measure Version	Ex ante UES (kWh)	Ex ante HOU	Ex post HOU	Ex ante ISR	Ex post ISR	Evaluated UES (kWh)	Realization Rate	NTG	Source
LED Specialty - Globe: 4 watts - Retail - WY - 1	11.53	2.18	1.48	100%	84%	6.61	57%	58%	1
LED Specialty - Globe: 4 watts - Retail - WY - 2	11.04	1.92	1.48	98%	84%	7.33	66%	58%	3
LED Specialty - Globe: 5 watts - Retail - WY - 1	10.81	2.18	1.48	100%	84%	6.19	57%	58%	1
LED Specialty - Globe: 5 watts - Retail - WY - 2	10.35	1.92	1.48	98%	84%	6.87	66%	58%	3
LED Specialty - Globe: 6 watts - Retail - WY - 1	24.22	2.34	1.48	98%	84%	13.19	54%	58%	4
LED Specialty - Globe: 6 watts - Retail - WY - 2	23.47	1.92	1.48	98%	84%	15.58	66%	58%	3

Sources: Sources: (1) 04-03-2015_WY_HES_LEDs_Brief.xlsx; (2) 2018.08.06_WY_wattsmart_LED_Fixture_Brief.xlsx; (3) 2018.08.06_WY_wattsmart_LEDs_Brief.xlsx; (4) HES_ID_LEDs.xlsx; (Evaluated ISR, and NTG - retail distribution) ADM General Population Survey 2020. (Evaluated ISR - foodbank distribution) Illinois Statewide Technical Reference Manual v 10, (HOU – all distribution channels) Bulb location in home; ADM General Population Survey 2020, HOU by location: Residential Lighting End-Use Consumption Study (*DNV KEMA Energy and Sustainability, Pacific Northwest National Laboratory; December 2012)*.

Table 3-9: Lighting Program Savings by Measure 2019-2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	Leakage	NTG	Net Evaluated Savings (kWh)
LED Downlight: 10 watts - Retail - WY - 1	962	38,143	26,648	70%	2%	58%	15,205
LED Downlight: 10 watts - Retail - WY - 2	6,798	258,052	208,871	81%	2%	58%	119,183
LED Downlight: 11 watts - Retail - WY - 1	321	12,497	8,730	70%	2%	58%	4,982
LED Downlight: 11 watts - Retail - WY - 2	17,035	634,894	513,892	81%	2%	58%	293,231
LED Downlight: 12 watts - Retail - WY - 1	37	1,414	988	70%	2%	58%	564
LED Downlight: 12 watts - Retail - WY - 2	1,511	55,272	44,738	81%	2%	58%	25,528
LED Downlight: 13 watts - Retail - WY - 1	65	2,437	1,702	70%	2%	58%	971
LED Downlight: 13 watts - Retail - WY - 2	4,796	172,128	139,323	81%	2%	58%	79,499
LED Downlight: 14 watts - Retail - WY - 1	104	3,824	2,672	70%	2%	58%	1,524
LED Downlight: 14 watts - Retail - WY - 2	2,758	97,082	78,579	81%	2%	58%	44,838
LED Downlight: 15 watts - Retail - WY - 2	689	23,777	19,246	81%	2%	58%	10,982
LED Downlight: 16 watts - Retail - WY - 1	24	1,021	713	70%	2%	58%	407
LED Downlight: 16 watts - Retail - WY - 2	474	19,301	15,623	81%	2%	58%	8,914
LED Downlight: 18 watts - Retail - WY - 1	8	329	230	70%	2%	58%	131
LED Downlight: 18 watts - Retail - WY - 2	454	17,860	14,456	81%	2%	58%	8,249
LED Downlight: 19 watts - Retail - WY - 1	8	323	226	70%	2%	58%	129
LED Downlight: 19 watts - Retail - WY - 2	437	16,890	13,671	81%	2%	58%	7,801
LED Downlight: 20 watts - Retail - WY - 2	25	949	768	81%	2%	58%	438
LED Downlight: 23 watts - Retail - WY - 1	7	338	236	70%	2%	58%	135
LED Downlight: 23 watts - Retail - WY - 2	111	5,133	4,154	81%	2%	58%	2,371
LED Downlight: 5 watts - Retail - WY - 2	94	4,542	3,676	81%	2%	58%	2,098
LED Downlight: 6 watts - Retail - WY - 1	37	640	447	70%	2%	58%	255
LED Downlight: 6 watts - Retail - WY - 2	734	12,162	9,844	81%	2%	58%	5,617
LED Downlight: 7 watts - Retail - WY - 1	67	1,111	776	70%	2%	58%	443
LED Downlight: 7 watts - Retail - WY - 2	7,014	111,382	90,154	81%	2%	58%	51,443
LED Downlight: 8 watts - Retail - WY - 1	4	107	75	70%	2%	58%	43
LED Downlight: 8 watts - Retail - WY - 2	4,804	122,694	99,310	81%	2%	58%	56,667
LED Downlight: 9 watts - Retail - WY - 1	46	1,194	834	70%	2%	58%	476

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	Leakage	NTG	Net Evaluated Savings (kWh)
LED Downlight: 9 watts - Retail - WY - 2	4,070	101,140	81,864	81%	2%	58%	46,712
LED Fixture - ENERGY STAR - WY - 2	5,577	147,791	109,219	74%	2%	99%	105,938
LED General Purpose: 10 watts - Retail - WY - 2	59,818	1,362,654	822,688	60%	2%	58%	469,434
LED General Purpose: 10.5 watts - Retail - WY - 1	5,076	113,855	68,739	60%	2%	58%	39,223
LED General Purpose: 11 watts - Retail - WY - 2	21,881	483,351	291,818	60%	2%	58%	166,514
LED General Purpose: 12 watts - Retail - WY - 2	2,813	60,198	36,344	60%	2%	58%	20,738
LED General Purpose: 13 watts - Retail - WY - 2	2,004	41,503	25,057	60%	2%	58%	14,298
LED General Purpose: 15 watts - Retail - WY - 2	3,898	75,348	45,491	60%	2%	58%	25,957
LED General Purpose: 16 watts - Retail - WY - 2	15,298	390,711	235,888	60%	2%	58%	134,600
LED General Purpose: 17 watts - Retail - WY - 2	500	12,425	7,501	60%	2%	58%	4,280
LED General Purpose: 18 watts - Retail - WY - 2	205	7,640	4,613	60%	2%	58%	2,632
LED General Purpose: 6 watts - Retail - WY - 2	18,319	290,906	175,631	60%	2%	58%	100,217
LED General Purpose: 7 watts - Retail - WY - 2	18,555	281,665	170,052	60%	2%	58%	97,033
LED General Purpose: 8 watts - Retail - WY - 2	15,730	227,928	137,609	60%	2%	58%	78,521
LED General Purpose: 9 watts - Retail - WY - 2	84,625	1,167,825	705,062	60%	2%	58%	402,315
LED General: 10 watts - Retail - WY - 1	3,672	87,357	45,522	52%	2%	58%	25,975
LED General: 11 watts - Retail - WY - 1	594	13,704	7,141	52%	2%	58%	4,075
LED General: 12 watts - Retail - WY - 1	811	18,126	9,445	52%	2%	58%	5,390
LED General: 13 watts - Retail - WY - 1	14	303	158	52%	2%	58%	90
LED General: 15 watts - Retail - WY - 1	783	15,809	8,238	52%	2%	58%	4,701
LED General: 16 watts - Retail - WY - 1	24	640	334	52%	2%	58%	190
LED General: 17 watts - Retail - WY - 1	15	389	203	52%	2%	58%	116
LED General: 6 watts - Retail - WY - 1	836	13,861	7,223	52%	2%	58%	4,121
LED General: 7 watts - Retail - WY - 1	204	3,235	1,686	52%	2%	58%	962
LED General: 8 watts - Retail - WY - 1	88	1,332	694	52%	2%	58%	396
LED General: 9 watts - Retail - WY - 1	752	10,844	5,651	52%	2%	58%	3,224
LED Specialty - 3-Way: 5,9,20 watts - Retail - WY - 2	408	14,362	9,534	66%	2%	58%	5,440
LED Specialty - Candelabra: 2 watts - Retail - WY - 2	596	9,464	6,283	66%	2%	58%	3,585
LED Specialty - Candelabra: 3 watts - Retail - WY - 1	8	127	81	64%	2%	58%	46
LED Specialty - Candelabra: 3 watts - Retail - WY - 2	2,722	41,320	27,432	66%	2%	58%	15,653

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	Leakage	NTG	Net Evaluated Savings (kWh)
LED Specialty - Candelabra: 4 watts - Retail - WY - 1	550	8,327	4,771	57%	2%	58%	2,723
LED Specialty - Candelabra: 4 watts - Retail - WY - 2	10,730	155,478	103,219	66%	2%	58%	58,898
LED Specialty - Candelabra: 5 watts - Retail - WY - 1	373	9,411	5,392	57%	2%	58%	3,077
LED Specialty - Candelabra: 5 watts - Retail - WY - 2	6,961	168,178	111,650	66%	2%	58%	63,709
LED Specialty - Candelabra: 7 watts - Retail - WY - 1	20	476	256	54%	2%	58%	146
LED Specialty - Candelabra: 7 watts - Retail - WY - 2	41	934	620	66%	2%	58%	354
LED Specialty - Globe: 4 watts - Retail - WY - 1	173	1,995	1,143	57%	2%	58%	652
LED Specialty - Globe: 4 watts - Retail - WY - 2	3,393	37,459	24,868	66%	2%	58%	14,190
LED Specialty - Globe: 5 watts - Retail - WY - 1	220	2,378	1,363	57%	2%	58%	778
LED Specialty - Globe: 5 watts - Retail - WY - 2	4,716	48,811	32,405	66%	2%	58%	18,490
LED Specialty - Globe: 6 watts - Retail - WY - 1	163	3,995	2,150	54%	2%	58%	1,227
LED Specialty - Globe: 6 watts - Retail - WY - 2	4,892	114,815	76,224	66%	2%	58%	43,494
LED General Purpose: 9 watts - Retail - WY - 2 - FOODBANK	184,304	2,543,395	825,728	32%	0%	100%	825,728
LED Downlight: 11 watts - Retail - WY - 2 - FOODBANK	52,956	1,973,670	684,037	35%	0%	100%	684,037
LED Specialty - Candelabra: 4 watts - Retail - WY - 2 - FOODBANK	26,478	383,666	119,859	31%	0%	100%	119,859
LED Specialty - Candelabra: 5 watts - Retail - WY - 2 - FOODBANK	26,478	639,708	199,848	31%	0%	100%	199,848
Total	**641,768**	**12,704,004**	**6,541,316**	**51%**		**70%**	**4,561,710**

Table 3-10: Lighting Program Savings by Measure 2019

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	Leakage	NTG	Net Evaluated Savings (kWh)
LED Downlight: 10 watts - Retail - WY - 1	962	38,143	26,648	70%	2%	58%	15,205
LED Downlight: 10 watts - Retail - WY - 2	3,208	121,776	98,567	81%	2%	58%	56,243
LED Downlight: 11 watts - Retail - WY - 1	321	12,497	8,730	70%	2%	58%	4,982
LED Downlight: 11 watts - Retail - WY - 2	9,161	341,430	276,358	81%	2%	58%	157,692
LED Downlight: 12 watts - Retail - WY - 1	37	1,414	988	70%	2%	58%	564
LED Downlight: 12 watts - Retail - WY - 2	890	32,556	26,351	81%	2%	58%	15,036
LED Downlight: 13 watts - Retail - WY - 1	65	2,437	1,702	70%	2%	58%	971
LED Downlight: 13 watts - Retail - WY - 2	2,715	97,441	78,870	81%	2%	58%	45,004
LED Downlight: 14 watts - Retail - WY - 1	104	3,824	2,672	70%	2%	58%	1,524
LED Downlight: 14 watts - Retail - WY - 2	1,528	53,786	43,535	81%	2%	58%	24,841
LED Downlight: 15 watts - Retail - WY - 2	153	5,280	4,274	81%	2%	58%	2,439
LED Downlight: 16 watts - Retail - WY - 1	24	1,021	713	70%	2%	58%	407
LED Downlight: 16 watts - Retail - WY - 2	326	13,275	10,745	81%	2%	58%	6,131
LED Downlight: 18 watts - Retail - WY - 1	8	329	230	70%	2%	58%	131
LED Downlight: 18 watts - Retail - WY - 2	248	9,756	7,897	81%	2%	58%	4,506
LED Downlight: 19 watts - Retail - WY - 1	8	323	226	70%	2%	58%	129
LED Downlight: 19 watts - Retail - WY - 2	257	9,933	8,040	81%	2%	58%	4,588
LED Downlight: 23 watts - Retail - WY - 1	7	338	236	70%	2%	58%	135
LED Downlight: 23 watts - Retail - WY - 2	64	2,959	2,395	81%	2%	58%	1,367
LED Downlight: 5 watts - Retail - WY - 2	19	918	743	81%	2%	58%	424
LED Downlight: 6 watts - Retail - WY - 1	37	640	447	70%	2%	58%	255
LED Downlight: 6 watts - Retail - WY - 2	353	5,849	4,734	81%	2%	58%	2,702
LED Downlight: 7 watts - Retail - WY - 1	67	1,111	776	70%	2%	58%	443
LED Downlight: 7 watts - Retail - WY - 2	4,204	66,760	54,036	81%	2%	58%	30,833
LED Downlight: 8 watts - Retail - WY - 1	4	107	75	70%	2%	58%	43
LED Downlight: 8 watts - Retail - WY - 2	3,287	83,950	67,950	81%	2%	58%	38,773
LED Downlight: 9 watts - Retail - WY - 1	46	1,194	834	70%	2%	58%	476
LED Downlight: 9 watts - Retail - WY - 2	1,062	26,391	21,361	81%	2%	58%	12,189
LED Fixture - ENERGY STAR - WY - 2	2,091	55,412	40,950	74%	2%	99%	39,720
LED General Purpose: 10 watts - Retail - WY - 2	31,276	712,467	430,145	60%	2%	58%	245,445
LED General Purpose: 10.5 watts - Retail - WY - 1	3,196	71,686	43,280	60%	2%	58%	24,696
LED General Purpose: 11 watts - Retail - WY - 2	11,018	243,388	146,943	60%	2%	58%	83,847

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	Leakage	NTG	Net Evaluated Savings (kWh)
LED General Purpose: 12 watts - Retail - WY - 2	1,749	37,429	22,597	60%	2%	58%	12,894
LED General Purpose: 13 watts - Retail - WY - 2	526	10,893	6,577	60%	2%	58%	3,753
LED General Purpose: 15 watts - Retail - WY - 2	1,999	38,641	23,329	60%	2%	58%	13,312
LED General Purpose: 16 watts - Retail - WY - 2	7,249	185,139	111,776	60%	2%	58%	63,780
LED General Purpose: 17 watts - Retail - WY - 2	447	11,108	6,706	60%	2%	58%	3,827
LED General Purpose: 18 watts - Retail - WY - 2	78	2,907	1,755	60%	2%	58%	1,001
LED General Purpose: 6 watts - Retail - WY - 2	11,157	177,173	106,966	60%	2%	58%	61,036
LED General Purpose: 7 watts - Retail - WY - 2	14,512	220,292	132,999	60%	2%	58%	75,891
LED General Purpose: 8 watts - Retail - WY - 2	8,492	123,049	74,290	60%	2%	58%	42,390
LED General Purpose: 9 watts - Retail - WY - 2	46,503	641,741	387,445	60%	2%	58%	221,080
LED General: 10 watts - Retail - WY - 1	3,672	87,357	45,522	52%	2%	58%	25,975
LED General: 11 watts - Retail - WY - 1	594	13,704	7,141	52%	2%	58%	4,075
LED General: 12 watts - Retail - WY - 1	811	18,126	9,445	52%	2%	58%	5,390
LED General: 13 watts - Retail - WY - 1	14	303	158	52%	2%	58%	90
LED General: 15 watts - Retail - WY - 1	783	15,809	8,238	52%	2%	58%	4,701
LED General: 16 watts - Retail - WY - 1	24	640	334	52%	2%	58%	190
LED General: 17 watts - Retail - WY - 1	15	389	203	52%	2%	58%	116
LED General: 6 watts - Retail - WY - 1	836	13,861	7,223	52%	2%	58%	4,121
LED General: 7 watts - Retail - WY - 1	204	3,235	1,686	52%	2%	58%	962
LED General: 8 watts - Retail - WY - 1	88	1,332	694	52%	2%	58%	396
LED General: 9 watts - Retail - WY - 1	752	10,844	5,651	52%	2%	58%	3,224
LED Specialty - 3-Way: 5,9,20 watts - Retail - WY - 2	76	2,675	1,776	66%	2%	58%	1,013
LED Specialty - Candelabra: 2 watts - Retail - WY - 2	192	3,049	2,024	66%	2%	58%	1,155
LED Specialty - Candelabra: 3 watts - Retail - WY - 1	8	127	81	64%	2%	58%	46
LED Specialty - Candelabra: 3 watts - Retail - WY - 2	387	5,875	3,900	66%	2%	58%	2,225
LED Specialty - Candelabra: 4 watts - Retail - WY - 1	550	8,327	4,771	57%	2%	58%	2,723
LED Specialty - Candelabra: 4 watts - Retail - WY - 2	5,100	73,899	49,060	66%	2%	58%	27,994
LED Specialty - Candelabra: 5 watts - Retail - WY - 1	373	9,411	5,392	57%	2%	58%	3,077
LED Specialty - Candelabra: 5 watts - Retail - WY - 2	4,026	97,268	64,575	66%	2%	58%	36,847
LED Specialty - Candelabra: 7 watts - Retail - WY - 1	20	476	256	54%	2%	58%	146
LED Specialty - Candelabra: 7 watts - Retail - WY - 2	41	934	620	66%	2%	58%	354
LED Specialty - Globe: 4 watts - Retail - WY - 1	173	1,995	1,143	57%	2%	58%	652
LED Specialty - Globe: 4 watts - Retail - WY - 2	1,772	19,563	12,987	66%	2%	58%	7,411

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	Leakage	NTG	Net Evaluated Savings (kWh)
LED Specialty - Globe: 5 watts - Retail - WY - 1	220	2,378	1,363	57%	2%	58%	778
LED Specialty - Globe: 5 watts - Retail - WY - 2	2,302	23,826	15,817	66%	2%	58%	9,026
LED Specialty - Globe: 6 watts - Retail - WY - 1	163	3,995	2,150	54%	2%	58%	1,227
LED Specialty - Globe: 6 watts - Retail - WY - 2	2,634	61,820	41,041	66%	2%	58%	23,419
LED General Purpose: 9 watts - Retail - WY - 2 - FOODBANK	78,392	1,081,810	351,216	32%	0%	100%	351,216
Total	**273,680**	**5,029,789**	**2,930,358**	**58%**		**63%**	**1,839,251**

Table 3-11: Lighting Program Savings by Measure 2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	Leakage	NTG	Net Evaluated Savings (kWh)
LED Downlight: 10 watts - Retail - WY - 2	3,590	136,276	110,304	81%	2%	58%	62,940
LED Downlight: 11 watts - Retail - WY - 2	7,874	293,464	237,533	81%	2%	58%	135,539
LED Downlight: 12 watts - Retail - WY - 2	621	22,716	18,387	81%	2%	58%	10,492
LED Downlight: 13 watts - Retail - WY - 2	2,081	74,687	60,453	81%	2%	58%	34,495
LED Downlight: 14 watts - Retail - WY - 2	1,230	43,296	35,044	81%	2%	58%	19,997
LED Downlight: 15 watts - Retail - WY - 2	536	18,497	14,972	81%	2%	58%	8,543
LED Downlight: 16 watts - Retail - WY - 2	148	6,027	4,878	81%	2%	58%	2,783
LED Downlight: 18 watts - Retail - WY - 2	206	8,104	6,560	81%	2%	58%	3,743
LED Downlight: 19 watts - Retail - WY - 2	180	6,957	5,631	81%	2%	58%	3,213
LED Downlight: 20 watts - Retail - WY - 2	25	949	768	81%	2%	58%	438
LED Downlight: 23 watts - Retail - WY - 2	47	2,173	1,759	81%	2%	58%	1,004
LED Downlight: 5 watts - Retail - WY - 2	75	3,624	2,933	81%	2%	58%	1,674
LED Downlight: 6 watts - Retail - WY - 2	381	6,313	5,110	81%	2%	58%	2,916
LED Downlight: 7 watts - Retail - WY - 2	2,810	44,623	36,118	81%	2%	58%	20,609
LED Downlight: 8 watts - Retail - WY - 2	1,517	38,744	31,360	81%	2%	58%	17,894
LED Downlight: 9 watts - Retail - WY - 2	3,008	74,749	60,503	81%	2%	58%	34,523
LED Fixture - ENERGY STAR - WY - 2	3,486	92,379	68,269	74%	2%	99%	66,218
LED General Purpose: 10 watts - Retail - WY - 2	28,542	650,187	392,544	60%	2%	58%	223,989
LED General Purpose: 10.5 watts - Retail - WY - 1	1,880	42,168	25,459	60%	2%	58%	14,527
LED General Purpose: 11 watts - Retail - WY - 2	10,863	239,964	144,876	60%	2%	58%	82,667
LED General Purpose: 12 watts - Retail - WY - 2	1,064	22,770	13,747	60%	2%	58%	7,844
LED General Purpose: 13 watts - Retail - WY - 2	1,478	30,609	18,480	60%	2%	58%	10,545
LED General Purpose: 15 watts - Retail - WY - 2	1,899	36,708	22,162	60%	2%	58%	12,646
LED General Purpose: 16 watts - Retail - WY - 2	8,049	205,571	124,112	60%	2%	58%	70,819
LED General Purpose: 17 watts - Retail - WY - 2	53	1,317	795	60%	2%	58%	454
LED General Purpose: 18 watts - Retail - WY - 2	127	4,733	2,858	60%	2%	58%	1,631
LED General Purpose: 6 watts - Retail - WY - 2	7,162	113,733	68,665	60%	2%	58%	39,181
LED General Purpose: 7 watts - Retail - WY - 2	4,043	61,373	37,053	60%	2%	58%	21,143
LED General Purpose: 8 watts - Retail - WY - 2	7,238	104,879	63,319	60%	2%	58%	36,131
LED General Purpose: 9 watts - Retail - WY - 2	38,122	526,084	317,618	60%	2%	58%	181,236
LED Specialty - 3-Way: 5,9,20 watts - Retail - WY - 2	332	11,686	7,758	66%	2%	58%	4,427
LED Specialty - Candelabra: 2 watts - Retail - WY - 2	404	6,416	4,259	66%	2%	58%	2,430

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	Leakage	NTG	Net Evaluated Savings (kWh)
LED Specialty - Candelabra: 3 watts - Retail - WY - 2	2,335	35,445	23,532	66%	2%	58%	13,427
LED Specialty - Candelabra: 4 watts - Retail - WY - 2	5,630	81,579	54,159	66%	2%	58%	30,903
LED Specialty - Candelabra: 5 watts - Retail - WY - 2	2,935	70,910	47,076	66%	2%	58%	26,862
LED Specialty - Globe: 4 watts - Retail - WY - 2	1,621	17,896	11,881	66%	2%	58%	6,779
LED Specialty - Globe: 5 watts - Retail - WY - 2	2,414	24,985	16,587	66%	2%	58%	9,465
LED Specialty - Globe: 6 watts - Retail - WY - 2	2,258	52,995	35,183	66%	2%	58%	20,076
LED General Purpose: 9 watts - Retail - WY - 2 - FOODBANK	105,912	1,461,586	474,512	32%	0%	100%	474,512
LED Downlight: 11 watts - Retail - WY - 2 - FOODBANK	52,956	1,973,670	684,037	35%	0%	100%	684,037
LED Specialty - Candelabra: 4 watts - Retail - WY - 2 - FOODBANK	26,478	383,666	119,859	31%	0%	100%	119,859
LED Specialty - Candelabra: 5 watts - Retail - WY - 2 - FOODBANK	26,478	639,708	199,848	31%	0%	100%	199,848
Total	**368,088**	**7,674,216**	**3,610,958**	**47%**		**75%**	**2,722,458**

3.5.4 Discussion of Realization Rates

Realization rates other than 100 percent are the result of HOUs and ISR that different from ex ante values (see Table 3-8).

ISRs

For all lighting measures sold through retail stores, evaluated ISRs, calculated from ADM's 2020 general population survey, were lower than ex ante ISRs, lowering realization rates.

For lighting measures distributed through foodbanks, ADM calculated the evaluated savings using an ISR of 80.3 percent sourced from *Illinois Statewide Technical Reference Manual for Energy Efficiency Version 10* for food banks/pantry distribution.

HOUs

For all lighting measures, evaluated HOUs were lower than ex ante HOUs lowering realization rates. Hours per room were drawn from Residential Lighting End-Use Consumption Study (*DNV KEMA Energy and Sustainability, Pacific Northwest National Laboratory; December 2012)*. Room locations were drawn from ADM's 2020 general population survey.

3.5.5 Leakage Analysis

Leakage is an estimate of the percentage of measures sold through the program that were purchased by residents who live outside Rocky Mountain Power's service area. ADM assessed leakage using geo-mapping data of participating and non-participating retailers combined with general population survey responses.

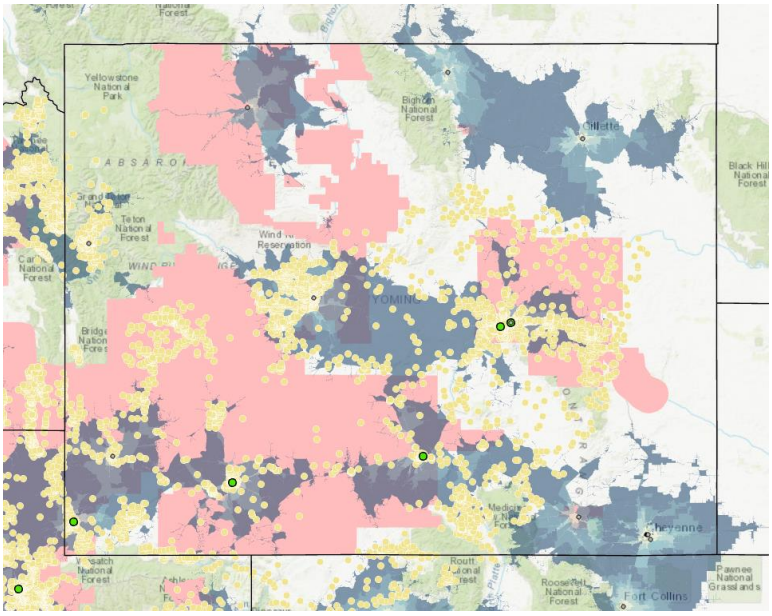
First, ADM mapped 60-minute drive-time areas surrounding both participating and non-participating (competing) retailers[1] (see Figure 3-1). If retailers had overlapping areas, ADM assumed that customers purchased measures from the closest store and modified retailers' drive-time areas.

Second, ADM determined the total population in each retailer's drive time area and the percentage of the population in each area that are Rocky Mountain Power customers[2].

[1] 2020 data. Safe Graph Data: https://marketplace.arcgis.com/listing.html?id=3425348e4bee4059af2b353e52df43c2

[2] 2010 Census block data from Environmental System Research Institute (ESRI).

Figure 3-1: Sample Leakage Analysis Map



Retailer (green dot), Drive time areas (blue), Rocky Mountain Power service area (pink), census block population (yellow).

Third, ADM modified drive-time areas established in step one using general population survey[3] 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 3-12. Within each drive-time category, ADM calculated the percentage of the population that lives in Rocky Mountain Power's service area.

Table 3-12: Drive Time Results from General Population Survey

Retail Type	0-5	5-10	10-15	15-20	20-25	25-30	30-40	40-50	50-60	60+
DIY	6%	12%	16%	13%	13%	0%	8%	9%	3%	20%
Big Box	6%	20%	24%	16%	10%	3%	7%	3%	1%	12%
Member	10%	6%	10%	10%	6%	0%	8%	4%	3%	43%
Discount	8%	29%	25%	17%	8%	1%	7%	2%	0%	3%

Fourth, for each drive-time category indicated in Table 3-12 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 was Rocky Mountain Power customers.

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

[3] ADM conducted the general population survey in 2020.

ADM estimated that 2 percent of the upstream lighting measures sold at participating retailers were purchased by residents living outside of Rocky Mountain Power's service area. Leakage was not considered for measures that distributed through foodbanks.

3.5.6 Net to Gross Ratio

The net-to-gross (NTG) analysis estimates 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

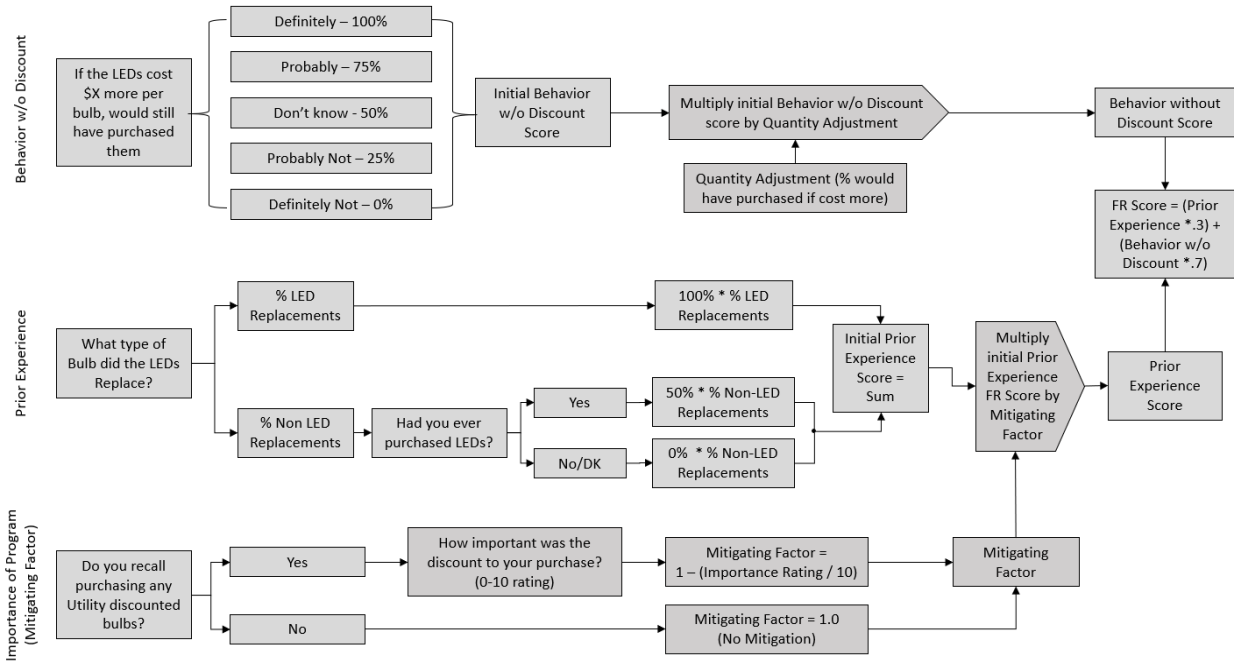
$$NTG = 1 - Freeridership\ rate + Spillover\ rate$$

ADM surveyed Rocky Mountain Power 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 3-2.

Figure 3-2: 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 are then asked two 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:

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

All of 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 net-to-gross (NTG) analysis for lighting measures are included in Table 3-13. No lighting participant spillover savings were reported in the General Population Survey; a non-participant spillover of 3.35 percent was reported. For lighting measures distributed through foodbanks, ADM used an NTG ratio of 100 percent reflecting that customers dependent on food assistance are less likely to install energy efficiency measures absent the program.

Table 3-13: Lighting Net-to-Gross Results

Measure Type	Free Ridership	Participant Spillover	Non-participant Spillover	NTG
LED Bulbs	45%	0	3.35%	58%
LED Fixtures	4%	0	3.35%	99%
FOODBANK	N/A	N/A	N/A	100%

3.6 Electronics

Rocky Mountain Power distributed 619 Tier 2 Advanced Power Strips (APSs) through a pilot program in early 2019. In 2020, Rocky Mountain Power distributed 52,956 Tier 2 Advanced Power Strips for free through food banks in WY. Each kit included two Tier 2 APSs. A total of 53,575 APSs were distributed during the evaluation period with a net savings of 1,836,400 kWh accounting for 22 percentage of total program savings with a 48 percent realization rate and a net-to-gross ratio of 99.9 percent, as reported in Table 3-14.

Table 3-14: Electronics Program Savings by Year

Year	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
2019	619	133,704	96,816	72%	78%	75,613
2020	52,956	3,706,920	1,760,787	48%	100%	1,760,787
Total	**53,575**	**3,840,624**	**1,857,603**	**48%**	99%	**1,836,400**

3.6.1 Tracking Data Verification

ADM reviewed program tracking data to evaluate:

- if the tracking dataset included duplicate or erroneous data entries,
- if data entries in the program tracking dataset included all necessary fields for savings calculations,
- if claimed energy savings match the applicable TRL source documents and calculations,
- if measures were distributed through foodbanks in the service area
- if foodbanks distributed all the APS they received.

ADM found the following inconsistencies in the dataset:

- Five of 619 APSs distributed through the pilot program went to Idaho addresses.

3.6.2 Ex Ante Review

ADM verified that the UES claimed in the program tracking matched the documented saving as indicated in the TRL reference documents.

3.6.3 Evaluated Savings

APSs were distributed without collecting customer data, so it was not possible to conduct a verification survey. Additionally, several factors contribute to the probability that a customer who received APSs from a foodbank may not have installed it as designated in the RTF reference file to generate ex ante savings.

First, to realize energy savings from Tier 2 APSs as designated in the TRL reference file, the user must plug either a TV or desktop computer into the control outlet and plug two eligible peripheral devices into the secondary outlets. Other configurations do not qualify for documented savings. This appliance is difficult to install to meet these requirements, especially if the device was unrequested.

Second, Rocky Mountain Power distributed APSs through foodbanks in two waves approximately six months apart. Foodbank staff that ADM contacted estimated that roughly half of their customers received APSs from both distribution waves. Those homes would have received four APSs.

Third, the Rocky Mountain Power marketing material that was distributed with the APSs indicated that merely plugging electronics into the strip would reduce electricity usage. “Advanced Power Strips can sense when your electronics are idle and will automatically switch to energy-saving mode. They are easy to use. Just plug in and lower the cost of powering your electronics.” (WY Fall 2020 Foodbank Promo marketing materials). The marketing material distributed with the APSs did not educate the customer about the correct installation practice that would result in the claimed savings.

ADM used the average (48 percent) of single family (55 percent) and multifamily (40 percent) ISRs for Tier 1 APSs in the Illinois TRM because the distribution channel (Energy Efficiency Kit, Leave Behind) was the closest match to the foodbank distribution channel Rocky Mountain Power used. For APSs distributed through the pilot program, an ISR of 73 percent was also sourced from the Illinois TRM v. 10 (Tier 2 APS, IR Only).

UESs are reported in Table 3-15; total savings for APSs are reported in Table 3-16.

Table 3-15: Electronics Program Unit Energy Savings by Measure

Measure Name - Measure Version	Ex Ante UES (kWh)	Evaluated ISR	Evaluated UES
Advanced Power Strip - IR Sensing - Owner Install - WY - 2	216.00	73%	157.68
Advanced Power Strip - Occupancy Sensing - Owner Installed - WY - 1	70.00	48%	33.25

ISR Source: Illinois Statewide Technical Reference Manual for Energy Efficiency Version 10.0.

Table 3-16: Electronics Program Savings

Measure - Version	Year	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Advanced Power Strip - IR Sensing - Owner Install - WY - 2	2019	619	133,704	96,816	72%	78%	75,613
Advanced Power Strip - Occupancy Sensing - Owner Installed - WY - 1	2020	52,956	3,706,920	1,760,787	48%	100%	1,760,787
Total		**53,575**	**3,840,624**	**1,857,603**	**48%**	99%	**1,836,400**

3.6.4 Discussion of Realization Rates

The evaluated ISRs, discussed above, reduced the realization rate for APSs.

ADM assigned 0 savings to pilot program APSs that were identified with Idaho addresses.

3.6.5 Net to Gross Ratio

For APSs distributed through foodbanks, ADM used an NTG ratio of 100 percent reflecting that low-income customers are less likely to install energy efficiency measures absent the program. For APSs that were distributed through the pilot program, ADM used the program-wide NTG ratio of 78 percent.

3.7 Water Heating

The measure category Water Heating consists of flow control measures (low-flow showerheads and faucet aerators) and heat pump water heaters and resulted in net savings of 873,964 kWh accounting for 10 percent of total program savings, with a 45 percent realization rate and net-to-gross ratio of 99.7 percent, as reported in Table 3-17.

Table 3-17: Water Heating Program Savings by Year

Measure Category/Year	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Flow Control	**32,837**	**1,924,351**	**863,497**	**45%**	**100%**	**863,497**
2019	19,598	891,709	68,805	54%	100%	406,820
2020	13,239	1,032,642	338,015	44%	100%	456,677
Water Heater	**8**	**13,403**	**13,403**	**100%**	**78%**	**10,468**
2019	2	2,917	2,917	100%	78%	2,278
2020	6	10,486	10,486	100%	78%	8,190
Total	**32,845**	**1,937,754**	**876,900**	**45%**	**99.7%**	**873,964**

3.7.1 Flow Control Measures

Rocky Mountain Power distributed water flow controlling low-flow showerheads and faucet aerators through food banks and Meals on Wheels in the service area during the evaluation period. Flow control measures resulted in savings of 863,497 kWh with a 45 percent realization rate.

3.7.1.1 Ex Ante Review

ADM evaluated the UES values claimed by Rocky Mountain Power in the applicable TRL documents. ADM found that the distribution channels indicated for flow control measures distributed through community service organizations was inconsistent. Ex ante showerhead savings were based on retail distribution; aerator savings were based on by-request distribution.

3.7.1.2 Tracking Data Verification

ADM reviewed the program tracking data to verify that all flow control measures were distributed within the service area. ADM also verified with community services organization that received and distributed the measures that measures were distributed to their clients.

3.7.1.3 Evaluated Savings

Rocky Mountain Power distributed low-flow showerheads and faucet aerators through food banks and Meals on Wheels throughout the service area.

Evaluated savings for these measures were determined by evaluating the ex ante ISRs and percentage of electric water heaters presented in the TRL reference files, as reported in Table 3-18. The evaluated percentage of electric water heaters (36 percent) was calculated from the results of the ADM's 2019 General Population Survey of Rocky Mountain Power Wyoming customers (n=135). ADM determined the evaluated ISR using Illinois Statewide Technical Reference Manual for Energy Efficiency Version 10.0. The resulting evaluated UES for these measures is reported in Table 3-18. Total flow control savings are reported in Table 3-19 through Table 3-21.

Table 3-18: Flow Control Unit Energy Savings by Measure

Measure - Version	Ex Ante UES (kWh)	Ex Ante ISR	Evaluated ISR	Ex Ante % Electric Water Heaters	Evaluated % Electric Water Heaters	Evaluated UES (kWh)	Realization Rate
Low-Flow Shower Head - Any DHW - 1.50 GPM - Midstream – WY	78	80%	57%	58%	36%	34.49	44%
Faucet Aerators - Any DHW - 1.0 GPM or Less - Midstream - WY	13	54%	45%	56%	36%	7.02	54%

Sources: 2019.06.05_WY_Wattsmart_Aerators_Brief, 2019.06.05_WY Wattsmart Low Flow Showerheads Brief.xlsx, % electric water heaters - ADM 2017-2018 General Population Survey, Evaluated ISRs: Illinois Statewide Technical Reference Manual for Energy Efficiency Version 10.0.

Table 3-19: Flow Control Program Savings 2019-2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Faucet Aerators - Any DHW - 1.0 GPM or Less - Midstream - WY - 1	9,799	127,387	68,805	54%	100%	68,805
Low-Flow Shower Head - Any DHW - 1.50 GPM - Midstream - WY - 1	9,799	764,322	338,015	44%	100%	338,015
Low-Flow Shower Head - Any DHW - 1.50 GPM - Midstream - WY - 2	13,239	1,032,642	456,677	44%	100%	456,677
Total	**32,837**	**1,924,351**	**863,497**	**45%**	**100%**	**863,497**

Table 3-20: Flow Control Program Savings 2019

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Faucet Aerators - Any DHW - 1.0 GPM or Less - Midstream - WY - 1	9,799	127,387	68,805	54%	100%	68,805
Low-Flow Shower Head - Any DHW - 1.50 GPM - Midstream - WY - 1	9,799	764,322	338,015	44%	100%	338,015
Total	**19,598**	**891,709**	**406,820**	**46%**	**100%**	**406,820**

Table 3-21: Flow Control Program Savings 2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Low-Flow Shower Head - Any DHW - 1.50 GPM - Midstream - WY - 2	13,239	1,032,642	456,677	44%	100%	456,677

3.7.1.4 Net to Gross Ratio

ADM used a NTG ratio of 100 percent for aerators and showerheads that were distributed for free through food banks and Meals on Wheels reflecting that customers dependent on food assistance are less likely to install energy efficiency measures absent the program.

3.7.1.5 Discussion of Realization Rates

The following factors impacted realization rates for starter kits.

Installation rates The ex ante ISR for showerheads (80 percent) was based on a retail distribution assumption. ADM used the ISR designated for *by request* distribution (57 percent) for the evaluated ISR. The ex ante ISR for aerators was adjusted to an evaluated value of 45 percent, sourced from Version 10 IL TRM. Evaluated ISRs reduced the realization rate.

Water heater fuel The ex ante percentage of electric water heaters indicated in the RTF files for low flow showerheads is 58 percent and for aerators is 56 percent. Thirty-six percent of respondents to ADM's 2019 Wyoming General Population Survey (n=135) indicated that they had electric water heaters. The evaluated value resulted in a lower realization rate.

3.7.2 Heat Pump Water Heaters

Rocky Mountain Power offered rebates to verified customers on qualified energy efficient heat pump water heaters during the evaluation period. Rebates were issued on 8 water heaters resulting in savings of 10,468 kWh, accounting for 0.12 percent of program savings.

3.7.2.1 Tracking Data Verification

ADM reviewed the program tracking data to evaluate:

- if measure requirements were met for all heat pump water heater model numbers
- if the program tracking dataset included duplicate or erroneous data entries.

ADM found the following information was missing from the dataset:

- Tracking data did not include baseline conditions.
- Tracking data did not include installation location or conditions as indicated by measure names.

3.7.2.2 Ex Ante Review

ADM verified that the UESs claimed in the program tracking data matched the appropriate measures as indicated in the TRL reference documents.

3.7.2.3 Evaluated Savings

ADM reviewed the manufacture model specifications for each heat pump water heater reported in the program tracking data and verified each met the requirements for the tier specified in the tracking data. All model numbers met or exceeded tier specifications.

ADM did not make any adjustments to claimed savings. ADM assumed an ISR of 1.0 for water heating measures as reported in Table 3-22 through Table 3-24.

Table 3-22: Heat Pump Water Heater Program Savings – 2019-2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
HPWH - Tier 1 - Basement - 0-55 Gallons - Self Install - WY - 1	1	1,190	1,190	100%	78%	929
HPWH - Tier 2 or above - Basement - 0-55 Gallons - Self Install - WY - 1	6	10,362	10,362	100%	78%	8,093
HPWH - Tier 2 or above - Indoor Gas Heat - 0-55 Gallons - Self Install - WY - 1	1	1,851	1,851	100%	78%	1,446
Total	**8**	**13,403**	**13,403**	**100%**	**78%**	**10,468**

Table 3-23: Heat Pump Water Heater Program Savings – 2019

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
HPWH - Tier 1 - Basement - 0-55 Gallons - Self Install - WY - 1	1	1,190	1,190	100%	78%	929
HPWH - Tier 2 or above - Basement - 0-55 Gallons - Self Install - WY - 1	1	1,727	1,727	100%	78%	1,349
Total	**2**	**2,917**	**2,917**	100%	78%	**2,278**

Table 3-24: Heat Pump Water Heater Program Savings – 2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
HPWH - Tier 2 or above - Basement - 0-55 Gallons - Self Install - WY - 1	5	8,635	8,635	100%	78%	6,744
HPWH - Tier 2 or above - Indoor Gas Heat - 0-55 Gallons - Self Install - WY - 1	1	1,851	1,851	100%	78%	1,446
Total	**6**	**10,486**	**10,486**	100%	**78%**	**8,190**

3.7.2.4 Net to Gross Ratio

The heat pump water heater measure group was too small to evaluate a specific NTG value; therefore, a program-wide 78 percent NTG was applied to this measure type.

3.8 HVAC

Rocky Mountain Power offered customers financial incentives to install energy efficient HVAC measures in their homes during the evaluation period. HVAC measures resulted in 1,019,283 kWh of net savings, accounting for 13 percent of total program savings. The overall realization rate for the HVAC measures was 100 percent and the net-to-gross ratio was 75 percent. HVAC measures included evaporative coolers, smart thermostats, furnace fans with electronically commutated motors (ECMs) to replace existing furnace blower fans, heat pumps, and a single installation each of a central air conditioner and duct sealing/insulation. Forty-six percent of HVAC savings resulted from evaporative coolers. HVAC program savings are reported in Table 3-25 through Table 3-27.

Table 3-25: HVAC Program Savings by Measure Sub Type 2019-2020

Measure Category	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Evaporative Cooler	846	623,354	623,354	100%	75%	467,516
Thermostat	339	508,055	508,055	100%	75%	381,041
Heat Pump - Air Source	12	96,036	96,036	100%	75%	72,027
Smart Thermostat	63	68,706	68,706	100%	75%	51,530
Heat Pump - Ductless	12	49,416	49,416	100%	75%	37,062
Furnace Fan	12	5,928	5,928	100%	75%	4,446
Heat Pump - Best Practice Installation	4	4,056	4,056	100%	75%	3,042
Duct Sealing and/or Insulation	1	3,267	3,267	100%	75%	2,450
Central Air Conditioner	1	226	226	100%	75%	170
Total	**1,290**	**1,359,044**	**1,359,044**	**100%**	**75%**	**1,019,283**

Table 3-26: HVAC Program Savings by Measure Sub Type 2019

Measure Category	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Thermostat	93	228,259	228,259	100%	75%	171,194
Evaporative Cooler	261	186,465	186,465	100%	75%	139,849
Smart Thermostat	62	68,562	68,562	100%	75%	51,422
Heat Pump - Air Source	8	64,024	64,024	100%	75%	48,018
Heat Pump - Ductless	6	24,708	24,708	100%	75%	18,531
Furnace Fan	12	5,928	5,928	100%	75%	4,446
Heat Pump - Best Practice Installation	4	4,056	4,056	100%	75%	3,042
Duct Sealing and/or Insulation	1	3,267	3,267	100%	75%	2,450
Central Air Conditioner	1	226	226	100%	75%	170
Total	**448**	**585,495**	**585,495**	**100%**	**75%**	**439,121**

Table 3-27: HVAC Program Savings by Measure Sub Type 2020

Measure Category	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Evaporative Cooler	585	436,889	436,889	100%	75%	327,667
Heat Pump - Air Source	4	32,012	32,012	100%	75%	24,009
Heat Pump - Ductless	6	24,708	24,708	100%	75%	18,531
Smart Thermostat	1	144	144	100%	75%	108
Thermostat	246	279,796	279,796	100%	75%	209,847
Total	**842**	**773,549**	**773,549**	**100%**	**75%**	**580,162**

3.8.1 Tracking Data Verification

ADM reviewed program tracking data to evaluate:

- if program tracking dataset included duplicate or erroneous data entries,
- if program tracking dataset included all necessary fields for savings calculations,
- if claimed energy savings match the applicable TRL source documents and calculations,
- if installed measure model numbers or measure specifications reported in implementer's tracking data and/or application data met efficiency requirements documented in the TRL.

Through this review process, ADM did not find any inconsistencies; however, supporting data to confirm UES values was sparse for all HVAC measures aside from smart thermostats.

3.8.2 Ex Ante Review

ADM compared ex ante values in TRL reference documents with claimed savings included in program tracking data and verified that the claimed savings represented savings documented in TRL reference documents. ADM found no errors in this review process and was able to confirm all claimed saving values in the reference documents.

3.8.3 Evaluated Savings

Evaluated savings were calculated using UES values included in the TRL reference files for all HVAC measures for which ADM could verify savings through a review of the program data. UESs are reported in Table 3-28. Total HVAC savings are reported in Table 3-29 through Table 3-31.

Table 3-28: HVAC Unit Energy Savings (UES) by Measure

Measure - Version	Average Claimed UES	Average Evaluated UES	Realization Rate
Central Air Conditioner			
Central Air Conditioning with Best Practice Install and Sizing - 15 SEER - WY - 3	226	226	100%
Duct Sealing and/or Insulation			
Manufactured Home - Duct Sealing - Direct Install - Test, Seal and Insulate - WY - 1	3,267	3,267	100%
Evaporative Cooler			
Evaporative Cooler - Midmarket - Retail - 2,000 - 3,499 CFM - WY - 1	472	472	100%
Evaporative Cooler - Midmarket - Retail - Min 3,500 CFM - WY - 1	880	880	100%
Evaporative Cooler - Midmarket - Retail - Min 3,500 CFM - WY - 2	879	879	100%
Evaporative Cooler - Min 3,500 CFM - Self Install - WY - 2	475	475	100%
Furnace Fan			
95% Gas Furnace with ECM Blower - WY - 2	494	494	100%
Heat Pump - Best Practice Installation			
Heat Pump Best Practices Installation and Proper Sizing - WY - 3	1,014	1,014	100%
Heat Pump - Air Source			
Heat Pump Conversion - 9.0 HSPF and 15 SEER - WY - 3	8,003	8,003	100%
Heat Pump - Ductless			
Ductless Heat Pump - Single or Multi Head - WY - 3	4,118	4,118	100%
Smart Thermostat			
Smart Thermostat - Any Gas w/CAC - WY - 1	144	144	100%
Smart Thermostat - eFAF - WY - 1	2,390	2,390	100%
Smart Thermostat - eFAF w/CAC - WY - 1	2,533	2,533	100%
Smart Thermostat - Heat Pump - WY - 1	1,579	1,579	100%
Thermostat			
Smart Thermostat - CAC Only - Instant Rebates - WY - 2	144	144	100%
Smart Thermostat - CAC Only - WY - 2	144	144	100%
Smart Thermostat - Electric FAF - Instant Rebates - WY - 2	2,390	2,390	100%
Smart Thermostat - Electric FAF - WY - 2	2,390	2,390	100%
Smart Thermostat - Electric FAF w/ CAC - Instant Rebates - WY - 2	2,533	2,533	100%
Smart Thermostat - Electric FAF w/ CAC - WY - 2	2,533	2,533	100%
Smart Thermostat - Electric Heat Pump - Instant Rebates - WY - 2	1,579	1,579	100%
Smart Thermostat - Electric Heat Pump - WY - 2	1,579	1,579	100%

Table 3-29: HVAC Program Savings by Measure 2019-2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
95% Gas Furnace with ECM Blower - WY - 2	12	5,928	5,928	100%	75%	4,446
Central Air Conditioning with Best Practice Install and Sizing - 15 SEER - WY - 3	1	226	226	100%	75%	170
Ductless Heat Pump - Single or Multi Head - WY - 3	12	49,416	49,416	100%	75%	37,062
Evaporative Cooler - Midmarket - Retail - 2,000 - 3,499 CFM - WY - 1	285	134,520	134,520	100%	75%	100,890
Evaporative Cooler - Midmarket - Retail - Min 3,500 CFM - WY - 1	159	139,920	139,920	100%	75%	104,940
Evaporative Cooler - Midmarket - Retail - Min 3,500 CFM - WY - 2	391	343,689	343,689	100%	75%	257,767
Evaporative Cooler - Min 3,500 CFM - Self Install - WY - 2	11	5,225	5,225	100%	75%	3,919
Heat Pump Best Practices Installation and Proper Sizing - WY - 3	4	4,056	4,056	100%	75%	3,042
Heat Pump Conversion - 9.0 HSPF and 15 SEER - WY - 3	12	96,036	96,036	100%	75%	72,027
Manufactured Home - Duct Sealing - Direct Install - Test, Seal and Insulate - WY - 1	1	3,267	3,267	100%	75%	2,450
Smart Thermostat - Any Gas w/CAC - WY - 1	37	5,328	5,328	100%	75%	3,996
Smart Thermostat - CAC Only - Instant Rebates - WY - 2	114	16,416	16,416	100%	75%	12,312
Smart Thermostat - CAC Only - WY - 2	27	3,888	3,888	100%	75%	2,916
Smart Thermostat - eFAF - WY - 1	4	9,560	9,560	100%	75%	7,170
Smart Thermostat - eFAF w/CAC - WY - 1	20	50,660	50,660	100%	75%	37,995
Smart Thermostat - Electric FAF - Instant Rebates - WY - 2	17	40,630	40,630	100%	75%	30,473
Smart Thermostat - Electric FAF - WY - 2	6	14,340	14,340	100%	75%	10,755
Smart Thermostat - Electric FAF w/ CAC - Instant Rebates - WY - 2	36	91,188	91,188	100%	75%	68,391
Smart Thermostat - Electric FAF w/ CAC - WY - 2	128	324,224	324,224	100%	75%	243,168
Smart Thermostat - Electric Heat Pump - Instant Rebates - WY - 2	4	6,316	6,316	100%	75%	4,737
Smart Thermostat - Electric Heat Pump - WY - 2	7	11,053	11,053	100%	75%	8,290
Smart Thermostat - Heat Pump - WY - 1	2	3,158	3,158	100%	75%	2,369
Total	**1,290**	**1,359,044**	**1,359,044**	**100%**	**75%**	**1,019,283**

Table 3-30: HVAC Program Savings by Measure 2019

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
95% Gas Furnace with ECM Blower - WY - 2	12	5,928	5,928	100%	75%	4,446
Central Air Conditioning with Best Practice Install and Sizing - 15 SEER - WY - 3	1	226	226	100%	75%	170
Ductless Heat Pump - Single or Multi Head - WY - 3	6	24,708	24,708	100%	75%	18,531
Evaporative Cooler - Midmarket - Retail - 2,000 - 3,499 CFM - WY - 1	95	44,840	44,840	100%	75%	33,630
Evaporative Cooler - Midmarket - Retail - Min 3,500 CFM - WY - 1	155	136,400	136,400	100%	75%	102,300
Evaporative Cooler - Min 3,500 CFM - Self Install - WY - 2	11	5,225	5,225	100%	75%	3,919
Heat Pump Best Practices Installation and Proper Sizing - WY - 3	4	4,056	4,056	100%	75%	3,042
Heat Pump Conversion - 9.0 HSPF and 15 SEER - WY - 3	8	64,024	64,024	100%	75%	48,018
Manufactured Home - Duct Sealing - Direct Install - Test, Seal and Insulate - WY - 1	1	3,267	3,267	100%	75%	2,450
Smart Thermostat - Any Gas w/CAC - WY - 1	36	5,184	5,184	100%	75%	3,888
Smart Thermostat - CAC Only - WY - 2	3	432	432	100%	75%	324
Smart Thermostat - eFAF - WY - 1	4	9,560	9,560	100%	75%	7,170
Smart Thermostat - eFAF w/CAC - WY - 1	20	50,660	50,660	100%	75%	37,995
Smart Thermostat - Electric FAF - WY - 2	1	2,390	2,390	100%	75%	1,793
Smart Thermostat - Electric FAF w/ CAC - WY - 2	89	225,437	225,437	100%	75%	169,078
Smart Thermostat - Heat Pump - WY - 1	2	3,158	3,158	100%	75%	2,369
Total	**448**	**585,495**	**585,495**	**100%**	**75%**	**439,121**

Table 3-31: HVAC Program Savings by Measure 2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Ductless Heat Pump - Single or Multi Head - WY - 3	6	24,708	24,708	100%	75%	18,531
Evaporative Cooler - Midmarket - Retail - 2,000 - 3,499 CFM - WY - 1	190	89,680	89,680	100%	75%	67,260
Evaporative Cooler - Midmarket - Retail - Min 3,500 CFM - WY - 1	4	3,520	3,520	100%	75%	2,640
Evaporative Cooler - Midmarket - Retail - Min 3,500 CFM - WY - 2	391	343,689	343,689	100%	75%	257,767
Heat Pump Conversion - 9.0 HSPF and 15 SEER - WY - 3	4	32,012	32,012	100%	75%	24,009
Smart Thermostat - Any Gas w/CAC - WY - 1	1	144	144	100%	75%	108
Smart Thermostat - CAC Only - Instant Rebates - WY - 2	114	16,416	16,416	100%	75%	12,312
Smart Thermostat - CAC Only - WY - 2	24	3,456	3,456	100%	75%	2,592
Smart Thermostat - Electric FAF - Instant Rebates - WY - 2	17	40,630	40,630	100%	75%	30,473
Smart Thermostat - Electric FAF - WY - 2	5	11,950	11,950	100%	75%	8,963
Smart Thermostat - Electric FAF w/ CAC - Instant Rebates - WY - 2	36	91,188	91,188	100%	75%	68,391
Smart Thermostat - Electric FAF w/ CAC - WY - 2	39	98,787	98,787	100%	75%	74,090
Smart Thermostat - Electric Heat Pump - Instant Rebates - WY - 2	4	6,316	6,316	100%	75%	4,737
Smart Thermostat - Electric Heat Pump - WY - 2	7	11,053	11,053	100%	75%	8,290
Total	**842**	**773,549**	**773,549**	**100%**	**75%**	**580,162**

3.8.4 Discussion of Realization Rates

Evaluated savings for the HVAC measure category resulted in 100 percent realization rate as ADM found no inconsistencies or issues indicating errors with the claimed savings.

3.8.5 Net to Gross Ratio

ADM surveyed a sample of program participants to determine free ridership rates for HVAC program offerings. Free ridership estimates the percentage of participants who would have installed the measure if they had not received a discount for through the program. Spillover estimates the percentage of additional measures that participants installed without an incentive because of the influence of participation. Non-participant

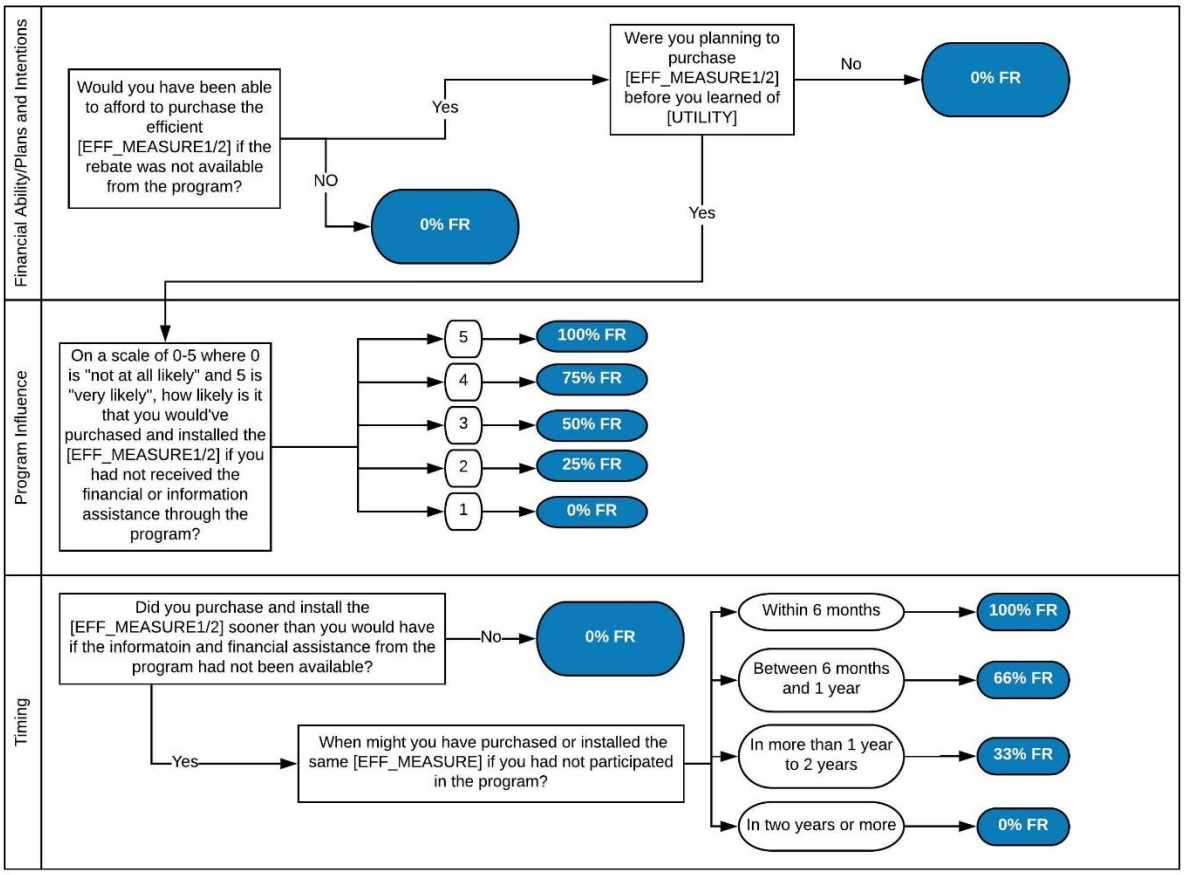
spillover is an estimate of savings that resulted from program influence on non-participants. Net to gross is calculated using Equation 3-3.

Equation 3-3: Net-to-Gross Calculation

$$Net - to - Gross\ Ratio = 1 - Free\ Ridership + Spillover$$

Figure 3-3 illustrates the methodology for calculating free ridership for HVAC measures.

Figure 3-3: HVAC Free Ridership Calculation Methodology



HVAC net-to-gross results are reported in Table 3-32. Since ADM was only able to gather sufficient survey responses from customers that received discounts on smart thermostats through the program (n=55), the same NTG ratio was applied to all other HVAC measure subtypes.

Table 3-32: HVAC Net-to-Gross Results

Measure Subtype	Free Ridership	Participant Spillover	Non-Participant Spillover	NTG
Smart Thermostats	28%	0.19%	3%	75%
Overall NTG for HVAC Measure Category				75%

3.8.6 Supplemental Analyses

ADM completed additional analyses of HVAC measures reported in a separate memo for Rocky Mountain Power to use for program planning purposes.

3.9 Starter Kits

Rocky Mountain Power supplied 314 energy saving kits, referred to as *Starter Kits* on the Rocky Mountain Power web site, at no charge to eligible customers who requested them. The kits resulted in 59,858 kWh of net savings accounting for 0.76 percent of total program savings during the evaluation period, with a 57 percent realization rate and net-to-gross ratio of 100 percent.

All kits contained four standard LED bulbs; customers who indicated that they had an electric water heater also received water saving aerators and low-flow showerheads for up to two bathrooms. Rocky Mountain Power customer eligibility was determined through a web-based portal where customers ordered kits.

Total starter kit savings are presented in Table 3-33 through Table 3-35.

Table 3-33: Starter Kit Program Savings 2019-2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Energy Savings Kit - Best - 1 Bathroom - WY - 5	42	18,185	9,913	55%	102%	10,073
Energy Savings Kit - Best - 2 Bathrooms - WY - 5	96	72,534	36,033	50%	100%	36,033
Energy Savings Kit - LED - WY - 5	176	14,890	13,753	92%	100%	13,753
Total	**314**	**105,608**	**59,698**	**57%**	100%	**59,858**

Table 3-34: Starter Kit Program Savings 2019

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Energy Savings Kit - Best - 1 Bathroom - WY - 5	40	17,319	9,441	55%	102%	9,593
Energy Savings Kit - Best - 2 Bathrooms - WY - 5	88	66,489	33,030	50%	100%	33,030
Energy Savings Kit - LED - WY - 5	170	14,382	13,284	92%	100%	13,284
Total	**298**	**98,190**	**55,755**	**57%**	100%	**55,907**

Table 3-35: Starter Kit Program Savings 2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Energy Savings Kit - Best - 1 Bathroom - WY - 5	2	866	472	55%	102%	480
Energy Savings Kit - Best - 2 Bathrooms - WY - 5	8	6,044	3,003	50%	100%	3,003
Energy Savings Kit - LED - WY - 5	6	508	469	92%	100%	469
Total	**16**	**7,418**	**3,944**	**53%**	100%	**3,951**

3.9.1 Tracking Data Verification

ADM reviewed program tracking data to evaluate:

- if tracking dataset included duplicate or erroneous data entries,
- if data entries in the program tracking dataset included all necessary fields for savings calculations
- if claimed energy savings match the applicable TRL source documents and calculations.

ADM found no inconsistencies in the dataset.

3.9.2 Ex Ante Review

ADM completed an ex ante review of each kit component to verify that claimed savings in the tracking data reflected the ex ante values in the TRL reference documents. Reference files included additional embedded reference files for each kit component.

3.9.3 Evaluated Savings

To calculate evaluated savings, ADM used 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 consider when calculating percentage of participants with electric water heaters. ADM replaced ex ante ISRs and percentage of electric water heaters with correlated evaluated values. Evaluated UESs for kits are reported in Table 3-36.

Table 3-36: Starter Kit Unit Energy Savings

Kit Component	Claimed UES (kWh)	Evaluated Gross UES (kWh)	Evaluated ISR	Evaluated % electric DWH	Gross Evaluated (kWh)	Realization Rate	NTG	Net Evaluated UES (kWh)
Energy Savings Kit - Best - 1 Bathroom								
LED 1 (9.5 Watt)	21.15	22.03	98.5%		21.70	102.6%	92%	19.96
LED 2 (9.5 Watt)	21.15	22.03	98.5%		21.69	102.6%	92%	19.96
LED 3 (9.5 Watt)	21.15	22.03	96.8%		21.32	100.8%	92%	19.61
LED 4 (9.5 Watt)	21.15	22.03	91.8%		20.23	95.6%	92%	18.61
Aerator Kitchen (1.5 gph)	25.77	30.52	55.6%	62%	10.50	40.7%	104%	10.92
Aerator Bath 1 (0.5 gpm)	62.59	74.12	57.9%	62%	26.56	42.4%	104%	27.63
Showerhead 1 (1.5 gpm)	260.00	307.00	60.0%	62%	114.03	43.9%	108%	123.15
TOTAL	**432.97**	**499.77**			**236.02**	**54.5%**		**239.83**
Energy Savings Kit - Best - 2 Bathrooms								
LED 1 (9.5 Watt)	21.15	22.03125	98.5%		21.70	102.6%	92%	19.96
LED 2 (9.5 Watt)	21.15	22.03125	98.5%		21.69	102.6%	92%	19.96
LED 3 (9.5 Watt)	21.15	22.03125	96.8%		21.32	100.8%	92%	19.61
LED 4 (9.5 Watt)	21.15	22.03125	91.8%		20.23	95.6%	92%	18.61
Aerator Kitchen (1.5 gph)	25.77	30.52	55.6%	62%	10.50	40.7%	104%	10.92
Aerator Bath 1 (0.5 gpm)	62.59	74.12	57.9%	62%	26.56	42.4%	104%	27.63
Aerator Bath 2 (0.5 gpm)	62.59	74.12	56.3%	62%	25.81	41.2%	104%	26.84
Showerhead 1 (1.5 gpm)	260.00	307	60.0%	62%	114.03	43.9%	108%	123.15
Showerhead 2 (1.5 gpm)	260.00	307	52.9%	62%	100.61	38.7%	108%	108.66
TOTAL	**755.56**	**880.89**			**362.45**	**48.0%**		**375.34**
Energy Savings Kit – LED								
LED 1 (9.5 Watt)	21.15	22.03125	98.5%		21.70	102.6%	92%	19.96
LED 2 (9.5 Watt)	21.15	22.03125	98.5%		21.69	102.6%	92%	19.96
LED 3 (9.5 Watt)	21.15	22.03125	96.8%		21.32	100.8%	92%	19.61
LED 4 (9.5 Watt)	21.15	22.03125	91.8%		20.23	95.6%	92%	18.61
TOTAL	**84.60**	**88.13**			**84.94**	**100.4%**		**78.14**

3.9.4 Discussion of Realization Rates

The following factors impacted realization rates for starter kits.

LEDs

LED realization rates exceeded 100 percent because evaluated ISRs exceeded ex ante ISRs except for the last of the 4 bulbs in each kit. ADM used survey data to calculate ISRs for each light bulb in the kit; individual ISRs ranged from 99 to 92 percent. Realization rates over 100 percent reflect the higher ISRs.

Aerators and Showerheads

ISRs for water saving measures were calculated for each individual component. Evaluated ISRs were lower than ex ante ISRs for these components decreasing their realization rates.

Ex ante savings were based on savings calculated for electric water heaters. Evaluated percentage of electric water heaters for customers who received water saving measures was 62 percent reducing realization rates.

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 occur as result of energy saving actions participants take as a result of the program. The net to gross factor is calculated as indicated in Equation 3-4.

Equation 3-4: Net to Gross Calculation

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

3.9.5.1 Free Ridership

Free ridership estimates the percentage of participant 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:

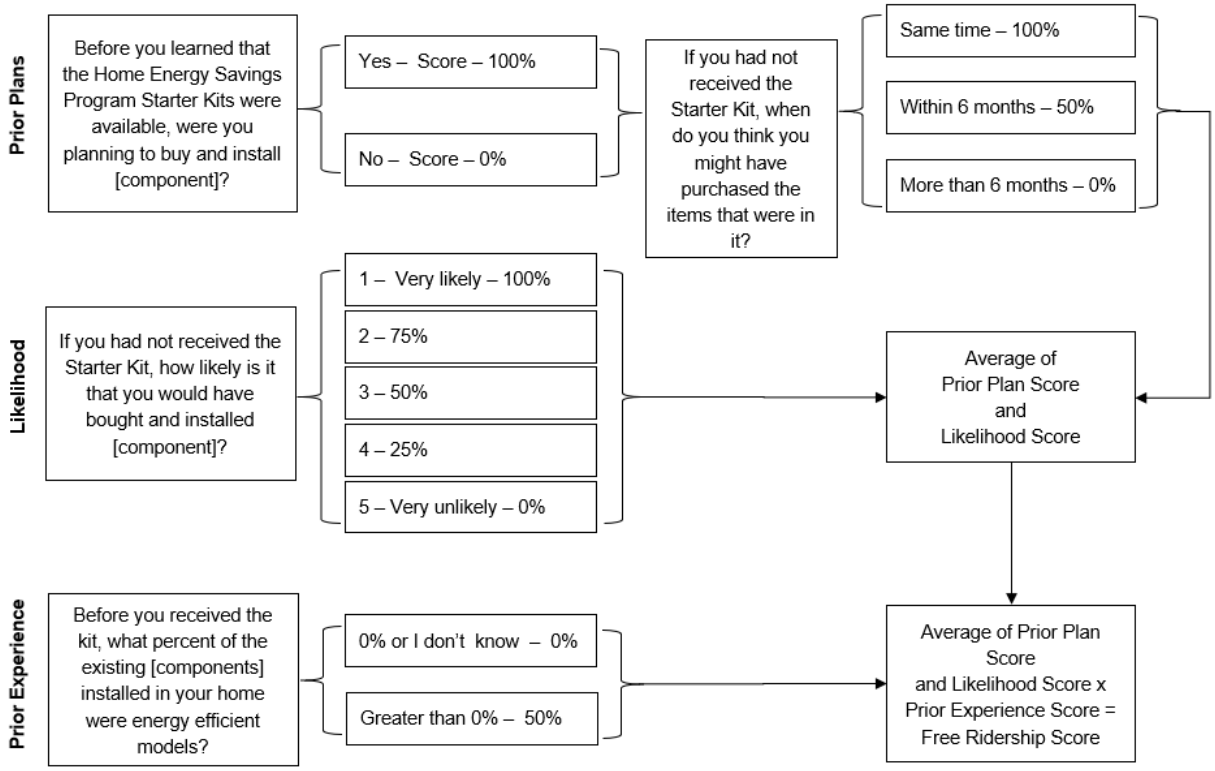
- Participant's prior plans to install kits components in their home
- Estimate of time when they would have installed the components
- Likelihood that the participant would have installed the components
- Prior installations of similar measures in the home

ADM calculated a free ridership score for each kit component using Equation 3-5 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 3-5: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 3-37.

Table 3-37: Free Ridership Scores by Kit Component

Kit Component	Free Ridership Score
LEDs	22%
Aerators	10%
Low Flow Showerheads	6%

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 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 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 3-6*).

Equation 3-6: 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 3-7).

Equation 3-7: Spillover Ratio for Kits Program

$$Spillover\ Ratio = \frac{Sum\ of\ savings\ from\ all\ measures\ with\ spillover\ scores\ greater\ than\ 3}{Total\ kits\ savings\ generated\ by\ survey\ respondents}$$

The evaluated spillover for kits was 15 percent for the evaluation period (see Table 3-38).

Table 3-38: Spillover Measures Identified

Measures with Spillover Scores >= 3	Quantity	UES (kWh)	Total Energy Savings (kWh)
LEDs	77	19.80	1,524.23
Clothes washer	1	161	161.00
Aerator-bathroom	5	74.12	370.60
Aerator-kitchen	4	30.52	122.08
Showerheads	2	307	614.00
Total			**2,791.91**

Table 3-39: Total Claimed Savings from Survey Respondents

Kit Type Received by Survey Respondent	Ex Ante UES	Qty surveyed	Total Claimed Savings for Survey respondents
Energy Savings Kit - Best - 1 Bathroom - WY - 5	3	433	1,299
Energy Savings Kit - Best - 2 Bathrooms - WY - 5	19	756	14,356
Energy Savings Kit - LED - WY - 5	46	85	3,892
Total	**68**		**19,546**

Table 3-40: Starter Kit Spillover Rate

Claimed Savings (kWh)	Total Spillover Savings	Spillover Rate
19,546	2,792	14%

Net-to-gross results are presented in Table 3-41.

Table 3-41: Starter Kits Net to Gross Results by Kit Component

Kit component	Free ridership	Spillover	NTG
LEDs	22%	14%	92%
Aerators	10%	14%	105%
Low Flow Showerheads	6%	14%	108%

3.10 Building Shell

Rocky Mountain Power offered rebates to verified customers who installed insulation in their homes during the evaluation period. Rocky Mountain Power provided incentives for 31,134 square feet of insulation installed in 26 homes during the evaluation period, resulting in net evaluated savings of 13,598 kWh accounting for 0.15 percent of total program savings with a 52 percent realization rate and net-to-gross ratio of 78 percent, as reported in Table 3-42.

Table 3-42: Building Shell Program Savings by Year

Year	Quantity (sq ft)	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings
2019	19,568	24,140	17,412	72%	78%	13,598
2020	11,566	9,517	00	0%	78%	0
Total	**31,134**	**33,657**	**17,412**	**52%**	**78%**	**13,598**

3.10.1 Tracking data verification

ADM reviewed program tracking data to evaluate:

- if tracking dataset included duplicate or erroneous data entries,
- if data entries in the program tracking dataset included all necessary fields for savings calculations,
- if claimed energy savings match the applicable TRL source documents and calculations.

The following data was missing from the dataset:

- Eighteen of 33 records did not include documentation of baseline or install R-values to verify that TRL measures requirements were met.

3.10.2 Ex Ante Review

ADM verified that claimed savings were supported by the applicable reference documents.

3.10.3 Evaluated Savings

ADM used an ISR of 1.0 for home insulation measures. Because of the small percentage of program savings that resulted from home insulation, ADM did not survey program participants to verify savings calculation variables. ADM used TRL reference documents

to determine evaluated savings. Building Shell program savings are reported in Table 3-43 through Table 3-45.

Table 3-43: Building Shell Program Savings by Measure 2019-2020

Measure - Version	Quantity (sq ft)	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings
Insulation - Attic - Electric Heat Pump Heating System - WY - 2	930	744	0	0%	0%	0
Insulation - Attic - Electric Zonal Heating System - WY - 2	12,708	11,564	6,852	59%	78%	5,352
Insulation - Attic - Gas Heat with Central Air Conditioner - WY - 1	10,275	2,158	605	28%	78%	472
Insulation - Floor - Electric Zonal Heating System - WY - 2	650	1,898	1,898	100%	78%	1,482
Insulation - Wall - Electric Zonal Heating System - WY - 2	2,763	10,278	7,451	72%	78%	5,819
Insulation - Wall - Gas Heat with Central Air Conditioner - WY - 1	530	196	0	0%	78%	0
Window - U <= 0.30 - Electric Zonal Heating System - WY - 2	3,278	6,818	606	9%	78%	473
Total	**31,134**	**33,657**	**17,412**	**52%**	**78%**	**13,598**

Table 3-44: Building Shell Program Savings by Measure 2019

Measure - Version	Quantity (sq ft)	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings
Insulation - Attic - Electric Zonal Heating System - WY - 2	7,530	6,852	6,852	100%	78%	5,352
Insulation - Attic - Gas Heat with Central Air Conditioner - WY - 1	6,194	1,301	605	46%	78%	472
Insulation - Floor - Electric Zonal Heating System - WY - 2	650	1,898	1,898	100%	78%	1,482
Insulation - Wall - Electric Zonal Heating System - WY - 2	2,003	7,451	7,451	100%	78%	5,819
Window - U <= 0.30 - Electric Zonal Heating System - WY - 2	3,191	6,638	606	9%	78%	473
Total	**19,568**	**24,140**	**17,412**	**72%**	**78%**	**13,598**

Table 3-45: Building Shell Program Savings by Measure 2020

Measure - Version	Quantity (sq ft)	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings
Insulation - Attic - Electric Heat Pump Heating System - WY - 2	930	744	0	0%	78%	0
Insulation - Attic - Electric Zonal Heating System - WY - 2	5,178	4,712	0	0%	78%	0
Insulation - Attic - Gas Heat with Central Air Conditioner - WY - 1	4,081	857	0	0%	78%	0
Insulation - Wall - Electric Zonal Heating System - WY - 2	760	2,827	0	0%	78%	0
Insulation - Wall - Gas Heat with Central Air Conditioner - WY - 1	530	196	0	0%	78%	0
Window - U <= 0.30 - Electric Zonal Heating System - WY - 2	87	181	0	0%	78%	0
Total	**11,566**	**9,517**	0	**0%**	78%	0

3.10.4 Discussion of Realization Rates

No documentation was available for 18 of 33 records to verify that measure requirements established in TRL reference files were met. These records were assigned evaluated savings of 0 kWh reducing realization rates.

3.10.5 Net to Gross Ratio

The building shell measure category was too small to evaluate a specific NTG value; therefore, a program-wide 78 percent NTG ratio was applied to this measure type.

3.11 Appliances

Rocky Mountain Power offered rebates to verified customers on qualified energy efficient appliances during the evaluation period. Rebates were issued on 66 appliances resulting in net savings of 4,663 kWh, accounting for 0.05 percent of program savings, with a 77 percent realization rate and 78 percent net-to-gross ratio, as reported in Table 3-46.

Table 3-46: Appliance Program Savings by Year

Program Year	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
2019	4,086	2,821	69%	78%	2,203
2020	3,671	3,151	86%	78%	2,461
Total	**7,757**	**5,971**	**77%**	78%	**4,663**

3.11.1 Tracking Data Verification

ADM reviewed the program tracking data to evaluate:

- if measure requirements were met for all documented appliance model numbers
- if program tracking dataset included duplicate or erroneous data entries.

ADM found the following in the dataset:

- Fifteen records included measures with model numbers that did not meet efficiency standards documented in TRL reference documents.

3.11.2 Ex Ante Review

ADM verified that the UES claimed in the program tracking matched the appropriate measures as indicated in the TRL reference documents.

3.11.3 Evaluated savings

ADM reviewed the manufacture model specifications for each appliance reported in the program tracking data. No evaluated savings were recorded for records with model numbers that did not meet efficiency requirements documented in the TRL reference file.

ADM assumed an ISR of 1.0 for appliances. Appliance savings are reported in Table 3-47 through Table 3-49.

Table 3-47: Appliance Program Savings by Measure 2019-2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Clothes Washers - CEE Tier 2 or Higher - Electric DHW & Electric Dryer - WY - 1	15	3,371	2,697	80%	78%	2,106
Clothes Washers - CEE Tier 2 or Higher - Gas DHW & Electric Dryer - WY - 1	35	3,450	2,760	80%	78%	2,155
Freezer - ENERGY STAR - Any Style - WY - 3	10	358	322	90%	78%	251
Refrigerator - CEE Tier 2 and Above - Any Style - WY - 3	6	579	193	33%	78%	151
Total	**66**	**7,757**	**5,971**	**77%**	**78%**	**4,663**

Table 3-48: Appliance Program Savings by Measure 2019

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Clothes Washers - CEE Tier 2 or Higher - Electric DHW & Electric Dryer - WY - 1	6	1,348	899	67%	78%	702
Clothes Washers - CEE Tier 2 or Higher - Gas DHW & Electric Dryer - WY - 1	19	1,873	1,478	79%	78%	1,155
Freezer - ENERGY STAR - Any Style - WY - 3	8	286	250	88%	78%	195
Refrigerator - CEE Tier 2 and Above - Any Style - WY - 3	6	579	193	33%	78%	151
Total	**39**	**4,086**	**2,821**	**69%**	**78%**	**2,203**

Table 3-49: Appliance Program Savings by Measure 2020

Measure - Version	Quantity	Claimed Savings (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	NTG	Net Evaluated Savings (kWh)
Clothes Washers - CEE Tier 2 or Higher - Electric DHW & Electric Dryer - WY - 1	9	2,022	1,798	89%	78%	1,404
Clothes Washers - CEE Tier 2 or Higher - Gas DHW & Electric Dryer - WY - 1	16	1,577	1,281	81%	78%	1,001
Freezer - ENERGY STAR - Any Style - WY - 3	2	72	72	100%	78%	56
Total	**27**	**3,671**	**3,151**	**86%**	**78%**	**2,461**

3.11.4 Discussion of Realization Rates

Realization rates were negatively impacted by the 15 records for which 0 savings were assigned because the documented appliances did not meet efficiency requirements indicated in TRL reference files.

3.11.5 Net to Gross Ratio

ADM used a program-wide NTG of 78 percent for appliances. The category was too small to complete a category specific NTG analysis.

4 Process Evaluation

ADM completed a process analysis of the program which included in depth interviews and conversations with key staff at Rocky Mountain Power and program implementers. Additional information was gathered from a general customer survey, a starter kit participant survey, an HVAC participant survey, and a review of program materials. ADM also contacted foodbank staff that received kits to distribute to their clients.

4.1 Roles and Responsibilities

The Rocky Mountain Power program manager is responsible for the Wattsmart Homes programs in Utah, Wyoming, and Idaho, including oversight of the regulatory process, assessing cost effectiveness of the program, regulatory recovery, review of marketing campaigns, program participation and procedures, and design and implementation of procedures.

Rocky Mountain Power contracted with CLEAResult as the program implemented during the evaluation period. Portions of the program are implemented by additional contractors, for example starter kits program was managed by AM Conservation Group. Implementation partner responsibilities included program implementation, contract management, client management, and overseeing day-to-day operations.

4.2 Program Design and Goals

The primary purpose of the program is to achieve conservation targets. Of note during this evaluation cycle, the COVID pandemic occurred during the last ten months of the evaluation period (March through December 2020).

4.3 Tracking and Reporting

Rocky Mountain Power savings documentation is comprised of the technical reference library (TRL) with its associated files and the program tracking dataset.

4.3.1 Technical Reference Library (TRL)

Ex ante program savings, as well as other measure specifications, are documented in Rocky Mountain Power's Technical Reference Library (TRL). The TRL is comprised of a list of all program measures and all versions of each measure. Measure specification are updated as required by changing regulatory and market conditions. The TRL file is maintained jointly by Rocky Mountain Power and its contracted program implementer. Each measure listed includes specifications for the measure and version number, including reference files that document UES savings values or savings calculation methodologies.

TRL reference files generally rely on Regional Technical Forum's (RTF) library of measure UESs that is maintained by the Northwest Power and Conservation Council to verify and evaluate energy efficiency savings.

Because the TRL includes multiple versions of specific measures for which the savings values can vary, the accuracy of TRL necessitates that a specific reference file is indicated for each version of each measure. ADM found that the TRL often reported reference files used for groups of measures without explicitly indicating a reference file for each specific measure complicating ex ante review of claimed savings.

4.3.2 Program Tracking Dataset

Rocky Mountain Power maintains a program tracking dataset that includes:

- Measure name and corresponding data that ties to TRL
- Record or application status and relevant dates
- For downstream measures, customer, and account information

The program implementer collects and retains the following data elements that are not included in Rocky Mountain Power's dataset:

- Product manufacturer and model numbers
- Retail sales location for upstream measures
- Baseline conditions

ADM found that key program tracking data elements are retained with program implementer and are not integrated into Rocky Mountain Power's program tracking database. Program data provided by Rocky Mountain Power and the implementer was missing some data required to verify savings, as reported by measure category in *Section 3 Impact Analysis*.

4.4 Communication

Rocky Mountain Power has regular meetings with implementation staff. In addition, there are quarterly meetings and ad hoc communications. Weekly meeting topics include program status and performance, long-term strategy, day-to-day tactical decisions, and marketing activities.

4.5 Outreach

ADM interviewed representatives at the three organizations through which Rocky Mountain Power distributed foodbank kits to collect their feedback on the program. Staff from the three participating organizations shared the following feedback:

- 2019 kit components were loose, rather than boxed as in 2020. The loose distribution was difficult for the foodbank, creating extra work for an under-resourced staff.
- There was a lot of overlap in who received the kits. Some families received all three.
- Clients loved the LEDs**.**
- No more showerheads!
- The seniors were probably confused by the APSs.
- All kits were distributed.
- Attribution to Rocky Mountain Power was strong.
- Clients and foodbank volunteers received the kits.
- The foodbank serves much the same population from the summer to fall distributions. Of the 700 kits distributed through one foodbank, probably 200 families received two kits.
- People were very happy with the bulbs.
- Some people could not use the showerheads.
- All 24,389 kits were distributed.
- Kits were distributed via mobile food pantries. Leftovers were given to partner agencies.
- Staff heard that the kit distribution was a huge public relations success.
- The people who received the packages were grateful to receive something that was a high-quality item for free.
- People noticed and were impressed that the packaging was nice.
- Staff did not receive any feedback about installing the kit components.
- The foodbank has systems in place that allows them to control where donated items are distributed with granularity to the zip code level, which are huge in Wyoming.

4.6 General Population Survey Results

ADM administered an online survey to Rocky Mountain Power customers in Wyoming. Four hundred customers completed the survey in which both program participants and non-participants shared their experience with Rocky Mountain Power's programs during 2019 and 2020. ADM sent customers email invitations to complete the questionnaire through an online survey platform and offered monetary incentives for completion ($5 electronic gift cards). The survey collected data for both the process evaluation and impact analysis.

Participants reported how they participated in the Wattsmart Program. The table below shows the percentages of respondents who purchased upstream measures through the program.

Table 4-1: Did you or anyone else in your home buy any of the following energy saving products in 2019 or 2020?

Type	Percent (n = 393)
I did not buy either of these products in 2019-2020	51%
ENERGY STAR® certified LED lighting products	39%
Evaporative cooler	4%
I don't remember	8%

*Multiple response questions- percentage exceeds 100%.

4.6.1 LED Lighting Measures

Eighty-seven percent of respondents who bought LED bulbs bought standard LED light bulbs, 42 percent bought specialty LED bulbs, 33 percent bought LED fixtures, and 19 percent LED downlights.

Table 4-2: Did you or anyone else in your home buy any of the following energy-saving products in 2019 or 2020?

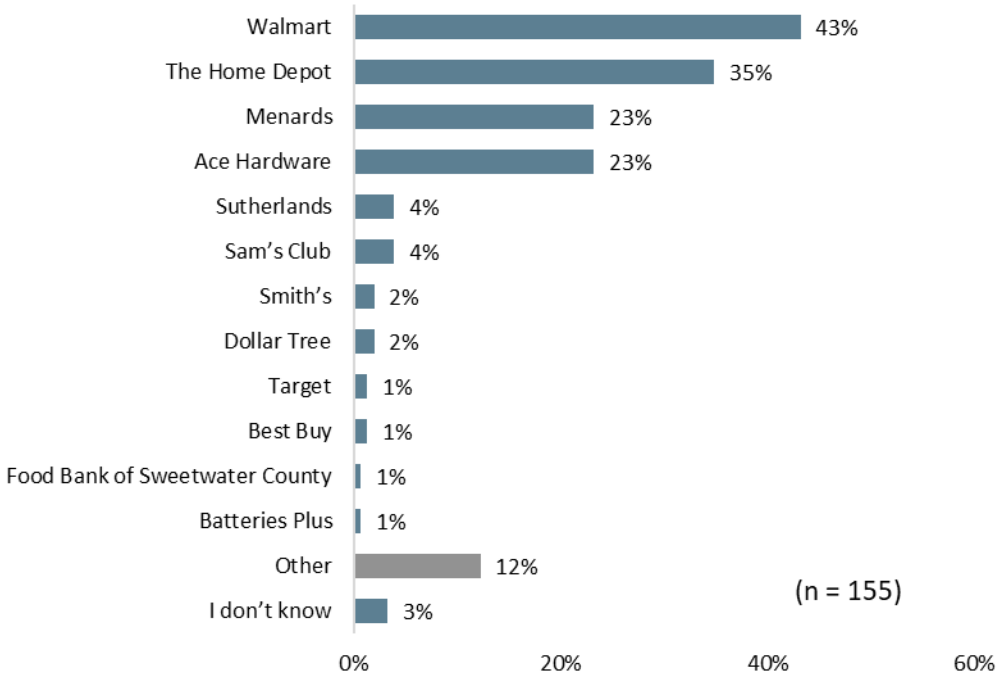
Type	Percent (n = 106)
Standard LED bulb(s)	87%
Specialty LED bulb(s)	42%
LED fixture(s)	33%
LED downlight(s)	19%

*Multiple response questions- percentage exceeds 100%.

Customers who bought LED measures reported where they bought their LEDs. The top retail stores among the survey respondents were Walmart (43 percent), The Home Depot

(35 percent), Menards (23 percent), and Ace Hardware (23 percent). See Figure 4-1 for more details.

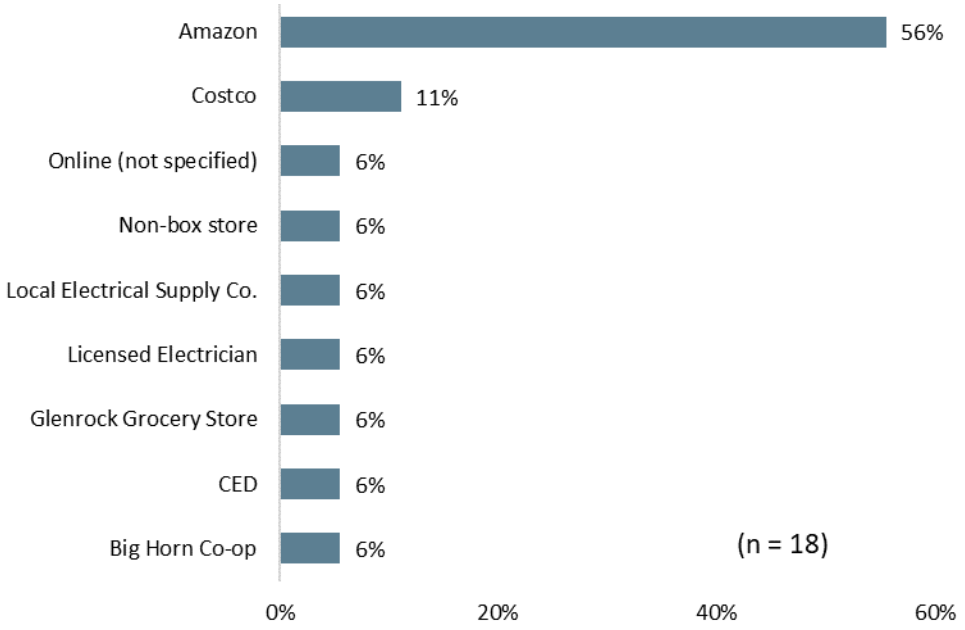
Figure 4-1: Which stores did you buy your ENERGY STAR®® LED lighting from?



*Multiple response questions- percentage exceeds 100%.

As shown above, of the 155 respondents, 12 percent indicated they purchased their LEDs from other sources (n = 18). Of the respondents who obtained their LEDs from another store, 56 percent indicated they bought their lights from Amazon.com, and 11 percent indicated they went to Costco. See Figure 4-2 for more details.

Figure 4-2: Which other non-participating stores did you buy your ENERGY STAR® LED lighting from?



Furthermore, 89 percent of respondents purchased their standard LEDs during 2020 compared to 66 percent who purchased theirs in 2019. People who purchased specialty LEDs, LED fixtures and LED downlights also bought more in 2020 than in 2019 (see Table 4-3); many of the participants bought their lights during both years.

Table 4-3: When did you buy the ENERGY STAR® LED bulbs?

LED Types	2019	2020
Standard LED bulb(s) (n = 92)	66%	89%
Specialty LED bulb(s) (n = 44)	55%	95%
LED fixture(s) (n = 35)	29%	89%
LED downlight(s) (n = 20)	55%	60%

*Multiple response questions- percentage exceeds 100%.

4.6.2 Participant Motivations for Purchasing LEDs

Survey participants stated the reasons why they decided to purchase the LEDs. The most common answer was they wanted to replace their burned-out bulbs (60 percent), followed by those who wanted to replace their working bulbs with ones that consumed less energy (46 percent). Another 27 percent indicated they had added a new light fixture in their home, and six percent wanted to take advantage of the discount pricing. Just one percent of the respondents could not recall. People who indicated "other" (n = 5) provided some insight. One person stated they moved to another home and replaced all the bulbs, while

another person wanted an increase in lighting. One participant wanted to improve brightness (n = 1), one purchased light for a new building (n = 1), and one got an LED for free after replacing their former Wi-Fi service/system (n = 1).

Table 4-4: Why did you purchase the ENERGY STAR® LED lighting?

Response	Percent (n = 139)
To replace burned out bulbs	60%
To replace working bulbs to lower energy use	46%
To add new light fixture(s) in my home	27%
To take advantage of discounted pricing	6%
Other	4%
I don't know	1%

*Multiple response questions- percentage exceeds 100%.

Regarding the discount pricing, Table 4-5 summarizes how many people recalled if the LED measures were discounted. In general, most people indicated they did not recall a discount when they purchased the LED measures.

Table 4-5: Do you recall if the LED measures you bought were discounted?

LED Types	Yes	No	Do not recall
Standard LED bulb(s) (n = 92)	20%	47%	34%
Specialty LED bulb(s) (n = 44)	18%	45%	36%
LED fixture(s) (n = 35)	6%	77%	17%
LED downlight(s) (n = 20)	25%	55%	20%

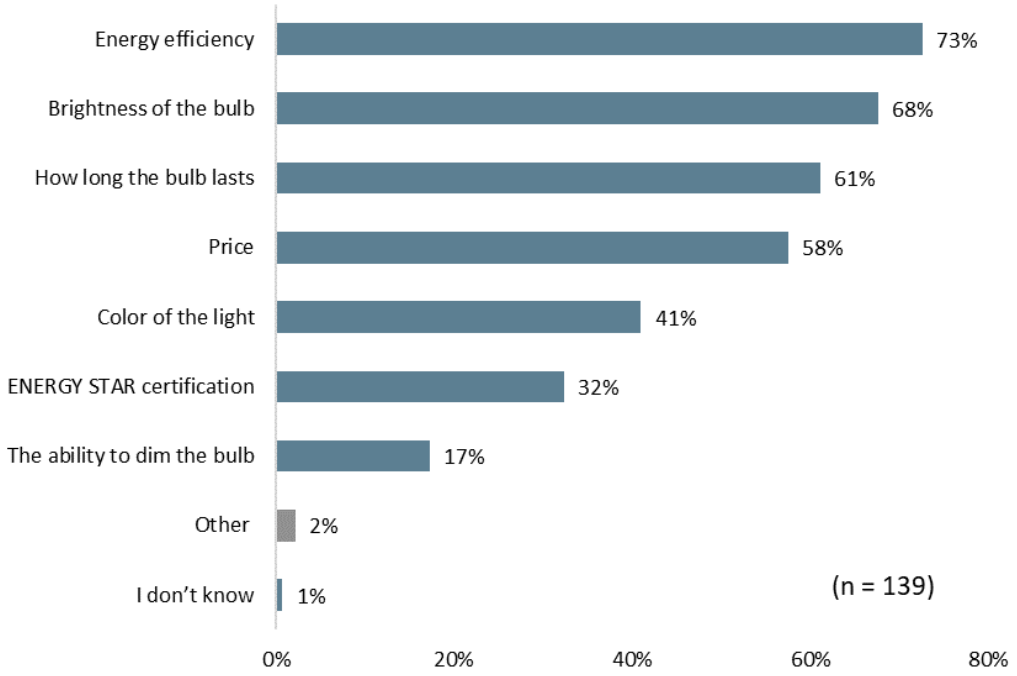
*Multiple response questions- percentage exceeds 100%.

Of the people who recalled the standard LED bulb discount (n = 18), six percent remembered seeing a label or sign indicating Rocky Mountain Power provided the discount compared to the 83 percent who did not see a label and 11 percent who could not recall. For 56 percent of participants who were aware of discount pricing, the discount was somewhat or very important when purchasing the standard LEDs.

Of the eight people who knew about the discount for the specialty LEDs, 75 percent stated the discount was somewhat or very important to them, and two of the 75 percent recalled the LED fixtures were discounted. The discount did not influence their purchase (respondents rated the importance 5/10, based on a 0-10 scale). Finally, for the five people who recalled seeing a discount for their LED downlights, everyone varied on how important the discount was when purchasing the measure. The ratings ranged from 0/10 (n = 1), 5/10 (n = 2), 8/10 (n = 1), and 9/10 (n = 1).

Although pricing was a factor when considering the purchase, it was not the most important to many respondents. The figure below illustrates the top characteristics customers considered when purchasing LED lighting such as energy efficiency (73 percent), the brightness of the light bulb (68 percent), and the lifespan of the LED measure (61 percent).

Figure 4-3: Which characteristic do you consider when purchasing light bulbs?



*Multiple response questions- percentage exceeds 100%.

4.6.3 Evaporative Cooler Measures

Seventeen respondents stated they bought an evaporative cooler. Of the people who purchased the measure, seven stated in what year they purchased it. Five stated they bought their cooler in 2019, and two bought it in 2020. Table 4-6 summarizes the different types of cooling appliance the evaporative cooler replaced.

Table 4-6: What type of cooling appliance did the evaporative cooler replace?

Response	Percentage (n = 7)
Room air conditioner	29%
Evaporative cooler	57%
The home/room was not cooled before	14%

Participants who purchased the measures were not aware of discount pricing, if they received it. Only one of the seven knew the measure had a discounted price.

4.6.4 Behaviors and Attitude Changes

Some respondents who purchased upstream measures through the program made other energy efficiency-related purchases since their upstream purchase. Table 4-7 shows the measures survey respondents purchased. The top measures participants bought were ENERGY STAR® certified appliances (40 percent), low-flow showerheads (20 percent), and smart thermostats (20 percent).

Table 4-7: After buying the discounted ENERGY STAR® lighting product or evaporative cooler, have you taken any of the following additional steps to save energy in your home?

Response	Percentage (n = 25)
Installed ENERGY STAR® certified appliances such as a refrigerator, dishwasher, clothes washer, or clothes dryer	40%
Did not install any of these energy saving items	36%
Installed low flow showerheads	20%
Installed a Smart Thermostat (for example, EcoBee or Nest)	20%
Installed an ENERGY STAR® certified water heater	16%
Installed water heater jacket, blanket, or insulation	8%
Installed an ENERGY STAR® central air conditioner or heat pump	8%
Installed low flow faucet aerators	4%
Other	4%
I don't know	4%

*Multiple response questions- percentage exceeds 100%.

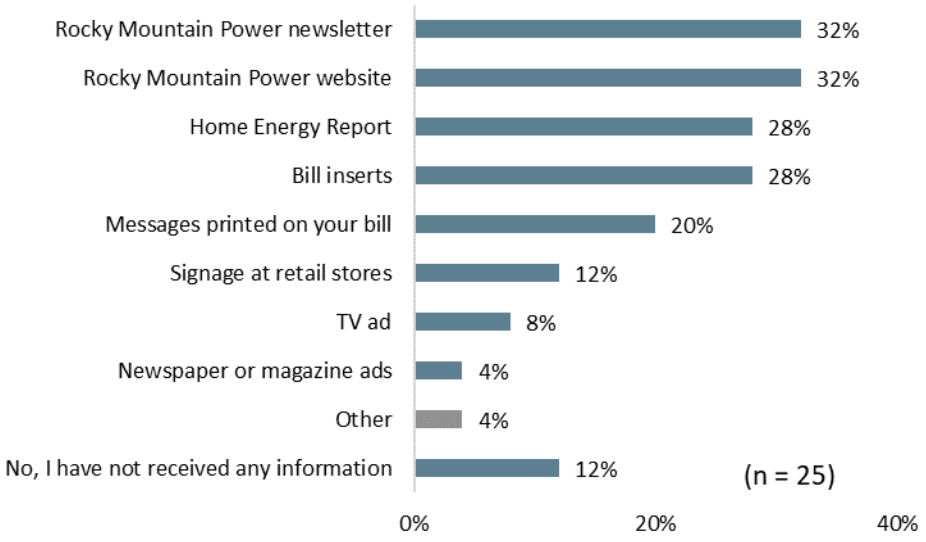
Of the people who purchased the certified appliance (n = 9), 56 percent purchased a refrigerator, 44 percent bought a dishwasher, 33 percent bought a clothes washer, and another 33 percent bought a clothes dryer. Most participants purchased more than one product. Many people who purchased non-LED measures did not receive any incentives or rebates for their products. See the table below for more details.

Table 4-8: Did you receive an incentive or discount to buy the measure?

Measure	Yes	No	Do not Recall
Smart thermostat (n = 5)	20%	60%	20%
ENERGY STAR® certified appliance (n = 10)	10%	90%	0%
Low-flow faucet aerator (n = 1)	0%	100%	0%
Low-flow showerhead (n = 4)	0%	100%	0%
ENERGY STAR® certified water heater (n = 4)	0%	100%	0%
Water heater jacket or blanket (n = 2)	0%	100%	0%
ENERGY STAR® cooling system (n = 1)	0%	0%	100%

Lastly, program were asked if they had received information from Rocky Mountain Power about how to save energy in their homes. Most participants stated they received information from the utility's newsletter (32 percent), the utility's website (32 percent), their home energy report (28 percent), or through bill inserts (28 percent). See additional details in Figure 4-4.

Figure 4-4: Have you received information from Rocky Mountain Power about how to save energy in your home from any of these sources?



Multiple response questions- percentage exceeds 100%.

4.6.5 Non-Participants Summary

Some of the respondents who stated they had not bought or could not recall having purchased upstream measures from participating retailers in 2019 or 2020, indicated if they had participated in other energy efficiency programs. Four percent of the people who participated in a program received a Wattsmart Homes Starter kit. Two percent purchased the measures discounted by the retail store (see Table 4-9).

Table 4-9: Non-Participants: In 2019 or 2020, did you participate in any of the following Rocky Mountain Power programs that promoted energy saving?

Response	Percentage (n = 267)
No one in my home participated in any RMP energy efficiency program.	90%
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.	4%
Purchased LED lighting products or an evaporative cooler discounted by Rocky Mountain Power from a retail store.	3%
Received a rebate or discount from Rocky Mountain Power energy efficient appliances, heating or cooling products, home insulation, or weatherization products and services.	2%
Received a rebate or discount from Rocky Mountain Power on energy efficient products included in a new home that you purchased	<1%

*Multiple response questions.

Respondents also stated if they bought other energy efficiency measures in 2019 and 2020. As shown in the table below, respondents purchased ENERGY STAR® certified appliances (11 percent), smart thermostat (10 percent), low-flow showerheads (six percent), or ENERGY STAR® certified water heater (four percent).

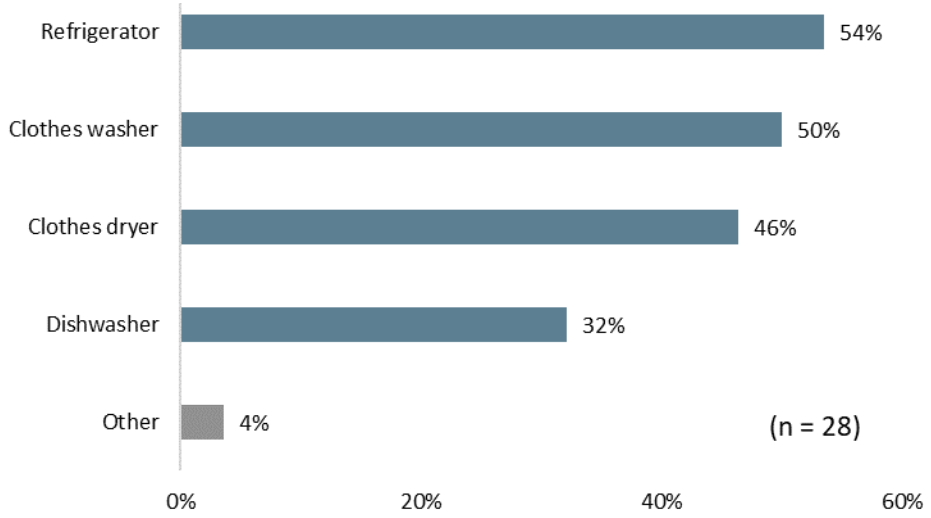
Table 4-10: Non-Participants: In 2019 and 2020, did you take any of the following steps to save energy in your home based on the information you received from Rocky Mountain Power?

Response	Percentage (n = 265)
I have not taken any of these energy saving actions	57%
Installed ENERGY STAR® certified appliances such as a refrigerator, dishwasher, clothes washer, or clothes dryer	11%
Installed a smart thermostat	10%
Installed low flow showerheads	6%
Installed an ENERGY STAR® certified water heater	4%
Installed low flow faucet aerators	3%
Installed water heater jacket, blanket, or insulation	2%
Installed an ENERGY STAR® central air conditioner or heat pump	2%
Installed an ENERGY STAR® certified room air conditioner	1%
Other	7%
I don't know	11%

*Multiple response questions- percentage exceeds 100%.

Non-program participants who purchased ENERGY STAR® certified appliances gave details on what specific measures they bought. The top two purchased appliances were refrigerators and clothes washers.

Figure 4-5: Non-Participants: What type of ENERGY STAR® certified appliance did you purchase?



According to the respondents, many non-program survey participants did not receive or recalled receiving any incentives or rebates for their products. See table below for details.

Table 4-11: Did you receive an incentive or discount to buy the measure?

Measure	Yes	No	Do not recall
ENERGY STAR® certified appliance (n = 29)	7%	76%	17%
Low-flow faucet aerator (n = 9)	0%	78%	22%
Low-flow showerhead (n = 16)	6%	88%	6%
ENERGY STAR® certified water heater (n = 5)	0%	100%	0%
Water heater jacket, blanket, or insulation (n = 5)	0%	100%	0%
Room air conditioner (n = 3)	0%	100%	0%
ENERGY STAR® cooling system (n = 5)	80%	20%	0%
Smart thermostat (n = 15)	20%	67%	13%

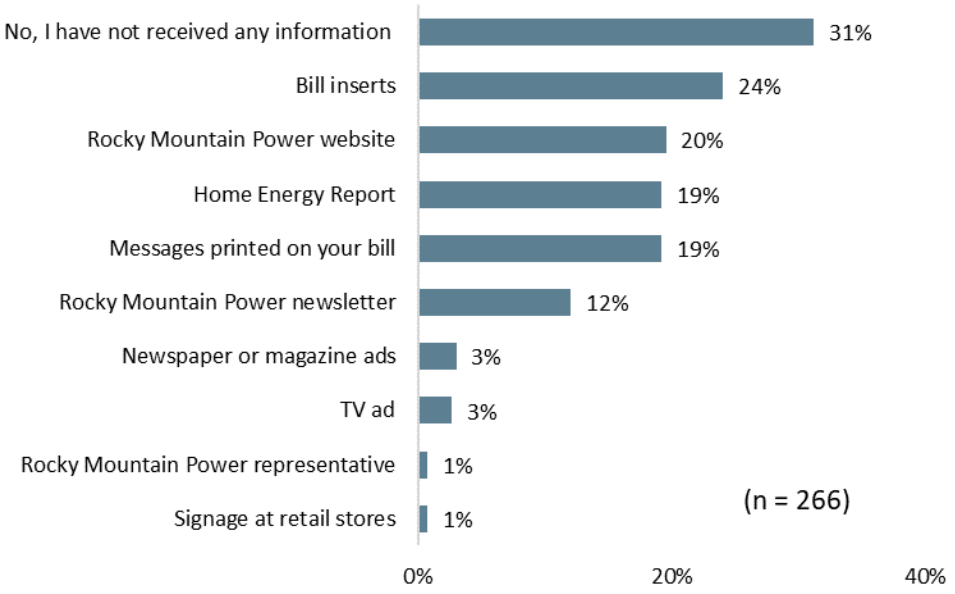
People who bought the room air conditioner stated they either replaced their old equipment (n = 1) or added the measure to a room that previously had no room air conditioner (n = 2).

People who bought the cooling system stated they either replaced an existing evaporative system (n = 1), a room air conditioner (n = 1), a central air conditioner (n = 2) or added

the measure to a room with no previous cooling system (n = 1).

Non-program survey participants indicated whether they had received information from Rocky Mountain Power about how to save energy in their homes. Most participants stated they received information from the bill inserts (24 percent), the utility's website (20 percent), or their home energy report (19 percent). See additional details in Figure 4-6.

Figure 4-6: Non-Participants: Have you received information from Rocky Mountain Power about how to save energy in your home from any of these sources?



4.6.6 Home Characteristics

Participants' home characteristics are summarized in Table 4-12. Participants reported living in single-family homes (63 percent) and owning their property (72 percent). Most of the survey participants' homes were built in 1999 or earlier (63 percent).

Sixty-three percent of respondents reported that natural gas is their primary home heating fuel. Fifty-nine percent of home sizes are about 2,000 square feet or less, and 65 percent of the respondents indicated that up to two people lived in their household.

Table 4-12: Home Characteristics

Home Characteristics	Percentage (n = 397)
Single-family home	63%
Manufactured or mobile home	15%
Apartment or condominium	14%
Duplex or townhouse	5%
Other	2%
Don't know	1%
Year Built	**Percentage (n = 398)**
Before 1960	20%
1960 to 1979	24%
1980 to 1999	19%
2000 to 2009	14%
2010 or later	14%
Do not recall/Prefer not to answer	9%
Own or Rent	**Percentage (n = 396)**
Own	72%
Rent	26%
Do not recall/Prefer not to answer	2%
What is the main fuel used for heating your home?	**Percentage (n = 398)**
Natural Gas	63%
Electricity	23%
Propane	7%
Other	3%
Wood pellets	1%
Wood	1%
Outdoor wood boiler	<1%
Don't heat home	1%
Do not recall/Prefer not to answer	2%

How large is your home?	Percentage (n = 398)
Less than 1,000 square feet	15%
1,000-2,000 square feet	44%
2,000-3,000 square feet	22%
3,000-4,000 square feet	7%
Greater than 4,000 square feet	4%
Do not recall/Prefer not to answer	9%
Is English the primary language spoken in your household?	**Percentage (n = 396)**
Yes	99%
No	1%
Including yourself, how many people are living in your household?	**Percentage (n = 393)**
1	24%
2	41%
3	11%
4	12%
5	6%
6	4%
7	1%
8	1%
9	0%
10	0%
Do not recall/Prefer not to answer	1%

4.7 Starter Kits Program Participant Survey Results

This section presents key findings from surveys administered online by ADM Associates. A total of 68 customers who participated in the Starter Kits Program 2019 or 2020 completed the questionnaire. The survey gathered data related to program awareness, measures installed, in-service rates, experience, and various aspects of the customers' satisfaction. The survey collected data for both the process evaluation and impact analyses.

4.7.1 Program Awareness and Enrollment Experience

Participants provided information and feedback regarding how they learned about the Starter Kits program. Thirty-seven percent of participants reported hearing about the program through the utility's website, 28 percent through utility bills insert, or through the monthly utility bill (24 percent). A summary of survey responses appears in Table 4-13.

Table 4-13: How did respondents learn about the program?

How did you hear about these kits?	Percentage (n = 68)
Rocky Mountain Power website	37%
Utility bills insert	28%
My bill	24%
Word of mouth (friend, relative, coworker, etc.)	1%
Rocky Mountain Power newsletter	1%
Home Energy Report	1%
I don't know	10%
**Percentage exceeds 100%. Participants could choose more than one option.*	

4.7.2 Customer Experience and Installation of Measures

Survey respondents provided feedback about their experience installing the kit contents. Respondents were asked if their home had an electric water heater. A quarter of all the participants (n = 68) reported they used an electric water heater. In contrast, 59 percent of participants who received one of the bath kits (n = 40) stated they had an electric water heater. See the two tables below for more details.

Table 4-14: What fuel does your main water heater use?

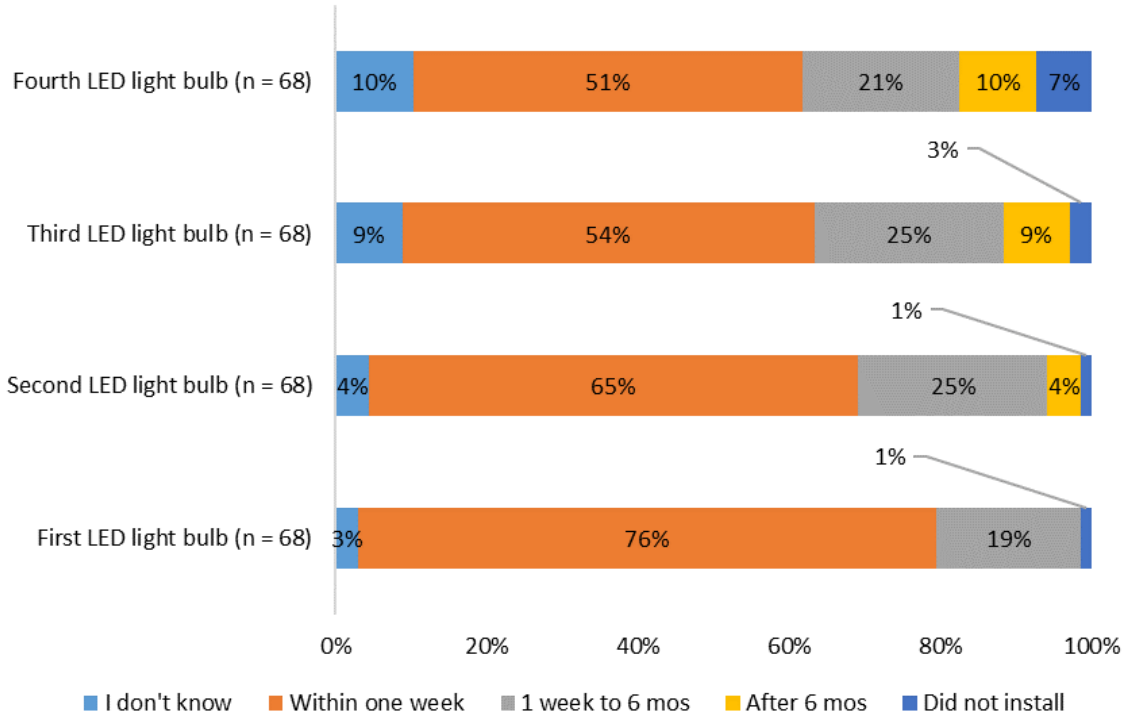
What fuel does your main water heater use?	Percentage of All Kit Recipients (n = 68)
Electricity	25%
Natural Gas	66%
Propane	3%
Other	1%
I don't know	4%

Table 4-15: What fuel does your main water heater use?

What fuel does your main water heater use?	Percentage of Bath-1 and Bath-2 Kit Recipients (n = 22)
Electricity	59%
Natural gas	36%
I don't know	5%

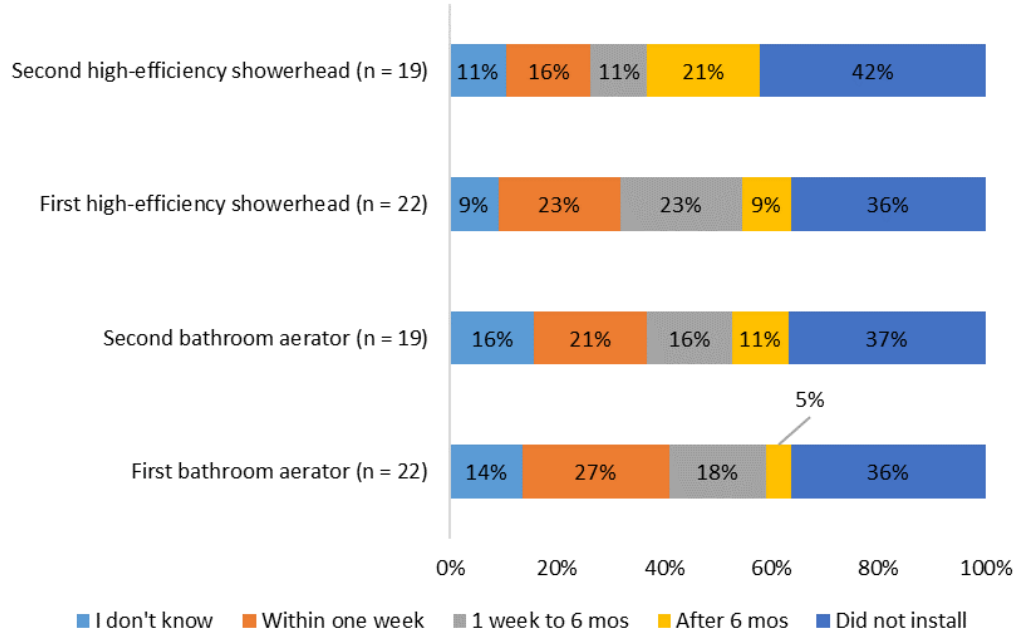
Respondents indicated they installed their LED lightbulbs within a week of receiving the kits. See Figure 4-7 for more details. Kit recipients who had not installed the LEDs at the time of the survey stated they were waiting for their bulbs to burn out (n = 3), and one stated the LEDs did not fit into the fixtures. Another participant indicated they gave the measure to a relative.

Figure 4-7: How long after receiving your kit did you install the LEDs?



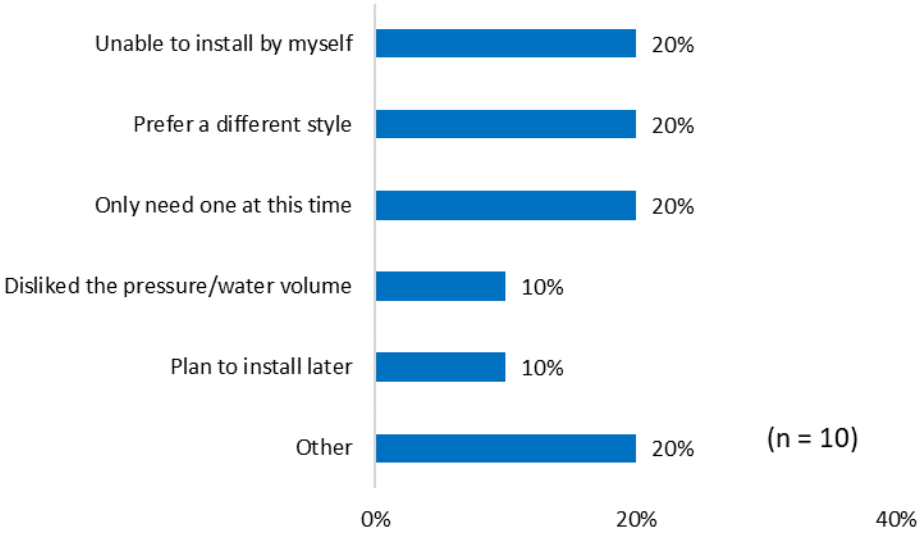
For participants who also received showerheads or bathroom aerators, customers varied in how long they waited to install the measures from the energy kit (see Figure 4-8). The same responses were true for people who installed kitchen aerators: 27 percent installed them within a week, 19 percent installed within six months or longer, 36 percent had not installed at the time of taking the survey, and 18 percent were unsure.

Figure 4-8: How long after receiving your kit did you install the bathroom measures?



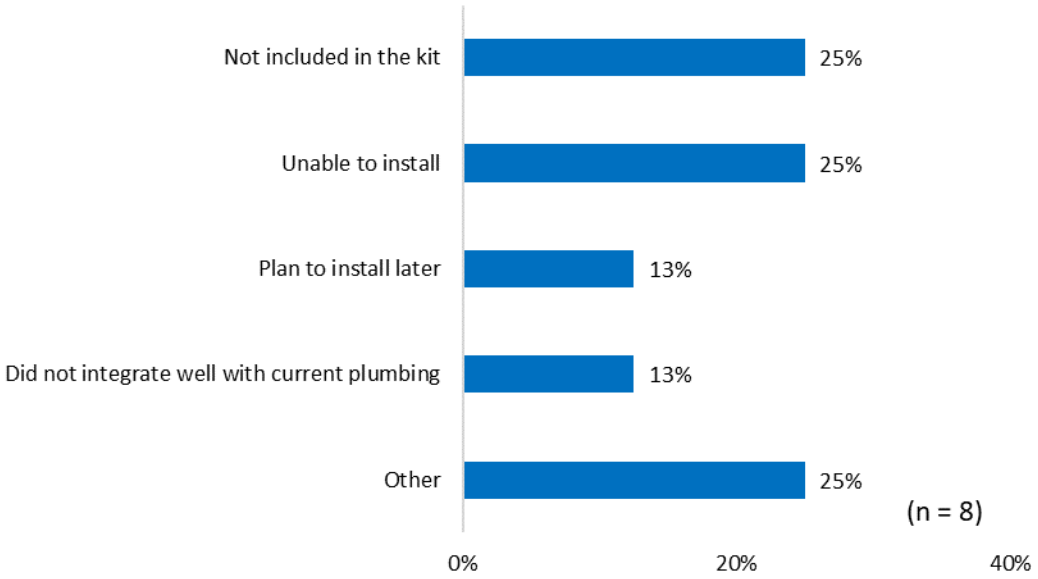
Reasons for not using the showerheads varied among the customers (see Figure 4-9).

Figure 4-9: Why did you decide not to use the high-efficiency showerhead(s) included in the kit?



People who decided not to install the aerators also varied in their reasons.

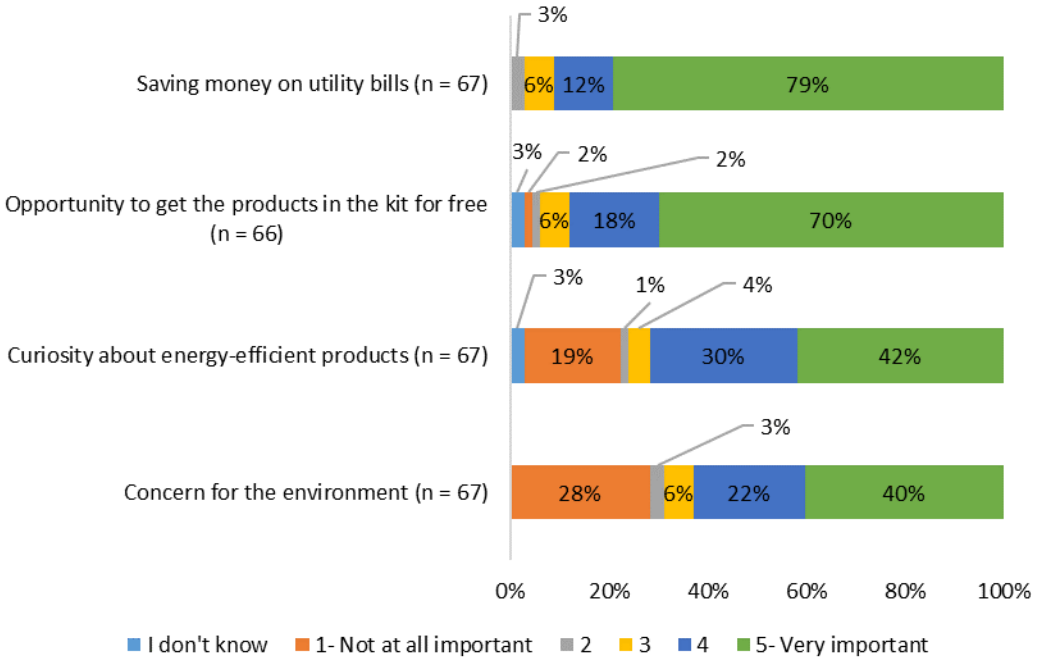
Figure 4-10: Why did you decide not to use the faucet aerator(s) that came in your kit?



4.7.3 Participant Motivations

Respondents provided feedback regarding what influenced them to request the Starter Kit. Ninety-one percent of respondents ranked “saving money on utility bills” as their strongest motivation to request a kit, followed by receiving a free energy kit from through the program (88 percent).

Figure 4-11: Survey respondents' Ranking of Reasons for Requesting a Starter Kit



Before learning about the kits, 78 percent of respondents stated they had intentions of installing LED lights. About a third (34 percent) of customers had no LEDs in their homes prior to obtaining the kit. Moreover, 74 percent stated they would have bought and installed the LEDs even if they had not received the energy kits. Yet, the time the customers would have taken to install the bulbs extended beyond six months. Fifty-one percent stated they would have waited up to six months or longer to install the bulbs, compared to 29 percent who would have bought them around the same time they received the energy kit.

Since receiving the kits, 51 customers reported installing additional LEDs. Nine participants indicated their bulbs had been discounted from their regular pricing, but only one knew Rocky Mountain Power had sponsored the rebated measured.

If customers had not received a kit, 86 percent stated that installing a shower head would have been unlikely. However, 14 percent reported already owning energy-efficient showerheads compared to 82 percent who stated they did not have any before receiving the kit. Thirty-three percent said they would have bought and installed the showerhead(s) later than six months compared to 67 percent who were unsure. Seven people reported installing additional showerheads since participating in the program.

Of the customers who installed aerators, 10 percent were likely to install the measures without receiving a kit. More people indicated they had no aerators installed (77 percent) before receiving the kit. Twenty-nine percent thought they would take six months or longer

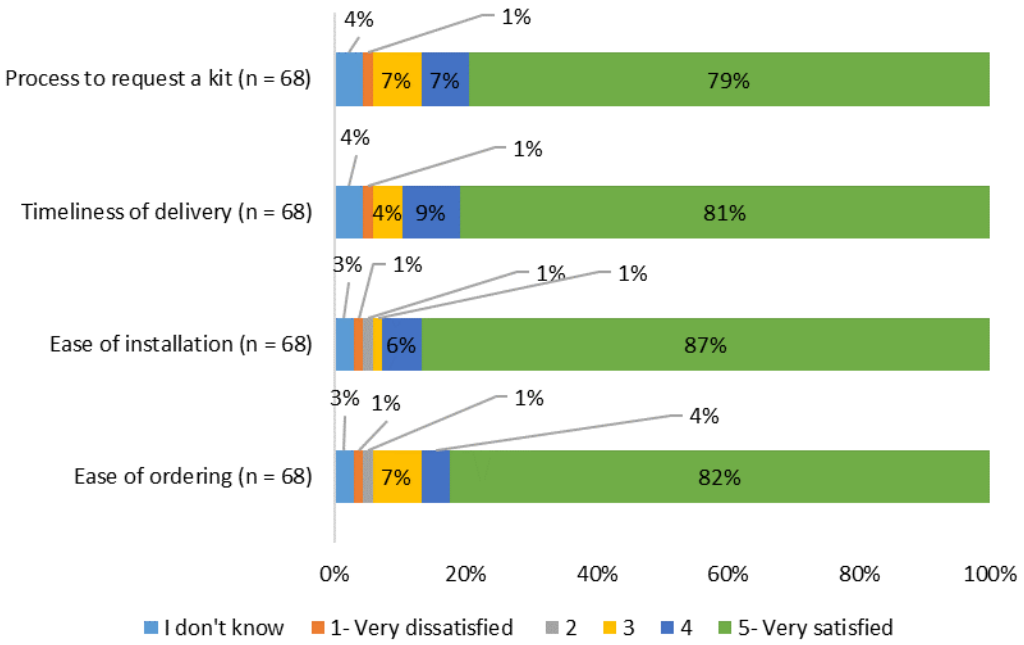
to install aerators in their home compared to 67 percent who were unsure. Six people purchased additional aerators after participating in the program.

Customers also shared additional actions they have taken to save energy. For example, 24 people have purchased ENERGY STAR appliances or equipment, eight installed a new smart thermostat, and 13 installed a water heater or a water heater accessory. Additionally, two installed an energy efficient central air conditioner, heat pump, or evaporative cooler, and another two indicated they took other actions to save energy.

4.7.4 Customer Satisfaction

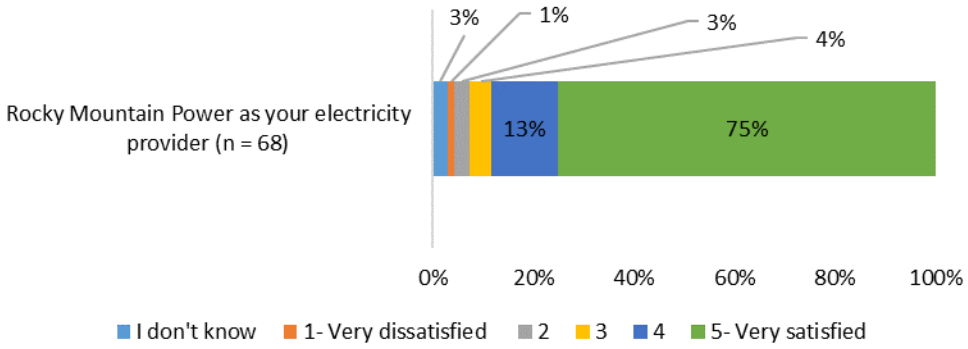
Participants provided feedback regarding their level of satisfaction with specific aspects of the program and their overall experience. Participants indicated they were satisfied with the process to request a kit (87 percent), the timeliness of delivery (90 percent), ease of ordering (87 percent), and ease of installation (93 percent). See Figure 4-12 for more details. Respondents also expressed satisfaction with content found in the kits (88 percent) and the measures' quality (91 percent).

Figure 4-12: Customer Satisfaction with Starter Kit Program



Sixty-nine percent of respondents indicated they were satisfied or very satisfied with the amount of energy savings they perceived from installing the measures. Overall satisfaction with the Rocky Mountain Power as their utility company was 88 percent (see Figure 4-13).

Figure 4-13: Customer Satisfaction with Rocky Mountain Power



4.7.5 Home Characteristics

Participants' home characteristics are summarized in Table 4-16Table 4-12: Home Characteristics. Participants most often reported living in an owned (88 percent) single-family home (81 percent). Eighty-two percent of respondents' homes were built in 1999 or earlier, 15 percent were built during the year 2000 or later, and the remaining three percent were unsure. Eighty-one percent of respondents also stated they live in a household of up to four people. Seventy-one percent of respondents reported that natural gas as their main home heating fuel, while 15 percent reported that electricity was their main water heating fuel. According to participants, natural gas is also the main type of fuel used for water heaters (71 percent).

Table 4-16: Home Characteristics

Home Characteristics	Percentage (n = 68)
Single-family home	81%
Manufactured or mobile home	15%
Duplex or townhouse	4%
Year Built	**Percentage (n = 68)**
Before 1960	29%
1960-1979	32%
1980-1999	21%
2000-2009	10%
2010 or later	4%
I don't know	3%
Own or Rent	**Percentage (n = 68)**
Own	88%
Rent	9%
Prefer not to answer	3%
What is the main fuel used for heating your home?	**Percentage (n = 68)**
Electricity	15%
Natural Gas	71%
Propane	6%
Other	9%

4.8 Process Evaluation Key Findings

ADM made the following key findings during its process analysis.

- Energy efficient measures that were distributed through foodbanks were generally well received.
- The foodbank program lacked controls for duplicate delivery and estimates for installation rates.
- Rocky Mountain Power launched a pilot program to distribute APSs in 2019 through which customers' names and addresses were collected. This program offered a missed opportunity to collect installation data before launching foodbank kits.
- The technical reference library (TRL) is a key program reference resource that documents ex ante savings values for all versions of all measures included in the program. Maintaining TRL version control, timeliness and completeness is a challenge for which opportunities for process improvement are available.
- Rocky Mountain Power receives and maintains program tracking dataset. Additional information, such as upstream sales details, downstream product model specifications, and new home model details, are maintained by the implementer.
- The program tracking dataset did not include some data elements that were required to verify savings for some measure categories resulting in lower realization rates.
- Rocky Mountain Power attribution for upstream program discounts is relatively low. Only six percent of customers who reported purchasing discounted standard LED light bulbs from participating retailers recalled that the discount was provided by Rocky Mountain Power.
- General satisfaction with the Rocky Mountain Power as their utility company was high.
- Twenty percent of general customer survey respondents indicated their income was below the federal poverty level.

5 Cost-Effectiveness

Guidehouse estimated the cost-effectiveness results for the program based on 2019 and 2020 costs and savings estimates provided by PacifiCorp. Cost-effectiveness was tested using the 2017 and 2019 IRP decrement for all measure categories. The program passes the cost-effectiveness for the UCT and PCT tests.

The onset of the covid-19 pandemic occurred 15 months into the 24-month evaluation period. In response, Rocky Mountain Power increased its distribution of energy saving products through foodbanks to target its customers who were hardest hit by the economic downturn to help them reduce their energy costs. The foodbank distributions were a quick-response approach to assisting customers during an acute crisis.

Cost effectiveness results are presented separately for:

- Total program excluding measures distributed through foodbanks
- Measures distributed through foodbanks
- Total program

Program inputs used in the cost effectiveness analysis are included in Table 5-1.

Table 5-1: Program Inputs

Parameter	2019	2020
Discount Rate	6.57%	6.92%
Residential Line Loss	9.51%	10.27%
Residential Energy Rate ($/kWh)[1]	$0.1069	$0.11
Inflation Rate	2.20%	2.28%

[1]Future rates determined using a 2.20% and 2.28% annual escalator.

5.1 Cost Effectiveness Results for Total Program Excluding Measures Distributed through Foodbanks 2019-2020

Table 5-2 through Table 5-5 include total program cost effectiveness results excluding measures distributed through foodbanks.

Table 5-2: Program Costs by Year
Excluding Measures Distributed through Foodbanks

Year	Engineering Costs	Utility Admin	Program Delivery	Program Dev.	Incentives	Total Utility Costs	Gross Customer Costs
2019	$0	$11,470	$452,329	$21,051	$318,023	$802,873	$726,970
2020	$0	$8,105	$225,330	$13,103	$336,724	$583,261	$216,720
2019-2020	$0	$19,575	$677,659	$34,154	$654,747	$1,386,134	$943,690

Table 5-3: Program Savings by Year
Excluding Measures Distributed through Foodbanks

Year	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
2019	4,796,511	70%	3,340,357	62%	2,076,757	12
2020	4,020,226	73%	2,923,832	63%	1,838,966	12
2019-2020	8,816,737	71%	6,264,189	63%	3,915,723	12

Table 5-4: Program Benefit/Cost Ratios by Year
Excluding Measures Distributed through Foodbanks

Program Year	PTRC	TRC	UCT	RIM	PCT
2019	1.07	0.97	1.09	0.30	5.10
2020	3.09	2.81	1.48	0.35	15.26
2019-2020	**1.59**	**1.44**	**1.25**	**0.33**	**7.44**

Table 5-5: Program Cost-Effectiveness Results – PY2019-2020
Excluding Measures Distributed through Foodbanks

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0349	$1,205,334	$1,911,500	$706,166	1.59
Total Resource Cost Test (TRC) No Adder	$0.0349	$1,205,334	$1,737,727	$532,394	1.44
Utility Cost Test (UCT)	$0.0401	$1,386,134	$1,737,727	$351,593	1.25
Rate Impact Test (RIM)		$5,338,845	$1,737,727	-$3,601,117	0.33
Participant Cost Test (PCT)		$943,690	$7,016,954	$6,073,264	7.44
Lifecycle Revenue Impacts ($/kWh)					$0.0000017388
Discounted Participant Payback (years)					1.00

5.2 Cost Effectiveness Results for Total Program Measures Distributed through Foodbanks 2019-2020

Cost effectiveness results reported in Table 5-6 through Table 5-9 include only measures distributed through foodbanks.

Table 5-6: Program Costs for Measures Distributed through Foodbanks

Measure Category	Engineering Costs	Utility Admin	Program Delivery	Program Dev.	Incentives	Total Utility Costs	Gross Customer Costs
Electronics	$0	$7,473	$481,804	$12,082	$693,724	$1,195,082	$2,034,040
Lighting	$0	$11,576	$209,548	$19,279	$336,978	$577,381	$986,563
Water Heating	$0	$4,214	$473,307	$7,279	$150,144	$634,944	$25,673
All	**$0**	**$23,263**	**$1,164,659**	**$38,640**	**$1,180,845**	**$2,407,407**	**$3,046,275**

Table 5-7: Program Savings for Measures Distributed through Foodbanks

Measure Category	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Electronics	3,706,920	48%	1,760,787	100%	1,760,787	5
Lighting	5,540,440	33%	1,829,471	100%	1,829,471	12
Water Heating	1,924,351	45%	863,497	100%	863,497	10
All	11,171,711	40%	4,453,755	100%	4,453,755	9

Table 5-8: Benefit/Cost Ratios for Measures Distributed through Foodbanks

Measure Category	PTRC	TRC	UCT	RIM	PCT
Electronics	0.14	0.13	0.28	0.16	0.77
Lighting	0.71	0.64	1.37	0.32	2.27
Water Heating	0.62	0.56	0.45	0.20	36.26
All	0.36	0.33	0.59	0.24	1.56

Table 5-9: Cost-Effectiveness Results – PY2019-2020 for Measures Distributed through Foodbanks

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.1373	$4,272,837	$1,551,435	-$2,721,402	0.36
Total Resource Cost Test (TRC) No Adder	$0.1373	$4,272,837	$1,410,395	-$2,862,442	0.33
Utility Cost Test (UCT)	$0.0773	$2,407,407	$1,410,395	-$997,012	0.59
Rate Impact Test (RIM)		$5,964,223	$1,410,395	-$4,553,828	0.24
Participant Cost Test (PCT)		$3,046,275	$4,737,661	$1,691,386	1.56
Lifecycle Revenue Impacts ($/kWh)					$0.0000094071
Discounted Participant Payback (years)					4.42

5.3 Cost Effectiveness Results for Total Program

Table 5-10 through Table 5-13 include total program cost effectiveness results, including measures distributed through foodbanks.

Table 5-10: Total Program Costs by Year

Year	Engineering Costs	Utility Admin	Program Delivery	Program Dev.	Incentives	Total Utility Costs	Gross Customer Costs
2019	$0	$16,190	$832,138	$29,712	$411,364	$1,289,404	$958,445
2020	$0	$26,648	$1,010,180	$43,081	$1,424,228	$2,504,137	$3,031,520
2019-2020	$0	$42,838	$1,842,318	$72,794	$1,835,592	$3,793,541	$3,989,965

Table 5-11: Total Program Savings by Year

Year	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
2019	6,770,030	61%	4,098,392	69%	2,834,792	11
2020	13,218,419	50%	6,619,551	84%	5,534,686	10
2019-2020	19,988,448	54%	10,717,944	78%	8,369,478	10

Table 5-12: Total Program Benefit/Cost Ratios by Year

Year	PTRC	TRC	UCT	RIM	PCT
2019	0.85	0.77	0.89	0.28	4.74
2020	0.57	0.52	0.80	0.28	2.38
2019-2020	0.65	0.59	0.83	0.28	2.95

Table 5-13: Total Program Level Cost-Effectiveness Results – PY2019-2020

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0814	$5,343,180	$3,462,935	-$1,880,245	0.65
Total Resource Cost Test (TRC) No Adder	$0.0814	$5,343,180	$3,148,123	-$2,195,057	0.59
Utility Cost Test (UCT)	$0.0578	$3,793,541	$3,148,123	-$645,419	0.83
Rate Impact Test (RIM)		$11,303,068	$3,148,123	-$8,154,945	0.28
Participant Cost Test (PCT)		$3,989,965	$11,754,616	$7,764,650	2.95
Lifecycle Revenue Impacts ($/kWh)					$0.0000039375
Discounted Participant Payback (years)					2.45

6 Conclusions and Recommendations

ADM makes the following conclusions and recommendations from its evaluation.

6.1 Conclusions

Rocky Mountain Power's 2019-2020 Wattsmart Homes program in Wyoming resulted in 8,369,478 kWh of net savings with a 54 percent realization rate and a net-to-gross ratio of 78 percent, as reported in Table 6-1Table 1-8.

Table 6-1: Total Program Savings by Year

Year	Claimed Saving (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	Net Evaluated Savings (kWh)	NTG
2019	6,770,030	4,098,392	2,834,792	61%	69%
2020	13,218,419	6,619,551	5,534,686	50%	84%
Total	**19,988,448**	**10,717,944**	**8,369,478**	**54%**	**78%**

Lighting measures accounted for 55 percent of program savings; electronic accounted for 22 percent, HVAC measures accounted for 12 percent, and water heating measures accounted for 10 percent. The remaining measure categories — starter kits, building shell and appliances — account for less than 1.5 percent collectively.

Measures that were distributed through the foodbank distribution program (APSs, flow control measures, and LEDs) accounted for 53 percent of total program savings. This represents the continuing importance of lighting measures and the reliance on the foodbank program to meet savings targets. A comparison of savings during this and the previous evaluation are reported in Table 6-2.

Table 6-2: Total Program Savings by Measure Category Compared to 2017-2018

Measure Category	2019-2020					2017-2018		
	Claimed Saving (kWh)	Gross Evaluated Savings (kWh)	Realization Rate	% Total Program Savings	Net Evaluated Savings (kWh)	Realization Rate	% Total Program Savings	Net Evaluated Savings (kWh)
Lighting	12,704,004	6,541,316	51%	55%	4,561,710	69%	58%	3,279,367
Electronics	3,840,624	1,857,603	48%	22%	1,836,400	100%	8%	475,805
HVAC	1,359,044	1,359,044	100%	12%	1,019,283	100%	5%	286,630
Water Heating	1,937,754	876,900	45%	10%	873,964	100%	0.2%	11,476
Energy Kits	105,608	59,698	57%	1%	59,858	80%	26%	1,456,394
Building Shell	33,657	17,412	52%	0.16%	13,598	100%	2%	128,219
Appliances	7,757	5,971	77%	0.06%	4,663	100%	0.2%	9,564
Total	**19,988,448**	**10,717,944**	**54%**	**100%**	**8,369,478**	**81%**	**100%**	**5,647,455**

6.2 Recommendations

ADM recommends that Rocky Mountain Power consider the following actions.

Create separate measures definitions for products distributed through alternative distribution channels

ADM recommends that Rocky Mountain Power track measures that are distributed through foodbanks as separate measures with modified installation rates.

Create bundled measures that reflect programmatic design

Measures that were distributed through foodbanks were recorded as separate components in the program tracking data. ADM recommends that Rocky Mountain Power create bundled measures that reflect program design (for example, foodbank kits similar to starter kits) so that they can be tracked and evaluated as a distinct program.

Update ex ante savings to reflect electric water heater market saturation

Ex ante savings for water saving measures include the percentage of electric water heaters as a key variable. Customer surveys and the US Energy Information Administration Residential Energy Consumption Survey all point to a lower percentage of electric water heaters than the ex ante percentage in RTF reference files. ADM recommends that Rocky Mountain Power updates ex ante estimates of the percentage of customers with electric water heaters.

Consider repeat recipients of kits distributed through foodbanks and community centers

Staff at foodbanks where measures were distributed indicated that there is a high degree of client retention at food assistance programs resulting in households receiving more than one kit. ADM recommends that when distributing measures without collecting recipient data, Rocky Mountain Power account for duplication of recipients when estimating savings.

Add data elements to tracking and reporting

Rocky Mountain Power relies on implementation partners to collect and store critical data that is required to evaluate the program and verify the resulting energy savings. ADM recommends that Rocky Mountain Power adds the following data elements to its internal program tracking datasets:

- Product manufacturer and model numbers, or minimally efficiency specifications
- Sales or distribution location for all upstream measures
- Baseline conditions (specifics varies by measure)

Add process controls to program implementation

ADM recommends that Rocky Mountain Power work with program implementers to revise program controls to ensure collection of all data elements required to verify program eligibility requirements are met for all measures.

Evaluate program on an annual basis

Annual evaluations would allow Rocky Mountain Power to monitor program controls and data collection throughout the program year, allowing the utility to respond to program performance midcycle. ADM recommends that Rocky Mountain Power implement annual rather than biannual program evaluations.

Add TRL version control process

The TRL is a complex set of documents that provides the basis for program planning and evaluation. ADM recommends that Rocky Mountain Power implement a more stringent version control process to ensure that complete, accurate TRL data is maintained.

Appendix A – TRL Reference Documents

Measure Name - Measure Version	ADM Verified Reference Document
Appliances	
Clothes Washers - CEE Tier 2 or Higher - Electric DHW & Electric Dryer - WY - 1	2018.08.06_WY_wattsmart_Clothes_Washers_Brief.xlsx
Clothes Washers - CEE Tier 2 or Higher - Gas DHW & Electric Dryer - WY - 1	2018.08.06_WY_wattsmart_Clothes_Washers_Brief.xlsx
Freezer - ENERGY STAR - Any Style - WY - 3	2018.08.06_WY_wattsmart_Freezer_Brief.xlsx
Refrigerator - CEE Tier 2 and Above - Any Style - WY - 3	2018.08.06_WY_wattsmart_Refrigerators_Brief.xlsx
Building Shell	
Insulation - Attic - Electric Heat Pump Heating System - WY - 2	2018.08.06_WY_wattsmart_Attic_Insulation_Brief.xls
Insulation - Attic - Electric Zonal Heating System - WY - 2	2018.08.06_WY_wattsmart_Attic_Insulation_Brief.xls
Insulation - Attic - Gas Heat with Central Air Conditioner - WY - 1	2018.08.06_WY_wattsmart_Attic_Insulation_Brief.xls
Insulation - Floor - Electric Zonal Heating System - WY - 2	2018.08.06_WY_wattsmart_Floor_Insulation_Brief.xlsx
Insulation - Wall - Electric Zonal Heating System - WY - 2	2018.08.06_WY_wattsmart_Wall_Insulation_Brief.xlsx
Insulation - Wall - Gas Heat with Central Air Conditioner - WY - 1	2018.08.06_WY_wattsmart_Wall_Insulation_Brief.xlsx
Window - U <= 0.30 - Electric Zonal Heating System - WY - 2	2018.08.06_WY_wattsmart_Windows_Brief.xlsx
Electronics	
Advanced Power Strip - IR Sensing - Owner Install - WY - 2	2018.08.06_WY_wattsmart_APS_Brief.xlsx
Advanced Power Strip - Occupancy Sensing - Owner Installed - WY - 1	2018.08.06_WY_wattsmart_APS_Brief.xlsx
Energy Kits	
Energy Savings Kit - Best - 1 Bathroom - WY - 5	2018.08.06_WY_wattsmart_Kits_Brief.xlsx
Energy Savings Kit - Best - 2 Bathrooms - WY - 5	2018.08.06_WY_wattsmart_Kits_Brief.xlsx
Energy Savings Kit - LED - WY - 5	2018.08.06_WY_wattsmart_Kits_Brief.xlsx
HVAC	
95% Gas Furnace with ECM Blower - WY - 2	2018.08.06_WY_wattsmart_95Gas_Furnace_wECM_Brief.xlsx
Central Air Conditioning with Best Practice Install and Sizing - 15 SEER - WY - 3	2018.08.06_WY_wattsmart_CAC_Upgrade_BPIS_Brief.xlsx
Ductless Heat Pump - Single or Multi Head - WY - 3	2018.08.06_WY_wattsmart_Ductless_Heat_Pump_Brief.xlsx
Evaporative Cooler - >= 3,500 CFM - Midstream - Retail - UT - 2	
Evaporative Cooler - 2,000 to 3,499 CFM - Midstream - Retail - UT - 2	
Evaporative Cooler - Midmarket - Retail - 2,000 - 3,499 CFM - WY - 1	2019.07.02_WY_Wattsmart_Evap Cooler_Brief.xlsx
Evaporative Cooler - Midmarket - Retail - Min 3,500 CFM - WY - 1	2019.07.02_WY_Wattsmart_Evap Cooler_Brief.xlsx
Evaporative Cooler - Midmarket - Retail - Min 3,500 CFM - WY - 2	2020.03.10_WY_Wattsmart_Evap Cooler_Brief.xlsx
Evaporative Cooler - Min 3,500 CFM - Self Install - WY - 2	2018.08.06_WY_wattsmart_Evaporative_Coolers_Brief.xlsx
Heat Pump Best Practices Installation and Proper Sizing - WY - 3	2018.08.06_WY_wattsmart_Heat_Pump_BPIS_Brief.xlsx
Heat Pump Conversion - 9.0 HSPF and 15 SEER - WY - 3	2018.08.06_WY_wattsmart_Heat_Pump_Conversion_Brief.xlsx
Manufactured Home - Duct Sealing - Direct Install - Test, Seal and Insulate - WY - 1	04-03-2015_WY_HES_MH Duct Sealing_Brief.xlsx
Smart Thermostat - Any Gas w/CAC - WY - 1	2018.08.06_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx

Measure Name - Measure Version	ADM Verified Reference Document
Smart Thermostat - CAC Only - Instant Rebates - WY - 2	2019.09.09_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx
Smart Thermostat - CAC Only - WY - 2	2019.09.09_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx
Smart Thermostat - eFAF - WY - 1	2018.08.06_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx
Smart Thermostat - eFAF w/CAC - WY - 1	2018.08.06_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx
Smart Thermostat - Electric FAF - Instant Rebates - WY - 2	2019.09.09_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx
Smart Thermostat - Electric FAF - WY - 2	2019.09.09_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx
Smart Thermostat - Electric FAF w/ CAC - Instant Rebates - WY - 2	2019.09.09_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx
Smart Thermostat - Electric FAF w/ CAC - WY - 2	2019.09.09_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx
Smart Thermostat - Electric Heat Pump - Instant Rebates - WY - 2	2019.09.09_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx
Smart Thermostat - Electric Heat Pump - WY - 2	2019.09.09_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx
Smart Thermostat - Heat Pump - WY - 1	2018.08.06_WY_wattsmart_SF_Smart_Thermostat_Brief.xlsx
Lighting	
LED Downlight: 10 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 10 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 11 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 11 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 12 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 12 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 13 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 13 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 14 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 14 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 15 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 16 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 16 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 18 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 18 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 19 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 19 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 20 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 23 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 23 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 5 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 6 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 6 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 7 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx

Measure Name - Measure Version	ADM Verified Reference Document
LED Downlight: 7 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 8 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 8 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Downlight: 9 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Downlight: 9 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Fixture - ENERGY STAR - WY - 2	2018.08.06_WY_wattsmart_LED_Fixture_Brief.xlsx
LED General Purpose: 10 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 10.5 watts - Retail - WY - 1	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 11 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 12 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 13 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 15 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 16 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 17 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 18 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 6 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 7 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 8 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General Purpose: 9 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED General: 10 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED General: 11 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED General: 12 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED General: 13 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED General: 15 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED General: 16 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED General: 17 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED General: 6 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED General: 7 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED General: 8 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED General: 9 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Specialty - 3-Way: 5,9,20 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Specialty - Candelabra: 2 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Specialty - Candelabra: 3 watts - Retail - WY - 1	2018.08.06_WY_wattsmart_LEDs_Brief
LED Specialty - Candelabra: 3 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Specialty - Candelabra: 4 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Specialty - Candelabra: 4 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx

Measure Name - Measure Version	ADM Verified Reference Document
LED Specialty - Candelabra: 5 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Specialty - Candelabra: 5 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Specialty - Candelabra: 7 watts - Retail - WY - 1	HES_ID_LEDs.xlsx
LED Specialty - Candelabra: 7 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Specialty - Globe: 4 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Specialty - Globe: 4 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Specialty - Globe: 5 watts - Retail - WY - 1	04-03-2015_WY_HES_LEDs_Brief.xlsx
LED Specialty - Globe: 5 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
LED Specialty - Globe: 6 watts - Retail - WY - 1	HES_ID_LEDs.xlsx
LED Specialty - Globe: 6 watts - Retail - WY - 2	2018.08.06_WY_wattsmart_LEDs_Brief.xlsx
Water Heating	
Faucet Aerators - Any DHW - 1.0 GPM or Less - Midstream - WY - 1	2019.06.05_WY_Wattsmart_Aerators_Brief
HPWH - Tier 1 - Basement - 0-55 Gallons - Self Install - WY - 1	2018.08.06_WY_wattsmart_HPWH_Brief.xlsx
HPWH - Tier 2 or above - Basement - 0-55 Gallons - Self Install - WY - 1	2018.08.06_WY_wattsmart_HPWH_Brief.xlsx
HPWH - Tier 2 or above - Indoor Gas Heat - 0-55 Gallons - Self Install - WY - 1	2018.08.06_WY_wattsmart_HPWH_Brief.xlsx
Low-Flow Shower Head - Any DHW - 1.50 GPM - Midstream - WY - 1	2019.06.05_ID_Wattsmart Low Flow Showerheads_Brief.xlsx.
Low-Flow Shower Head - Any DHW - 1.50 GPM - Midstream - WY - 2	2019.06.05_ID_Wattsmart Low Flow Showerheads_Brief.xlsx.

Appendix B – General Population Survey

1. Did you or anyone else in your home buy any of the following energy saving products in 2019 or 2020? Select all that apply.

   - ENERGY STAR certified LED lighting products
   - Evaporative cooler
   - I did not buy any of these products in 2019-2020
   - I don't recall

2. Which stores did you buy your ENERGY STAR LED lighting from (consider only in-store purchases, not online purchases)? Select all that apply.

   - Ace Hardware
   - Batteries Plus
   - Best Buy
   - Dollar Tree
   - The Home Depot
   - Menards
   - Ridley's
   - Sam's Club
   - Smith's
   - Sutherlands
   - Target
   - Walmart
   - Other (Please specify)
   - I don't know

3. Which store did you buy your evaporative cooler from (consider only in-store purchases, not online purchases)? Select all that apply.

   - Home Depot
   - Sutherland's Lumber
   - Other (please specify)
   - I don't know

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

   - Standard LED bulb(s)
   - Specialty LED bulb(s)
   - LED fixture(s)
   - LED downlight(s)
   - I don’t know

Standard LED bulbs

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

   - 2019
   - 2020

6. How many ENERGY STAR standard LED bulbs did you buy during 2019-2020?

   - [numeric]
   - I don’t know

7. Of the [LEDStandardQtyBought] bulbs you bought, how many are currently:

   - Installed [numeric]
   - In storage [numeric]
   - Discarded or given away [numeric]

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

    - Number of replaced LED bulbs [numeric]
    - Number of replaced bulbs that were not LEDs (CFL, incandescent, halogen, etc.) [numeric]
    - Number installed in new lamps or fixtures.
    - I don't know

9. If the ENERGY STAR LED standard light bulbs you bought had cost $0.85 more each, would you still have bought them? (Definitely, Probably, Don't know, Probably not, Definitely not.)

10. You indicated that you bought [LEDStandardQtyBought] ENERGY STAR standard LED bulbs. How many fewer would you have bought if they had cost $0.85 more each?

    - [numeric]
    - I don't know

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

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

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

    - Yes
    - No
    - I don't remember

13. How important was the discount to your purchase of ENERGY STAR LED standard light bulbs?

    - (Scale 0-10, 0 = Not important, 10 = Very important)

14. Were any of the ENERGY STAR standard LED bulbs you purchased in 2019 or 2020 installed in a business or commercial building?

    - Yes
    - No
    - I don't know

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

    - Quantity: [numeric]

16. How many of the [LEDStandardQtyInstalled] installed standard 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

17. Had you bought any LED light bulbs before 2019?

    - Yes
    - No
    - I don't know

Specialty LED bulbs

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

    - 2019
    - 2020

19. How many ENERGY STAR specialty LED bulbs did you buy during 2019-2020?

- [numeric]
- I don’t know

20. Of the [LEDSpecialtyQtyBought] bulbs you bought, how many are currently:

- Installed [numeric]
- In storage [numeric]
- Discarded or given away [numeric]

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

- Number of replaced LED bulbs [numeric]
- Number of replaced bulbs that were not LEDs (CFL, incandescent, halogen, etc.) [numeric]
- Number installed in new lamps or fixtures [numeric]
- I don’t know

22. If the ENERGY STAR specialty LED light bulbs you bought had cost $1.10 more each, would you still have bought them?

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

23. You indicated that you bought [LEDSpecialtyQtyBought] ENERGY STAR specialty LED bulbs. How many fewer would you have bought if they had cost $1.10 more each?

- [numeric]
- I don’t know

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

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

25. Do you remember seeing a label or sign letting customers know that the discount was provided by Rocky Mountain Power?

- Yes
- No
- I don't remember

26. How important was the discount to your purchase of ENERGY STAR specialty LED light bulbs?

- (Scale 0-10, 0 = Not important, 10 = Very important)

27. Were any of the ENERGY STAR specialty LED bulbs you purchased in 2019 or 2020 installed in a business or commercial building?

- Yes
- No
- I don't know

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

- Quantity: ___
- I don't know

29. How many of the [LEDSpecialtyQtyInstalled] specialty LED bulbs 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 at building other than home: _____
- Don't know

30. Had you ever bought any LED light bulbs before 2019?

- Yes
- No
- I don’t know

LED fixtures

31. When did you buy the ENERGY STAR LED fixtures? Select all that apply.

- 2019
- 2020

32. How many ENERGY STAR LED fixtures did you buy during 2019-2020?

- [numeric]
- I don’t know

33. Of the [LEDFixtureQtyBought] bulbs you bought, how many are currently:

- Installed [numeric] [LEDFixtureQtyInstalled]
- In storage [numeric]
- Discarded or given away [numeric]

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

- Number of replaced bulbs that were LEDs [numeric] [LEDFixtureReplacedLEDs]
- Number of replaced bulbs that were not LEDs (CFL, incandescent, halogen, etc.) [numeric] [LEDFixtureReplacedNonLEDs]
- Number installed in new lamps or fixtures

35. If the ENERGY STAR LED fixtures you bought had cost $2.10 more each, would you still have bought them?

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

36. You indicated that you bought [LEDFixtureQtyBought] ENERGY STAR LED fixtures. How many fewer would you have bought if they had cost $2.10 more each?

- [numeric]
- I don’t know

37. Do you recall if the ENERGY STAR LED fixtures you bought were discounted?

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

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

- Yes
- No
- I don’t remember

39. How important was the discount to your purchase of ENERGY STAR LED fixtures?

- (Scale 0-10, 0 = Not important, 10 = Very important)

40. Were any of the ENERGY STAR LED fixtures you purchased in 2019-2020 installed in a business or commercial building?

- Yes
- No
- I don’t know

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

- Quantity: ___

42. How many of the [LEDFixtureQtyInstalled] LED fixtures 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: _____
- Don’t know

43. Had you bought any LED light bulbs before 2019?

- Yes
- No
- I don’t know

LED downlight

44. When did you buy the ENERGY STAR LED downlight? Select all that apply.

- 2019
- 2020

45. How many ENERGY STAR LED downlights did you buy during 2019-2020?

- [numeric]
- I don’t know

46. Of the [LEDDownlightQtyBought] bulbs you bought, how many are currently:

- Installed [numeric]
- In storage [numeric]
- Discarded or given away [numeric]

47. Of the [LEDDownlightQtyInstalled] LED downlights that you have installed, how many replaced LEDs, how many replaced,bulbs that were not LEDs, and how many went in new fixtures?

- Number of replaced bulbs that were LEDs [numeric]
- Number of replaced bulbs that were not LEDs (CFL, incandescent, halogen, etc.) [numeric]
- Number installed in new fixtures
- I don’t know

48. If the ENERGY STAR LED downlights you bought had cost $1.50 more each, would you still have bought them?

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

49. You indicated that you bought [LEDDownlightQtyBought] ENERGY STAR LED downlights. How many fewer would you have bought if they had cost $1.50 more each?

- [numeric]
- I don’t know

50. Do you recall if the ENERGY STAR LED downlights you bought were discounted?

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

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

- Yes
- No
- I don’t remember

52. How important was the discount to your purchase of ENERGY STAR LED downlights?

- (Scale 0-10, 0 = Not important, 10 = Very important)

53. Were any of the ENERGY STAR LED downlights you purchased in 2019 or 2020 installed in a business or commercial building?

- Yes
- No
- I don’t know

54. Approximately how many of the LED downlights you purchased were installed in a business or commercial building?

- Quantity: ___
- I don’t know

55. How many of the [LEDDownlightQtyInstalled] LED downlights that are installed 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

56. Had you bought any LED lights before 2019?

- Yes
- No
- I don’t know

LED Lighting Process

57. 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

58. 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 fixture(s) in my home
- To take advantage discounted pricing
- Other (please specify)
- I don't know

Evaporative Cooler

59. When did you buy your evaporative cooler?

- 2019
- 2020

60. What type of cooling appliance did the evaporative cooler replace?

- Room air conditioner
- Central air conditioning
- Evaporative cooler
- Electric fan
- The home/room was not cooled before
- I don't know.

61. Was the evaporative cooler's price discounted when you bought it?

- Yes
- No
- I don't know

62. How many discounted evaporative coolers did you buy during 2019-2020?

- [numeric]

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

- Yes
- No
- I don't remember

64. Would you have been able to buy the evaporative cooler if it had not been discounted?

- Yes
- No

65. Were you planning on buying evaporative cooler before you knew about the discount?

    - Yes
    - No

66. If the evaporative cooler had not been discounted, what would you have bought instead?

    - Smaller evaporative cooler
    - Room air condition
    - Central air conditioner
    - Heat pump
    - Other (please specify)
    - I would not have bought any cooling appliance

67. If the evaporative cooler had cost $130 more, how likely is it that you would have still bought it?

    - Very unlikely (0%)
    - Unlikely (25%)
    - Not sure (50%)
    - Likely (75%)
    - Very likely (100%)

68. When do you think you would have bought an evaporative cooler if it had not been discounted?

    - During the same season that I bought it
    - The summer season after bought it
    - More than a year later than I did
    - I don’t know

69. What kind of evaporative cooler did you buy?

    - Brand [text response]
    - Model number[text response]
    - CFM [numeric]

Upstream Participant Spillover

70. After buying the discounted ENERGY STAR lighting product or evaporative cooler, have you taken any of the following additional steps to save energy in your home? Select all the apply.

- Installed an ENERGY STAR certified appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer
- Installed low flow faucet aerators
- Installed low flow showerheads
- Installed an ENERGY STAR certified heat pump water heater
- Installed water heater jacket, blanket, or insulation
- Installed an ENERGY STAR certified room air conditioner
- Installed an ENERGY STAR central air conditioner or heat pump
- Installed a Smart Thermostat (for example, EcoBee or Nest)
- Other (please specify)
- I don't know

Spillover: ENERGY STAR Appliance

71. Did you receive an incentive or discount to buy the ENERGY STAR appliance?

- Yes
- No
- I don't know

72. Rate how important the discount you received on the ENERGY STAR LED lighting product, ENERGY STAR room air conditioner or evaporative cooler was in your decision to purchase the ENERGY STAR appliance? [ApplianceSO1] [1-5 scale]

- Not important (1) Somewhat important (3) Very important (5)

73. If you had not received the discount on the LEDs, room air conditioner or evaporative cooler, how likely is it that you still would have bought the ENERGY STAR appliance? [ApplianceSO2] [1-5 scale]

- Very likely (1) Unsure (3) Very unlikely (5)

74. What kind of ENERGY STAR certified appliance did you purchase?

- Refrigerator
- Dishwater
- Clothes washer
- Clothes dryer

- Other (Please specify.)
- I don't know

Spillover: Low flow aerators

75. Did you receive an incentive or discount to buy the low flow aerator(s)?

    - Yes
    - No
    - I don't know

76. Rate how important the discount you received on the ENERGY STAR LED lighting product or evaporative cooler was in your decision to purchase the low flow aerator(s)? [AeratorO1] [1-5 scale]

    - Not important (1) Somewhat important (3) Very important (5)

77. If you had not received the discount on the LEDs or evaporative cooler, how likely is it that you still would have bought the low flow aerator(s)? [AeratorSO2]

    - Very likely(1) Unsure (3) Very unlikely (5)

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

    - [numeric]
    - I don't know.

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

    - Quantity:[numeric]
    - I don't know.

Spillover: Low flow showerheads

80. Did you receive an incentive or discount to buy the low flow showerhead(s)?

    - Yes
    - No
    - I don't know

81. Rate how important the discount you received on the ENERGY STAR LED lighting product or evaporative cooler was in your decision to purchase the low flow showerhead(s)? [ShowerheadO1] [1-5 scale]

    - Not important (1) Somewhat important (3) Very important (5)

82. If you had not received the discount on the LEDs or evaporative cooler, how likely is it that you still would have bought the low flow aerator(s)? [ShowerheadSO2] [1-5 scale]

- Very likely (1) Unsure (3) Very unlikely (5)

83. How many low flow showerheads did you install?

- [numeric]
- I don't know

Spillover: Heat pump water heater

84. Did you receive an incentive or discount to buy the ENERGY STAR certified heat pump water heater?

- Yes
- No
- I don't know

85. Rate how important the discount you received on the ENERGY STAR LED lighting product or evaporative cooler was in your decision to buy the ENERGY STAR water heater? [WaterHeaterSO1] [1-5 scale]

- Not important (1) Somewhat important (3) Very important (5)

86. If you had not received the discount on the LEDs or evaporative cooler, how likely is it that you still would have bought the ENERGY STAR water heater? [WaterHeaterSO2] [1-5 scale]

- Very likely (1) Unsure (3) Very unlikely (5)

87. 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

88. 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

Spillover: Water heater jacket, blanket, or insulation

89. Did you receive an incentive or discount to buy the water heater jacket, blanket or insulation?

    - Yes
    - No
    - I don't know

90. Rate how important the discount you received on the ENERGY STAR LED lighting product or evaporative cooler was in your decision to buy the water heater jacket, blanket or insulation? [WHInsulSO1] [1-5 scale]

    - Not important (1) Somewhat important (3) Very important (5)

91. If you had not received the discount on the LEDs or evaporative cooler, how likely is it that you still would have bought the water heater jacket, blanket or insulation? [WHInsulSO2] [1-5 scale]

    - Very likely (1) Unsure (3) Very unlikely (5)

Spillover water heating fuel

92. 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

Spillover: Room air conditioner

93. Did you receive an incentive or discount to buy the room air conditioner(s)?

- Yes
- No
- I don’t know

94. Rate how important the discount you received on the ENERGY STAR LED lighting product or evaporative cooler was in your decision to buy the ENERGY STAR room air conditioner? [RoomACO1] [1-5 scale]

    - Not important (1) Somewhat important (3) Very important (5)

95. If you had not received the discount on the LEDs or evaporative cooler, how likely is it that you still would have bought the ENERGY STAR room air conditioner? [RoomACSO2] [1-5 scale]

    - Very likely (1) Unsure (3) Very unlikely (5)

96. What kind of room air conditioner did you buy?

    - Brand [text response]
    - Model number [text response]
    - BTUs [numeric]
    - Energy Efficiency Ratio (EER) of room air conditioner [numeric]

97. How many ENERGY STAR room air conditioners did you buy and install?

    - Quantity: ___
    - I don’t know.

98. What type of cooling system did you replace with your new ENERGY STAR room air conditioner?

    - Older room air condition
    - Evaporative cooler
    - Central air conditioner
    - Fans
    - Room was not cooled before
    - Other (please specify)
    - I don’t know

Spillover: Central cooling system

99. What type of new ENERGY STAR certified central cooling system did you install?

- Central air conditioner
- Heat pump
- I don’t know

100. Did you receive an incentive or discount to buy the ENERGY STAR certified central cooling system?

- Yes
- No
- I don’t know

101. Rate how important the discount you received on the ENERGY STAR LED lighting product or evaporative cooler was in your decision to buy the ENERGY STAR certified central cooling system? [CentralCoolingSO1] [1-5 scale]

- Not important (1) Somewhat important (3) Very important (5)

102. If you had not received the discount on the LEDs or evaporative cooler, how likely is it that you still would have bought the ENERGY STAR certified central cooling system? [CentralCoolingSO2] [1-5 scale]

- Very likely (1) Unsure (3) Very unlikely (5)

103. What kind of cooling system did you buy?

- Brand [text response]
- Model number[text response]
- BTUs [numeric]
- Energy Efficiency Ratio (SEER) of room air conditioner [numeric]

104. Heat pumps also have a Heating Seasonal Performance Factor (HSPF) rating which indicates how efficient the heat pump is. What is the HSPF is for the heat pump you installed?

- HSPF rating: ___
- I don’t know

105. What type of cooling appliance did your new evaporative cooler replace?

- An existing evaporative cooler
- A room air conditioner
- Central air conditioning
- An electric fan

- I did not have a cooling appliance before
- I don't know

Spillover: Smart Thermostat

106. Did you receive an incentive or discount to buy the smart thermostat?

- Yes
- No
- I don't know

107. Rate how important the discount you received on the ENERGY STAR LED lighting product or evaporative cooler was in your decision to buy the smart thermostat? [SmartThermSO1] [1-5 scale]

- Not important (1) Somewhat important (3) Very important (5)

108. If you had not received the discount on the LEDs or evaporative cooler, how likely is it that you still would have bought the smart thermostat? [SmartThermSO2] [1-5 scale]

- Very likely (1) Unsure (3) Very unlikely (5)

109. What kind of heating system do you have?

- Electric forced air furnace
- Electric forced air furnace plus central AC
- Heat pump
- Gas forced air furnace plus central AC
- I don't know

Leakage

110. How long would you 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): _____

Non-Participant Questions

111. In 2019 or 2020, did you participate in any of the following Rocky Mountain Power programs that promoted energy saving? Select all that apply.

- Purchased LED lighting products or an evaporative cooler discounted by Rocky Mountain Power from a retail store.
- 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.

112. 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
- Home Energy Report
- Other (please specify)
- No I have not received any information from Rocky Mountain Power about how to save energy

113. In 2019 and 2020, have you taken any of the following steps to save energy in your home based on information you received from Rocky Mountain Power? Select all the apply.

- Installed an ENERGY STAR certified appliance such as a refrigerator, dishwasher, clothes washer, or clothes dryer
- Installed low flow faucet aerators
- Installed low flow showerheads
- Installed an ENERGY STAR certified heat pump water heater
- Installed water heater jacket, blanket, or insulation

- Installed an ENERGY STAR certified room air conditioner
- Installed an ENERGY STAR 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 of these energy saving actions
- I don't know

Non-Participant Spillover: ENERGY STAR Appliance

114. Did you receive an incentive or discount to buy the ENERGY STAR appliance?

    - Yes
    - No
    - I don't know

115. Rate how important energy efficiency information from Rocky Mountain Power was in your decision to purchase the ENERGY STAR appliance? [ApplianceNPSO1] [1-5 scale]

    - Not important (1) Somewhat important (3) Very important (5)

116. If you had not received energy efficiency information from Rocky Mountain Power, how likely is it that you still would have bought the ENERGY STAR appliance? [ApplianceNPSO2] [1-5 scale]

    - Very likely (1) Unsure (3) Very unlikely (5)

117. What kind of ENERGY STAR certified appliance did you purchase?

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

Non-Participant Spillover: Low flow aerators

118. Did you receive an incentive or discount to buy the low flow aerator(s)?

    - Yes
    - No
    - I don't know

119. Rate how important energy efficiency information from Rocky Mountain Power was in your decision to purchase the low flow aerator(s)? [AeratorNPSO1] [1-5 scale]

- Not important (1) Somewhat important (3) Very important (5)

120. If you had not received energy efficiency information from Rocky Mountain Power, how likely is it that you still would have bought the low flow aerator(s)? [AeratorNPSO2] [1-5 scale]

- Very likely (1) Unsure (3) Very unlikely (5)

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

- [numeric]
- I don't know.

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

- [numeric]
- I don't know.

Non-Participant Spillover: Low flow showerheads

123. Did you receive an incentive or discount to buy the low flow showerhead(s)?

- Yes
- No
- I don't know

124. Rate how important energy efficiency information from Rocky Mountain Power was in your decision to purchase the low flow showerhead(s)? [ShowerheadNPO1] [1-5 scale]

- Not important (1) Somewhat important (3) Very important (5)

125. If you had not received energy efficiency information from Rocky Mountain Power, how likely is it that you still would have bought the low flow aerator(s)? [ShowerheadNPSO2] [1-5 scale]

- Very likely (1) Unsure (3) Very unlikely (5)

126. How many low flow showerheads did you install?

- Quantity: ___

- I don’t know

Non-Participant Spillover: Heat pump water heater

127. Did you receive an incentive or discount to buy the ENERGY STAR certified heat pump water heater?

- Yes
- No
- I don’t know

128. Rate how important energy efficiency information from Rocky Mountain Power was in your decision to buy the ENERGY STAR water heater? [WaterHeaterNPSO1] [1-5 scale]

- Not important (1) Somewhat important (3) Very important (5)

129. If you had not received energy efficiency information from Rocky Mountain Power, how likely is it that you still would have bought the ENERGY STAR water heater? [WaterHeaterNPSO2] [1-5 scale]

- Very likely (1) Unsure (3) Very unlikely (5)

130. 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

131. 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

Non-Participant Spillover: Water heater jacket, blanket, or insulation

132. Did you receive an incentive or discount to buy the water heater jacket, blanket or insulation?

- Yes
- No
- I don't know

133. Rate how important energy efficiency information from Rocky Mountain Power was in your decision to buy the water heater jacket, blanket or insulation? [WHInsulNPSO1] [1-5 scale]

- Not important (1) Somewhat important (3) Very important (5)

134. If you had not received energy efficiency information from Rocky Mountain Power, how likely is it that you still would have bought the water heater jacket, blanket or insulation? [WHInsulNPSO2] [1-5 scale]

- Very likely (1) Unsure (3) Very unlikely (5)

Non-Participant Spillover: Water heating fuel

135. What type of water heater 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

Non-Participant Spillover: Room air conditioner

136. Did you receive an incentive or discount to buy the room air conditioner(s)?

- Yes
- No
- I don't know

137. Rate how important energy efficiency information from Rocky Mountain Power was in your decision to buy the ENERGY STAR room air conditioner? [RoomACNPSO1] [1-5 scale]

- Not important (1) Somewhat important (3) Very important (5)

138. If you had not received energy efficiency information from Rocky Mountain Power, how likely is it that you still would have bought the ENERGY STAR room air conditioner? [RoomACNPSO2] [1-5 scale]

- Very likely (1) Unsure (3) Very unlikely (5)

139. What kind of room air conditioner did you buy?

- Brand [text response]
- Model number [text response]
- BTUs [numeric]
- Energy Efficiency Ratio (EER) of room air conditioner [numeric]

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

- Quantity: ___
- I don't know.

141. What type of cooling system did you replace with your new ENERGY STAR room air conditioner?

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

Non-Participant Spillover: Central cooling system

142. What type of new ENERGY STAR certified central cooling system did you install?

- Central air conditioner
- Heat pump
- Evaporative cooler
- I don't know

143. Did you receive an incentive or discount to buy the ENERGY STAR certified central cooling system?

- Yes
- No

- I don’t know

144. Rate how important energy efficiency information from Rocky Mountain Power was in your decision to buy the ENERGY STAR certified central cooling system? [CentralCoolingNPSO1] [1-5 scale]

    - Not important (1) Somewhat important (3) Very important (5)

145. If you had not received energy efficiency information from Rocky Mountain Power, how likely is it that you still would have bought the ENERGY STAR certified central cooling system? [CentralCoolingNPSO2] [1-5 scale]

    - Very likely (1) Unsure (3) Very unlikely (5)

146. What kind of cooling system did you buy?

    - Brand [text response]
    - Model number [text response]
    - BTUs [numeric]
    - Energy Efficiency Ratio (SEER) of room air conditioner [numeric]

147. Heat pumps also have a Heating Seasonal Performance Factor (HSPF) rating which indicates how efficient the heat pump is. What is the HSPF is for the heat pump you installed?

    - HSPF rating: ___
    - I don’t know

148. What type of cooling appliance did your new cooling system replace?

    - An existing evaporative cooler
    - A room air conditioner
    - Central air conditioning
    - An electric fan
    - I did not have a cooling appliance before
    - I don’t know

Non-Participant Spillover: Smart Thermostat

149. Did you receive an incentive or discount to buy the smart thermostat?

    - Yes
    - No
    - I don’t know

150. Rate how important energy efficiency information from Rocky Mountain Power was in your decision to buy the smart thermostat? [SmartThermNPSO1] [1-5 scale]

- Not important (1) Somewhat important (3) Very important (5)

151. If you had not received energy efficiency information from Rocky Mountain Power, how likely is it that you still would have bought the smart thermostat? [SmartThermNPSO2] [1-5 scale]

- Very likely (1) Unsure (3) Very unlikely (5)

152. What kind of heating system do you have?

- Electric forced air furnace
- Electric forced air furnace plus central AC
- Heat pump
- Gas forced air furnace plus central AC
- I don't know

Home Demographics

153. Which of the following best describes your home?

- Manufactured or mobile home
- Single-family home
- Duplex or townhouse
- Apartment or condominium
- Other (please specify)
- I don't know

154. Do you own or rent your home?

- Own
- Rent
- Prefer not to answer

155. When was your home built?

- Before 1960
- 1960-1979
- 1980-1999
- 2000-2009

- 2010 or later
- I don't know

156. How large is your home?

- Less than 1,000 square feet
- 1,000-2,000 square feet
- 2,000-3,000 square feet
- 3,000-4,000 square feet
- Greater than 4,000 square feet
- I don't know

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

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

158. Is English the primary language spoken in your household?

- Yes
- No

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

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

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

Thank you

161. Thank you for your valuable feedback. In exchange for you 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:

- [Email]

If you would like us to send it to a different email address, enter it here:

- [Email]

On behalf of Rocky Mountain Power, thank you for your time and feedback! If you have any questions regarding this survey or the status of your gift card, email adm-surveys@pacificorp.com. Have a great day!

Appendix C – Starter Kit Survey

1. Our records indicate that you received a Rocky Mountain Power 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 a 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 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 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
- Second bathroom aerator
- 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 Program 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
    - [SHOW IF KIT - 2 BATH >0, OR KIT - 1 BATH >0] Faucet aerator
    - [SHOW IF KIT - 2 BATH >0, OR KIT - 1 BATH >0] 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
    - [SHOW IF KIT - 2 BATH >0, OR KIT - 1 BATH >0] Faucet aerator

- [SHOW IF KIT - 2 BATH >0, OR KIT - 1 BATH >0] 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 Program 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 the Program 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 Program 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!