



2020 WYOMING Energy Efficiency Annual Report

Issued July 7, 2021

Rocky Mountain Power
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Salt Lake City, UT 84116

[pacificorp.com/environment/demand-side-management](https://www.pacificorp.com/environment/demand-side-management)

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EXECUTIVE SUMMARY

Rocky Mountain Power is a multi-jurisdictional electric utility providing retail service to customers in Utah, Idaho, and Wyoming. Rocky Mountain Power, a division of PacifiCorp, serves approximately 142,480 customers in Wyoming. Rocky Mountain Power acquires energy efficiency and peak reduction resources as cost effective alternatives to the acquisition of supply-side resources. These resources assist in efficiently addressing load growth and contribute to the ability to meet system peak requirements.

PacifiCorp develops an integrated resource plan (IRP)¹ as a means of balancing cost, risk, uncertainty, supply reliability/deliverability and long-run public policy goals. The IRP presents a framework of future actions to ensure that Rocky Mountain Power continues to provide reliable, reasonably priced service to customer. Energy Efficiency and peak management opportunities are incorporated into the IRP based on their availability, characteristics, and costs.²

Rocky Mountain Power employs external implementers to administer its programs.³ Evaluations for each program are performed by independent external evaluators to validate energy and demand savings derived from Rocky Mountain Power's energy efficiency programs.⁴

Rocky Mountain Power utilizes earned media, customer communications, education, and outreach, advertising as well as program specific marketing to communicate the value of energy efficiency, provide information regarding low-cost, no-cost energy efficiency measures and to educate customer on the availability of programs, services, and incentives.⁵

This report provides details on program results, activities, and expenditures of the Customer Efficiency Tariff Rider ("Schedule 191") as of the reporting period from January 1, 2020 through December 31, 2020. Rocky Mountain Power on behalf of its customers, invested \$13.8 million in energy efficiency resource acquisitions during the reporting period. The investment yielded approximately 65.6 megawatt hours ("MWh") at generator in first-year energy savings. Net benefits based on the projected value of the energy savings over the life of the individual measures is estimated at \$3.6 million.⁶

¹ Information on PacifiCorp's IRP can be found at <https://www.pacificorp.com/energy/integrated-resource-plan.html>.

² Information on Rocky Mountain's planning document can be found at https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/Rocky_Mountain_Power_Planning_Process.pdf

³ Information on program administration can be found at <https://www.pacificorp.com/environment/demand-side-management.html> under the "Program administration" section.

⁴ Information on program evaluations can be found at <https://www.pacificorp.com/environment/demand-side-management.html> under the "Reports and program evaluations by state" section.

⁵ Information on communications and outreach can be found at <https://www.pacificorp.com/environment/demand-side-management.html> under the "Communications and outreach" section.

⁶ See cost effectiveness Appendix A.

The energy efficiency portfolio was cost effective based on the Utility Cost Test (UCT), which is the primary cost benefit test observed in Wyoming. Cost effectiveness results are provided in Table 6 and Appendix A.

In 2020, Rocky Mountain Power's DSM portfolio included the following energy efficiency programs:

- Wattsmart Homes
- Home Energy Reports
- Low Income Weatherization
- Wattsmart Business

REGULATORY ACTIVITIES

During the 2020 reporting period, the Company filed compliance and/or informational reports, updates, notices, and requests with the Commission in support of Company DSM programs. The following is a list of those activities:

- On February 18, 2020, in Docket No. 20000-264-EA-06, the Company filed education and promotional materials that were used to educate the public concerning energy efficiency and promote DSM program from October 1, 2019 – December 31, 2019.
- On February 18, 2020, in Docket No. 20000-383-EA-10, the Company filed its quarterly program status report with monthly participation levels, energy savings, DSM program cost data and Schedule 191 balances by category.
- On March 16, 2020, the Company posted a notice on its website to make modifications to the Wattsmart Homes program. Key modifications included an increase to evaporative cooler incentives and add incentives for supplemental heat source ductless heat pumps. These modifications went into effect April 1, 2020.
- On March 26, 2020, in Docket No. 20000-580-ET-20, the Company filed an Application requesting approval of its 2021-2023 DSM Plan. A revised version of the plan was approved by the Commission in its order issued January 5, 2021.
- On April 24, 2020, in Docket No. 20000-EA-06, the Company filed a notice with a web link to where the 2017-2018 Wattsmart Homes Program Evaluation was posted on the Company's website.
- On May 15, 2020, in Docket No. 20000-264-EA-06, the Company filed education and promotional materials that were used to educate the public concerning energy efficiency and promote DSM program from January 1, 2020 – March 31, 2020.
- On May 15, 2020, in Docket No. 20000-383-EA-10, the Company filed its quarterly program status report with monthly participation levels, energy savings, DSM program cost data and Schedule 191 balances by category.

- On June 8, 2020, the Company posted a notice on its website to make modifications to the Wattsmart Business program. Key modifications included an increase to lighting, food equipment, and HVAC incentives. These modifications went into effect June 22, 2020.
- On July 1, 2020, in Docket No. 20000-264-EA-06, the Company filed its Annual DSM Report for the 2019 calendar year.
- On August 17, 2020, in Docket No. 20000-264-EA-06, the Company filed education and promotional materials that were used to educate the public concerning energy efficiency and promote DSM program from April 1, 2020 – June 30, 2020.
- On August 17, 2020, in Docket No. 20000-383-EA-10, the Company filed its quarterly program status report with monthly participation levels, energy savings, DSM program cost data and Schedule 191 balances by category.
- On September 16, 2020, the Company posted a notice on its website to make modifications to the Wattsmart Business program. Key modifications included adjustments to motor, HVAC, office, and food service equipment offerings and mid-market lighting. These modifications went into effect October 2, 2020.
- On September 18, 2020, in Docket No. 20000-EA-06, the Company filed a notice with a web link to where the 2016-2017 Low Income Weatherization Program Evaluation was posted on the Company's website.
- On November 17, 2020, in Docket No. 20000-264-EA-06, the Company filed education and promotional materials that were used to educate the public concerning energy efficiency and promote DSM program from July 1, 2020 – September 30, 2020.
- On November 17, 2020, in Docket No. 20000-383-EA-10, the Company filed its quarterly program status report with monthly participation levels, energy savings, DSM program cost data and Schedule 191 balances by category.
- On December 23, 2020, in Docket No. 20000-264-EA-06, the Company filed its 2021 promotional plan to educate the public concerning energy efficiency and to promote its DSM programs.

CUSTOMER EFFICIENCY SERVICE CHARGE

In Docket No. 20000-264-EA-06 (Record No. 10960), the Commission approved the recovery of energy efficiency expenditures through Schedule 191. This charge appears as a line item on customer bills. The Company books eligible DSM energy efficiency expenditures as incurred to the balancing account for the appropriate customer category. The unique surcharges for each customer classification are defined below:

- Category 1 (Residential) – Schedules 2 and 18
- Category 2 (Small Commercial and Industrial) – Schedules 25, 28, 40, 210 and all lighting schedules
- Category 3 (Large Commercial and Industrial) – Schedules 33, 46 and 48T

In Docket No. 20000-526-EA-17 (Record No. 14847), the Commission approved the Category 3 balancing account to be capitalized and amortized. Schedule 191 balances by category are available in the Company's ongoing quarterly reports submitted in Docket No. 20000-383-EA-10 (Record No. 12686).

PORTFOLIO OF PROGRAMS

ENERGY EFFICIENCY PROGRAMS

WATTSMART HOMES

Program Description

The Wattsmart Homes program is designed to provide access to and incentives for more efficient products and services installed or received by residential customers in the following housing types:

- New Construction Homes
- Single Family Existing Homes
- Multi-family Housing Units
- Manufactured Homes

The program applies to residential customers under Electrical Service Schedules 2 or 18. Landlords who own rental property where the tenant is billed under Electric Service Schedules 2 or 18 also qualify.

The Wattsmart Homes program passed the UCT cost test with a benefit cost ratio of 1.19 for 2020.

Program Performance and Major Achievements in 2020

- The Wattsmart Homes program achieved gross savings of 13,218,419 kWh at site.
- Disbursed \$1.4 million in incentives.
- The Wattsmart Homes program expanded the ductless heat pump measure to allow incentives for supplemental ductless heat pumps used as a supplemental heat sources for cold spots or new/bonus rooms.
- A new online application portal for Trade Allies was launched. The portal provides Trade Allies with a digital record of all rebate applications and a dashboard to monitor the status of all submitted applications.
- Request for Proposal (RFP) for Wattsmart Energy Efficiency Kits was issued and awarded to AM Conservation Group. The program started receiving and fulfilling orders in November.
- A new virtual reality application stream, that allows the ability to perform quality control audits, inspections, and virtual installation assistance was launched.

Additional information on the program administration can be found on the Company's website under the Program administration section:

<https://www.pacificorp.com/environment/demand-side-management.html>

Direct Link to Wattsmart Homes program administration:

https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/wyoming/WYOMING_Program_Administration_Wattsmart_Homes.pdf

HOME ENERGY REPORTS PROGRAM

Program Description

The *Home Energy Reports* program is a behavioral program designed to decrease participant energy usage by providing comparative energy usage data for similar homes located in the same geographical area. Additionally, the report provides the participant with information on how to decrease their energy usage. Equipped with this information, participants can modify behavior and/or make structural equipment, lighting, or appliance modifications to reduce their overall electric energy consumption.

The Home Energy Reports program passed the UCT with a cost benefit ratio of 3.41 for 2020.

Program Performance and Major Achievements in 2020

- The program achieved gross savings of 4,740,270 kWh at site.
- Reports were initially provided to approximately 28,000 customers in 2020.
- In July the program was expanded to approximately 63,000.
- Enhancements to reports were made during 2020 including:
 - More individual recommendation to save energy
 - Greater insights on how customers are using energy by appliance type
 - Home characteristics include on report with easy access to update home profile
 - Monthly usage history included on reports
- Online portal was improved to provide greater insights for all residential customers.
- In 2020, only 0.47% of customers (329 customers) have requested to be removed from the program.

Additional information on the program administration can be found on the Company's website under the Program administration section:

<https://www.pacificorp.com/environment/demand-side-management.html>

Direct Link to Home Energy Reports program administration:

https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/wyoming/WYOMING_Program_Administration_Home_Energy_Reports.pdf

LOW INCOME WEATHERIZATION

Program Description

The *Low Income Weatherization* program is designed to leverage funds with state and federal grants so that the energy efficiency improvements provided can be delivered to income eligible households at no cost.

The Company contracts with two agencies to provide low income weatherization services throughout the state of Wyoming. These include Council of Community Services (“CCS”) and Wyoming Weatherization Services (“WWS”). The agencies subcontract with the Wyoming Department of Family Services (“WFS”) to provide low income weatherization services with grants WFS received from state and federal government sources. Company funding of 50 percent of the cost of approved measures is leveraged by the agencies with these government grants so that the services are at no cost to participating households.

The Low-Income Weatherization program passed the UCT with a cost benefit ratio of 2.94 for 2020.

Program Performance and Major Achievements in 2020

- In 2020, the program achieved gross savings of 23,976 kWh at site.
- Number of homes served 8

Additional information on the program administration can be found on the Company’s website under the Program administration section:

<https://www.pacificorp.com/environment/demand-side-management.html>

Direct Link to Low Income Weatherization program administration:

https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/wyoming/WYOMING_Program_Administration_Low_Income.pdf

WATTSMART BUSINESS PROGRAM

WATTSMART BUSINESS

Program Description

The commercial, industrial, and agricultural energy efficiency program portfolio is offered through a single Non-Residential Energy Efficiency program called Wattsmart Business.

Wattsmart Business is designed to influence new and existing non-residential customers to increase the efficiency of electric energy usage both through the installation of efficient equipment as well as adoption of improved energy management protocols. Qualifying measures include those which produce verifiable electric energy efficiency improvements compared to an established baseline.

Wattsmart Business offerings include:

- Typical Upgrades
- Midstream/LED Instant incentives
- Custom Analysis
- Energy Management
- Energy Project Manager Co-funding

The Wattsmart Business program passed the UCT with a cost benefit ratio of 1.32.

Program Performance and Major Achievements in 2020

- In 2020, the program achieved gross savings of 42,897,555 kWh at site.
- Distributed incentives of \$3,882,238.
- Economic challenges due to the COVID-19 pandemic significantly slowed publicly funded new construction and major maintenance work. This created an opportunity for Wattsmart staff to reconnect and partner with previously unengaged customers taking a fresh look at their operating expenses. The Company anticipates this lays the groundwork for future projects in 2021 and 2022 with Strategic Energy Management and “find and fix” measures playing a more significant role in Wyoming.
- Economic challenges in 2020 provided another unexpected benefit because state and federal agency representatives (e.g. US Department of Agriculture, WY State Construction Department, various schools, and the State Grants Department) viewed Wattsmart incentives as a resource with increased value. Our relationships with these

representatives led to customers seeking help and support. This allowed us to identify new project opportunities and reduce customer costs.

- Several Wyoming Rotary Clubs, and Chambers of Commerce with members involved in hospitality and tourism recognized a need to help members struggling with the impacts of COVID-19. They worked with Wattsmart Business staff to share information about Wattsmart Business incentives and involve our trade allies. This collaboration helped deliver savings in 2020 and will continue to deliver in 2021 as pandemic economic impacts recede.
- Advanced Rooftop Control (ARC) HVAC measures continued to be popular in 2020. New ARC measures were added in 2020 to align with new Rooftop Units additions and Demand Controlled Ventilation-only ARC variations more closely.
- Participating Wattsmart Business vendors continued receiving quarterly vendor scorecards to provide timely feedback on their performance with customers and submittals and encourage vendors to step up their training and level of service to earn “Premium” status. The enhanced status entitles qualifying vendors to improved search engine visibility on Wattsmart Business web pages and enhanced co-branding opportunities with the Rocky Mountain Power logo.
- Wattsmart Business phone inquiries from customers were consolidated to RMP’s call center when previously Nexant’s call center also received inbound calls. This shift is intended to provide more comprehensive customer service. For example, if a customer is inquiring about a Wattsmart Business incentive, RMP’s call center agent can also update customer contact information, provide current billing data, offer information about renewable energy options, etc.
- The average length of time from application submission to incentive delivery was reduced by nearly 40 percent because of administrative improvements implemented by Nexant.
- The RMP managed accounts team continued engaging with municipal water and wastewater customers through the Strategic Energy Management (SEM) delivery model. These efforts on multi-year projects are expected to yield significant additional savings in future years.

Additional information on the program administration can be found on the Company’s website under the Program administration section:

<https://www.pacificorp.com/environment/demand-side-management.html>

Direct Link to Wattsmart Business program administration:

<https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/wyoming/WYOMING Program Administration Non Residential.pdf>

EXPENDITURES

TOTAL ENERGY EFFICIENCY PORTFOLIO SAVINGS AND EXPENDITURES

Table 1
Program Results for January 1, 2020– December 31, 2020⁷

Category and Program	kWh/Yr Savings (@ site)	kWh/Yr Savings (@ generator)	Program Expenditures
Category 1 - Residential			
Low Income Weatherization	23,976	26,438	\$ 8,639
Home Energy Reporting	4,740,270	5,227,096	\$ 88,128
Wattsmart Homes	13,218,419	14,575,950	\$ 2,504,137
Total Category 1	17,982,665	19,829,484	\$ 2,600,904
Category 2 - Commercial, Industrial & Irrigation			
Wattsmart Business	6,428,337	7,069,030	\$ 3,261,919
Total Category 2	6,428,337	7,069,030	\$ 3,261,919
Category 3 - Commercial & Industrial			
Wattsmart Business	36,469,217	38,651,327	\$ 7,404,816
Total Category 3	36,469,217	38,651,327	\$ 7,404,816
Total Energy Efficiency (Categories 1, 2 and 3)	60,880,219	65,549,841	\$ 13,267,639
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 1			\$ 128,428
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 2			\$ 49,823
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 3			\$ 181,515
Outreach & Communication - Cat 1			\$ 128,640
Outreach & Communication - Cat 2			\$ 24,685
Outreach & Communication - Cat 3			\$ 24,661
Total Wyoming 2020 Expenditures			\$ 13,805,390

⁷ The energy efficiency reported savings are gross, ex-ante. The values at generation include line losses between the customer site and the generation source.

2020 GROSS SAVINGS

Table 2
Wattsmart Homes Savings by Measure Category

Measure Category	Total kWh (at Site)	Total Incentive	Total Measure Quantity
Appliances	3,671	\$ 1,290	27
Building Shell	9,517	\$ 3,669	11,566 sq ft
Electronics	3,706,920	\$ 693,724	52,956
Energy Kits	7,418	\$ 168	16
HVAC	773,549	\$ 129,347	842
Lighting	7,674,216	\$ 479,899	368,088
Water Heating	1,043,128	\$ 116,132	13,245
Grand Total	13,218,419	\$ 1,424,228	

Table 3
Low Income Weatherization Homes Served and Measures Installed

Measure Type	Installed
Air Sealing	3
Doors	1
LED Bulbs	8
Insulation	8
Refrigerators	4
Windows	7
Total Number of Homes Served	8
Total kWh Savings @ Site	23,976

Table 4
Wattsmart Business Savings by Sector

Sector	Total kWh (at Site)	Total Incentive
Commercial	7,387,461	\$ 773,758
Industrial	35,372,357	\$ 3,091,400
Irrigation	137,836	\$ 17,080
Grand Total	42,897,555	\$ 3,882,238

Table 5
Wattsmart Business Savings by Measure Category

Measure Category	Total kWh (at Site)	Total Incentive	Total Projects
Additional Measures	554,526	\$ 87,329	3
Building Shell	2,820	\$ 901	2
Energy Management	9,516,866	\$ 190,337	13
HVAC	663,153	\$ 100,603	14
Irrigation	139,363	\$ 17,309	21
Lighting	6,762,789	\$ 685,549	601
Motors	21,349,000	\$ 2,290,001	42
Oil & Gas	3,864,280	\$ 176,979	17
Refrigeration	44,758	\$ 6,714	8
Vendor Promotion	-	\$ 600	6
Energy Proj Mgr Co-Fund	-	\$ 325,916	3
Grand Total	42,897,555	\$ 3,882,238	730

COST EFFECTIVENESS

TOTAL COST EFFECTIVENESS RESULTS BY PORTFOLIO AND PROGRAM

Program cost effectiveness is performed using a Company specific modeling tool, created by a third-party consultant. The tool is designed to incorporate PacifiCorp data and values such as avoided costs, and generally follows the methodology specified in California's Standard Practice Manual. The analysis assesses the costs and benefits of DSM resource programs from different stakeholder perspectives, including participants and non-participants, based on four tests described in the Standard Practice Manual (TRC, UCT, PCT and RIM) as well as an additional fifth test, PTRC.

Each of the cost effectiveness tests for Rocky Mountain Power's programs is outlined below. The primary cost/benefit test observed in Wyoming is the UCT.

- PacifiCorp Total Resource Test (PTRC) is the total resource cost test with an additional 10% added to the net benefit side of the benefit/cost formula to account for non-quantified environmental and non-energy benefits of conservation resources over supply side alternatives.
- Total Resource Cost (TRC) Test considers the benefits and costs from the perspective of all utility customers, comparing the total costs and benefits from both the utility and utility customer perspectives.
- Utility Cost (UCT) Test also called the program administrator cost test, provides a benefit to cost perspective from the utility only. The test compares the total utility cost incurred to the benefit/value of the energy and capacity saved and contains no customer costs or benefits in calculation of the ratio.
- Participant Cost Test (PCT) compares the portion of the resource paid directly by participants to the savings realized by the participants.
- Ratepayer Impact Cost Test (RIM) examines the impact of energy efficiency expenditures on non-participating ratepayers overall. Unlike supply-side investments, energy efficiency programs reduce energy sales. Reduced sales typically lower revenue requirements while putting near-term upward pressure on the rates remaining fixed costs are spread over fewer kilowatt-hours.

Table 6
2020 Cost Effectiveness Results by Program⁸

Program	Benefit/Cost Test				
	PTRC	TRC	UCT	PCT	RIM
Energy Efficiency Portfolio	1.08	0.98	1.26	3.72	0.40
Non-Residential Energy Efficiency Portfolio	1.12	1.02	1.29	3.76	0.43
Residential Energy Efficiency Portfolio	0.94	0.86	1.15	3.64	0.32
Low Income Weatherization	3.24	2.94	2.94	N/A	0.50
Home Energy Reporting	3.75	3.41	3.41	N/A	0.50
Wattsmart Homes	0.94	0.85	1.19	3.45	0.31
Wattsmart Business	1.14	1.04	1.32	3.76	0.43

Portfolio-level cost effectiveness includes portfolio costs, such as the Potential Assessment and DSM system database. Sector-level cost effectiveness includes sector-specific evaluation, measurement, and verification expenditures.

⁸ Additional cost effectiveness detail is provided in Appendix A.



Appendix A

Cost Effectiveness



Memorandum

To: Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 30, 2021
Re: Cost-Effectiveness for the Portfolio and Sector Level - Wyoming

Guidehouse estimated the cost-effectiveness for the overall energy efficiency portfolio and component sectors, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall energy efficiency portfolio and the two sector components.

The portfolio passes the cost-effectiveness for the UCT and PCT tests. The memo consists of the following tables.

Table 1 - Utility Inputs
Table 2 – Portfolio Level Costs 2020
Table 3 – Benefit/Cost Ratios by Portfolio Type
Table 4 – 2020 Total Energy Efficiency Portfolio Cost-Effectiveness Results
Table 5 - 2020 C&I Energy Efficiency Portfolio Cost-Effectiveness Results
Table 6 – 2020 Residential Energy Efficiency Portfolio Cost-Effectiveness Results

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.92%
Residential Line Loss	10.27%
Commercial Line Loss	10.00%
Industrial Line Loss	5.85%
Irrigation Line Loss	10.21%
Residential Energy Rate (\$/kWh) ¹	\$0.1063
Commercial Energy Rate (\$/kWh) ¹	\$0.0850
Industrial Energy Rate (\$/kWh) ¹	\$0.0638
Irrigation Energy Rate (\$/kWh) ¹	\$0.0792
Inflation Rate	2.28%

¹ Future rates determined using a 2.28% annual escalator.

Table 2 – Portfolio Level Costs 2020

Cost	Value
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 1	\$128,428
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 2	\$49,823
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 3	\$181,515
Outreach & Communication - Cat 1	\$128,640
Outreach & Communication - Cat 2	\$24,685
Outreach & Communication - Cat 3	\$24,661
Total Costs	\$537,751

Table 3 – Benefit/Cost Ratios by Portfolio Type

Scenario	PTRC	TRC	UCT	RIM	PCT
Total Portfolio	1.08	0.98	1.26	0.40	3.72
C&I Programs	1.12	1.02	1.29	0.43	3.76
Residential Programs	0.94	0.86	1.15	0.32	3.64

Table 4 – 2020 Total Energy Efficiency Portfolio Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0476	\$17,745,725	\$19,171,865	\$1,426,140	1.08
Total Resource Cost Test (TRC) No Adder	\$0.0476	\$17,745,725	\$17,428,968	-\$316,757	0.98
Utility Cost Test (UCT)	\$0.0370	\$13,805,390	\$17,428,968	\$3,623,578	1.26
Rate Impact Test (RIM)		\$43,664,569	\$17,428,968	-\$26,235,601	0.40
Participant Cost Test (PCT)		\$10,495,380	\$39,048,748	\$28,553,368	3.72
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000096768
Discounted Participant Payback (years)					1.32

Table 5 - 2020 C&I Energy Efficiency Portfolio Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0453	\$13,899,285	\$15,543,906	\$1,644,620	1.12
Total Resource Cost Test (TRC) No Adder	\$0.0453	\$13,899,285	\$14,130,823	\$231,538	1.02
Utility Cost Test (UCT)	\$0.0357	\$10,947,418	\$14,130,823	\$3,183,406	1.29
Rate Impact Test (RIM)		\$33,201,183	\$14,130,823	-\$19,070,360	0.43
Participant Cost Test (PCT)		\$7,463,860	\$28,026,974	\$20,563,114	3.76
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000131106
Discounted Participant Payback (years)					1.44

Table 6 – 2020 Residential Energy Efficiency Portfolio Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0578	\$3,846,440	\$3,627,959	-\$218,480	0.94
Total Resource Cost Test (TRC) No Adder	\$0.0578	\$3,846,440	\$3,298,145	-\$548,295	0.86
Utility Cost Test (UCT)	\$0.0429	\$2,857,972	\$3,298,145	\$440,173	1.15
Rate Impact Test (RIM)		\$10,463,386	\$3,298,145	-\$7,165,241	0.32
Participant Cost Test (PCT)		\$3,031,520	\$11,021,774	\$7,990,253	3.64
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000057020
Discounted Participant Payback (years)					1.11



Memorandum

To: Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 30, 2021
Re: Cost-Effectiveness Results for the Home Energy Reporting Program - Wyoming

Guidehouse estimated the cost-effectiveness results for the Wyoming Home Energy Reporting Program, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program.

Cost-effectiveness was tested using the 2019 IRP decrement. The program passes cost-effectiveness tests from all perspectives except the RIM test.

Table 1 - Home Energy Reporting Inputs
Table 2 – Home Energy Reporting Annual Program Costs
Table 3 – Home Energy Reporting Savings by Measure Category
Table 4 - Home Energy Reporting Program Level Cost-Effectiveness Results

Table 1 - Home Energy Reporting Inputs

Parameter	Value
Discount Rate	6.92%
Residential Line Loss	10.27%
Residential Energy Rate (\$/kWh) ¹	\$0.1063
Inflation Rate	2.28%

¹ Future rates determined using a 2.28% annual escalator.

Table 2 – Home Energy Reporting Annual Program Costs

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Development	Incentives	Total Utility Costs	Gross Customer Costs
Home Energy Reports	\$0	\$7,327	\$78,321	\$2,480	\$0	\$88,128	\$0
Total	\$0	\$7,327	\$78,321	\$2,480	\$0	\$88,128	\$0

Table 3 – Home Energy Reporting Savings by Measure Category

Measure Group	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Home Energy Reports	4,740,270	100%	4,740,270	100%	4,740,270	1
Total	4,740,270	100%	4,740,270	100%	4,740,270	1

**Table 4 - Home Energy Reporting Program Level Cost-Effectiveness Results
 (Shape – WY_Single_Family_Cooling)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0195	\$88,128	\$330,696	\$242,568	3.75
Total Resource Cost Test (TRC) No Adder	\$0.0195	\$88,128	\$300,633	\$212,505	3.41
Utility Cost Test (UCT)	\$0.0195	\$88,128	\$300,633	\$212,505	3.41
Rate Impact Test (RIM)		\$603,507	\$300,633	-\$302,875	0.50
Participant Cost Test (PCT)		\$0	\$515,379	\$515,379	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000321825
Discounted Participant Payback (years)					n/a



Memorandum

To: Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 30, 2021
Re: Cost-Effectiveness Results for the Home Energy Savings Program - Wyoming

Guidehouse estimated the cost-effectiveness results for the Wyoming Home Energy Savings Program, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program and for the 8 measure categories.

Cost-effectiveness was tested using the 2019 IRP decrement. The program passes cost-effectiveness for the UCT and PCT tests. The memo consists of the following tables.

- Table 1 - Home Energy Savings Inputs
- Table 2 – Home Energy Savings Annual Program Costs
- Table 3 – Home Energy Savings – Savings by Measure Category
- Table 4 - Benefit/Cost Ratios by Measure Category
- Table 5 – Home Energy Savings Program Level Cost-Effectiveness Results
- Table 6 - Home Energy Savings Appliances Cost-Effectiveness Results
- Table 7 - Home Energy Savings Building Shell Cost-Effectiveness Results
- Table 8 - Home Energy Savings Electronics Cost-Effectiveness Results
- Table 9 - Home Energy Savings Energy Kits – DHW Cost-Effectiveness Results
- Table 10 - Home Energy Savings Energy Kits – Lighting Cost-Effectiveness Results
- Table 11 - Home Energy Savings HVAC Cost-Effectiveness Results
- Table 12 - Home Energy Savings Lighting Cost-Effectiveness Results
- Table 13 - Home Energy Savings Water Heating Cost-Effectiveness Results

Table 1 - Home Energy Savings Inputs

Parameter	Value
Discount Rate	6.92%
Residential Line Loss	10.27%
Residential Energy Rate (\$/kWh) ¹	\$0.1063
Inflation Rate	2.28%

¹ Future rates determined using a 2.28% annual escalator.

Table 2 – Home Energy Savings Annual Program Costs

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Dev.	Incentives	Total Utility Costs	Gross Customer Costs
Appliances	\$0	\$7	\$477	\$12	\$1,290	\$1,786	\$3,526
Building Shell	\$0	\$19	\$1,237	\$31	\$3,669	\$4,956	\$12,997
Electronics	\$0	\$7,473	\$481,804	\$12,082	\$693,724	\$1,195,082	\$2,034,040
Energy kits - DHW	\$0	\$14	-\$47	\$23	\$133	\$123	\$133
Energy Kits - Lighting	\$0	\$1	-\$3	\$2	\$35	\$34	\$35
HVAC	\$0	\$1,559	\$100,541	\$2,521	\$129,347	\$233,969	-\$359,342
Lighting	\$0	\$15,471	\$290,591	\$25,012	\$479,899	\$810,973	\$1,334,852
Water Heating	\$0	\$2,103	\$135,580	\$3,400	\$116,132	\$257,214	\$5,280
Total	\$0	\$26,648	\$1,010,180	\$43,081	\$1,424,228	\$2,504,137	\$3,031,520

Table 3 – Home Energy Savings – Savings by Measure Category

Measure Group	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Appliances	3,671	100%	3,671	80%	2,937	14
Building Shell	9,517	100%	9,517	81%	7,737	30
Electronics	3,706,920	100%	3,706,920	82%	3,039,674	5
Energy Kits - DHW	6,910	80%	5,528	94%	5,197	11
Energy Kits - Lighting	508	80%	406	94%	382	12
HVAC	773,549	100%	773,549	80%	618,839	11
Lighting	7,674,216	69%	5,295,209	76%	4,024,359	12
Water Heating	1,043,128	100%	1,043,128	80%	834,502	10
Total	13,218,419	82%	10,837,928	79%	8,533,627	10

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Group	PTRC	TRC	UCT	RIM	PCT
Appliances	0.47	0.42	0.79	0.27	1.57
Building Shell	0.81	0.73	1.76	0.45	1.63
Electronics	0.29	0.26	0.48	0.21	1.25
Energy Kits - DHW	19.18	17.44	16.30	0.39	41.12
Energy Kits - Lighting	5.74	5.21	4.89	0.39	13.07
HVAC	n/a	n/a	1.43	0.40	n/a
Lighting	1.44	1.31	2.17	0.35	4.46
Water Heating	2.23	2.02	1.14	0.29	199.36
Total	0.94	0.85	1.19	0.31	3.45

Table 5 – Home Energy Savings Program Level Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0566	\$3,492,605	\$3,269,303	-\$223,302	0.94
Total Resource Cost Test (TRC) No Adder	\$0.0566	\$3,492,605	\$2,972,094	-\$520,511	0.85
Utility Cost Test (UCT)	\$0.0406	\$2,504,137	\$2,972,094	\$467,957	1.19
Rate Impact Test (RIM)		\$9,552,234	\$2,972,094	-\$6,580,140	0.31
Participant Cost Test (PCT)		\$3,031,520	\$10,460,683	\$7,429,162	3.45
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000066341
Discounted Participant Payback (years)					1.77

Table 6 through Table 13 provides cost-effectiveness results for all 8 measures.

Table 6 - Home Energy Savings Appliances Cost-Effectiveness Results (Load Shape – Residential_ERWH_7P)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1115	\$3,317	\$1,543	-\$1,774	0.47
Total Resource Cost Test (TRC) No Adder	\$0.1115	\$3,317	\$1,403	-\$1,914	0.42
Utility Cost Test (UCT)	\$0.0600	\$1,786	\$1,403	-\$384	0.79
Rate Impact Test (RIM)		\$5,191	\$1,403	-\$3,788	0.27
Participant Cost Test (PCT)		\$3,526	\$5,545	\$2,019	1.57
Lifecycle Revenue Impacts (\$/kWh)					\$0.000000286
Discounted Participant Payback (years)					8.17

**Table 7 - Home Energy Savings Building Shell Cost-Effectiveness Results
 (Load Shape – WY_Single_Family_Cooling)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0956	\$11,854	\$9,582	-\$2,272	0.81
Total Resource Cost Test (TRC) No Adder	\$0.0956	\$11,854	\$8,711	-\$3,143	0.73
Utility Cost Test (UCT)	\$0.0400	\$4,956	\$8,711	\$3,755	1.76
Rate Impact Test (RIM)		\$19,218	\$8,711	-\$10,507	0.45
Participant Cost Test (PCT)		\$12,997	\$21,212	\$8,215	1.63
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000370
Discounted Participant Payback (years)					14.81

**Table 8 - Home Energy Savings Electronics Cost-Effectiveness Results
 (Load Shape – WY_Single_Family_Plug)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1632	\$2,169,271	\$632,188	-\$1,537,084	0.29
Total Resource Cost Test (TRC) No Adder	\$0.1632	\$2,169,271	\$574,716	-\$1,594,555	0.26
Utility Cost Test (UCT)	\$0.0899	\$1,195,082	\$574,716	-\$620,366	0.48
Rate Impact Test (RIM)		\$2,710,174	\$574,716	-\$2,135,459	0.21
Participant Cost Test (PCT)		\$2,034,040	\$2,541,397	\$507,357	1.25
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000453579
Discounted Participant Payback (years)					4.37

**Table 9 - Home Energy Savings Energy Kits – DHW Cost-Effectiveness Results
 (Load Shape – Residential_ERWH_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0026	\$115	\$2,209	\$2,094	19.18
Total Resource Cost Test (TRC) No Adder	\$0.0026	\$115	\$2,008	\$1,893	17.44
Utility Cost Test (UCT)	\$0.0028	\$123	\$2,008	\$1,885	16.30
Rate Impact Test (RIM)		\$5,151	\$2,008	-\$3,142	0.39
Participant Cost Test (PCT)		\$133	\$5,482	\$5,349	41.12
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000303
Discounted Participant Payback (years)					n/a

**Table 10 - Home Energy Savings Energy Kits – Lighting Cost-Effectiveness Results
 (Load Shape – Residential_Lighting_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0093	\$32	\$183	\$151	5.74
Total Resource Cost Test (TRC) No Adder	\$0.0093	\$32	\$167	\$135	5.21
Utility Cost Test (UCT)	\$0.0099	\$34	\$167	\$133	4.89
Rate Impact Test (RIM)		\$429	\$167	-\$262	0.39
Participant Cost Test (PCT)		\$35	\$455	\$420	13.07
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000023
Discounted Participant Payback (years)					n/a

**Table 11 - Home Energy Savings HVAC Cost-Effectiveness Results
 (Load Shape – WY_Single_Family_Cooling)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	-\$0.0349	-\$182,852	\$366,964	\$549,816	n/a
Total Resource Cost Test (TRC) No Adder	-\$0.0349	-\$182,852	\$333,603	\$516,455	n/a
Utility Cost Test (UCT)	\$0.0447	\$233,969	\$333,603	\$99,634	1.43
Rate Impact Test (RIM)		\$832,683	\$333,603	-\$499,079	0.40
Participant Cost Test (PCT)		-\$359,342	\$877,739	\$1,237,081	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000048055
Discounted Participant Payback (years)					n/a

**Table 12 - Home Energy Savings Lighting Cost-Effectiveness Results
 (Load Shape – Residential_Lighting_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0370	\$1,345,562	\$1,933,229	\$587,668	1.44
Total Resource Cost Test (TRC) No Adder	\$0.0370	\$1,345,562	\$1,757,481	\$411,920	1.31
Utility Cost Test (UCT)	\$0.0223	\$810,973	\$1,757,481	\$946,508	2.17
Rate Impact Test (RIM)		\$4,973,031	\$1,757,481	-\$3,215,550	0.35
Participant Cost Test (PCT)		\$1,334,852	\$5,956,292	\$4,621,440	4.46
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000283737
Discounted Participant Payback (years)					2.00

**Table 13 - Home Energy Savings Water Heating Cost-Effectiveness Results
 (Load Shape – Residential_HPWH_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0222	\$145,306	\$323,405	\$178,099	2.23
Total Resource Cost Test (TRC) No Adder	\$0.0222	\$145,306	\$294,005	\$148,699	2.02
Utility Cost Test (UCT)	\$0.0392	\$257,214	\$294,005	\$36,791	1.14
Rate Impact Test (RIM)		\$1,006,357	\$294,005	-\$712,353	0.29
Participant Cost Test (PCT)		\$5,280	\$1,052,561	\$1,047,281	199.36
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000075475
Discounted Participant Payback (years)					n/a



Memorandum

To: Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 30, 2021
Re: Cost-Effectiveness Results for the Low Income Weatherization Program - Wyoming

Guidehouse estimated the cost-effectiveness results for the Wyoming Low Income Weatherization Program, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program.

Cost-effectiveness was tested using the 2019 IRP decrement. The program passes cost-effectiveness from all perspectives except the RIM test.

Table 1 - Low Income Weatherization Inputs
Table 2 - Low Income Weatherization Annual Program Costs
Table 3 - Low Income Weatherization Savings by Measure Category
Table 4 - Low Income Weatherization Program Level

Table 1 - Low Income Weatherization Inputs

Parameter	Value
Discount Rate	6.92%
Residential Line Loss	10.27%
Residential Energy Rate (\$/kWh) ¹	\$0.1063
Inflation Rate	2.28%

¹ Future rates determined using a 2.28% annual escalator.

Table 2 - Low Income Weatherization Annual Program Costs

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Development	Incentives	Total Utility Costs	Gross Customer Costs
Low Income Weatherization	\$0	\$3,117	\$377	\$1,370	\$3,774	\$8,639	\$0
Total	\$0	\$3,117	\$377	\$1,370	\$3,774	\$8,639	\$0

Table 3 - Low Income Weatherization Savings by Measure Category

Measure Group	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Low Income Weatherization	23,976	100%	23,976	100%	23,976	27
Total	23,976	100%	23,976	100%	23,976	27

**Table 4 - Low Income Weatherization Program Level
 (Load Shape – WY_Single_Family_Cooling)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0237	\$8,639	\$27,960	\$19,321	3.24
Total Resource Cost Test (TRC) No Adder	\$0.0237	\$8,639	\$25,418	\$16,779	2.94
Utility Cost Test (UCT)	\$0.0237	\$8,639	\$25,418	\$16,779	2.94
Rate Impact Test (RIM)		\$50,576	\$25,418	-\$25,158	0.50
Participant Cost Test (PCT)		\$0	\$45,712	\$45,712	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000985
Discounted Participant Payback (years)					n/a



Memorandum

To: Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 30, 2021
Re: Cost-Effectiveness Results for the Wattsmart Business Program Category 2 & 3 – Wyoming

Guidehouse estimated the cost-effectiveness results for the Wyoming Wattsmart Business Program Category 2 and 3, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the combination of Category 2 and 3 delivery channels.

Cost-effectiveness was tested using the 2019 IRP decrement. The program passes cost-effectiveness for the PTRC, TRC, UCT and PCT tests. The memo consists of the following tables.

- Table 1 - Utility Inputs
- Table 2 – Annual Wattsmart Business Program Costs by Category
- Table 3 – Annual Wattsmart Business Program Savings by Category
- Table 4 - Benefit/Cost Ratios by Category
- Table 5 - Wattsmart Business Program Level Cost-Effectiveness Results – Category 2 & 3
- Table 6 - Wattsmart Business Program Level Cost-Effectiveness Results – Category 2
- Table 7 - Wattsmart Business Program Level Cost-Effectiveness Results – Category 3

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.92%
Commercial Line Loss	10.00%
Industrial Line Loss	5.85%
Irrigation Line Loss	10.21%
Commercial Energy Rate (\$/kWh) ¹	\$0.0850
Industrial Energy Rate (\$/kWh) ¹	\$0.0638
Irrigation Energy Rate (\$/kWh) ¹	\$0.0792
Inflation Rate	2.28%

¹ Future rates determined using a 2.28% annual escalator.

Table 2 – Annual Wattsmart Business Program Costs by Category

Category	Engineering and Inspection Costs	Utility Admin	Program Delivery	Program Dev.	Incentives	Total Utility Costs	Gross Customer Costs
Category 2	\$113	\$31,712	\$2,415,162	\$55,679	\$759,252	\$3,261,919	\$1,891,644
Category 3	\$2,222	\$85,654	\$4,117,841	\$76,114	\$3,122,986	\$7,404,816	\$5,572,215
Total	\$2,335	\$117,366	\$6,533,003	\$131,793	\$3,882,238	\$10,666,735	\$7,463,860

Table 3 – Annual Wattsmart Business Program Savings by Category

Category	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Category 2	6,428,337	99%	6,353,570	77%	4,875,360	12
Category 3	36,469,217	94%	34,331,876	93%	31,763,173	11
Total	42,897,555	95%	40,685,446	90%	36,638,533	11

Table 4 - Benefit/Cost Ratios by Category

Category	PTRC	TRC	UCT	RIM	PCT
Category 2	0.54	0.49	0.60	0.27	3.16
Category 3	1.39	1.26	1.64	0.47	3.96
Total	1.14	1.04	1.32	0.43	3.76

Table 5 through Table 7 provide cost-effectiveness results for each Wattsmart Business Program Category beginning with the combination of Category 2 and 3.

Table 5 - Wattsmart Business Program Level Cost-Effectiveness Results – Category 2 & 3

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0444	\$13,618,602	\$15,543,906	\$1,925,304	1.14
Total Resource Cost Test (TRC) No Adder	\$0.0444	\$13,618,602	\$14,130,823	\$512,221	1.04
Utility Cost Test (UCT)	\$0.0348	\$10,666,735	\$14,130,823	\$3,464,089	1.32
Rate Impact Test (RIM)		\$32,920,500	\$14,130,823	-\$18,789,677	0.43
Participant Cost Test (PCT)		\$7,463,860	\$28,026,974	\$20,563,114	3.76
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000129176
Discounted Participant Payback (years)					1.44

Table 6 - Wattsmart Business Program Level Cost-Effectiveness Results – Category 2

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0903	\$3,960,019	\$2,147,044	-\$1,812,975	0.54
Total Resource Cost Test (TRC) No Adder	\$0.0903	\$3,960,019	\$1,951,858	-\$2,008,160	0.49
Utility Cost Test (UCT)	\$0.0744	\$3,261,919	\$1,951,858	-\$1,310,060	0.60
Rate Impact Test (RIM)		\$7,258,176	\$1,951,858	-\$5,306,318	0.27
Participant Cost Test (PCT)		\$1,891,644	\$5,969,644	\$4,078,000	3.16
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000067687
Discounted Participant Payback (years)					2.80

Table 7 - Wattsmart Business Program Level Cost-Effectiveness Results – Category 3

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0368	\$9,658,584	\$13,396,862	\$3,738,278	1.39
Total Resource Cost Test (TRC) No Adder	\$0.0368	\$9,658,584	\$12,178,965	\$2,520,382	1.26
Utility Cost Test (UCT)	\$0.0282	\$7,404,816	\$12,178,965	\$4,774,149	1.64
Rate Impact Test (RIM)		\$25,662,324	\$12,178,965	-\$13,483,359	0.47
Participant Cost Test (PCT)		\$5,572,215	\$22,057,330	\$16,485,115	3.96
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000201055
Discounted Participant Payback (years)					1.18



Memorandum

To: Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 30, 2021
Re: Cost-Effectiveness Results for the Wattsmart Business Program Category 2 - Wyoming

Guidehouse estimated the cost-effectiveness results for the Wyoming Wattsmart Business Program Category 2, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall Category 2 program and for the 9 measure categories.

Cost-effectiveness was tested using the 2019 IRP decrement. The program passes cost-effectiveness for the PCT test. The memo consists of the following tables.

- Table 1 - Utility Inputs
- Table 2 – Annual Wattsmart Business Program Costs by Measure Category – Category 2
- Table 3 – Annual Wattsmart Business Program Savings by Measure Category – Category 2
- Table 4 - Benefit/Cost Ratios by Measure Category
- Table 5 – Wattsmart Business Program Level Cost-Effectiveness Results – Category 2
- Table 6 - Wattsmart Business Building Shell Cost-Effectiveness Results
- Table 7 - Wattsmart Business Energy Management Cost-Effectiveness Results
- Table 8 - Wattsmart Business HVAC Cost-Effectiveness Results
- Table 9 - Wattsmart Business Irrigation Cost-Effectiveness Results
- Table 10 - Wattsmart Business Lighting Cost-Effectiveness Results
- Table 11 - Wattsmart Business Motors Cost-Effectiveness Results
- Table 12 - Wattsmart Business Refrigeration Cost-Effectiveness Results
- Table 13 - Wattsmart Business Vendor Promotion Cost-Effectiveness Results
- Table 14 - Wattsmart Business Energy Proj Mgr Co-Fund Cost-Effectiveness Results

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.92%
Commercial Line Loss	10.00%
Industrial Line Loss	5.85%
Irrigation Line Loss	10.21%
Commercial Energy Rate (\$/kWh) ¹	\$0.0850
Industrial Energy Rate (\$/kWh) ¹	\$0.0638
Irrigation Energy Rate (\$/kWh) ¹	\$0.0792
Inflation Rate	2.28%

¹ Future rates determined using a 2.28% annual escalator.

Table 2 – Annual Wattsmart Business Program Costs by Measure Category – Category 2

Measure Category	Engineering & Inspection Costs	Utility Admin	Program Delivery	Program Dev.	Incentives	Total Utility Costs	Gross Customer Costs
Building Shell	\$0	\$11	\$482	\$24	\$901	\$1,418	\$3,167
Energy Management	\$0	\$1,652	\$1,526,215	\$235	\$543	\$1,528,646	\$695
HVAC	\$1	\$301	\$13,454	\$682	\$9,642	\$24,081	\$39,727
Irrigation	\$0	\$257	\$14,925	\$1,207	\$17,309	\$33,698	\$70,927
Lighting	\$110	\$28,910	\$848,463	\$52,940	\$619,438	\$1,549,860	\$1,753,658
Motors	\$0	\$409	\$11,553	\$203	\$1,405	\$13,570	\$3,332
Refrigeration	\$1	\$171	\$71	\$388	\$6,714	\$7,344	\$20,138
Vendor Promotion	\$0	\$0	\$0	\$0	\$600	\$600	\$0
Energy Proj Mgr Co-Fund	\$0	\$0	\$0	\$0	\$102,701	\$102,701	\$0
Total	\$113	\$31,712	\$2,415,162	\$55,679	\$759,252	\$3,261,919	\$1,891,644

Table 3 – Annual Wattmart Business Program Savings by Measure Category – Category 2

Measure Category	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Building Shell	2,820	100%	2,820	88%	2,482	20
Energy Management	27,152	100%	27,152	76%	20,636	3
HVAC	78,748	100%	78,748	88%	69,298	15
Irrigation	139,363	100%	139,363	88%	122,639	9
Lighting	6,112,054	99%	6,039,631	76%	4,599,820	12
Motors	23,442	90%	21,098	100%	21,098	12
Refrigeration	44,758	100%	44,758	88%	39,387	12
Vendor Promotion	0	NA	0	NA	0	0
Energy Proj Mgr Co-Fund	0	NA	0	NA	0	0
Total	6,428,337	99%	6,353,570	77%	4,875,360	12

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Category	PTRC	TRC	UCT	RIM	PCT
Building Shell	0.52	0.47	1.10	0.36	1.33
Energy Management	n/a	n/a	n/a	n/a	10.53
HVAC	0.83	0.75	1.55	0.41	2.17
Irrigation	0.63	0.58	1.35	0.41	1.46
Lighting	0.89	0.81	1.19	0.34	3.20
Motors	0.64	0.58	0.66	0.30	5.37
Refrigeration	1.11	1.01	2.53	0.46	2.17
Vendor Promotion	n/a	n/a	n/a	n/a	n/a
Energy Proj Mgr Co-Fund	n/a	n/a	n/a	n/a	n/a
Total	0.54	0.49	0.60	0.27	3.16

Table 5 – Wattsmart Business Program Level Cost-Effectiveness Results – Category 2

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0903	\$3,960,019	\$2,147,044	-\$1,812,975	0.54
Total Resource Cost Test (TRC) No Adder	\$0.0903	\$3,960,019	\$1,951,858	-\$2,008,160	0.49
Utility Cost Test (UCT)	\$0.0744	\$3,261,919	\$1,951,858	-\$1,310,060	0.60
Rate Impact Test (RIM)		\$7,258,176	\$1,951,858	-\$5,306,318	0.27
Participant Cost Test (PCT)		\$1,891,644	\$5,969,644	\$4,078,000	3.16
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000067687
Discounted Participant Payback (years)					2.80

Table 6 - Table 14 provide cost-effectiveness results for all 9 measure categories in Category 2.

Table 6 - Wattsmart Business Building Shell Cost-Effectiveness Results (Load Shape – WY_School_Space_Cool)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1036	\$3,304	\$1,723	-\$1,581	0.52
Total Resource Cost Test (TRC) No Adder	\$0.1036	\$3,304	\$1,567	-\$1,738	0.47
Utility Cost Test (UCT)	\$0.0445	\$1,418	\$1,567	\$148	1.10
Rate Impact Test (RIM)		\$4,343	\$1,567	-\$2,776	0.36
Participant Cost Test (PCT)		\$3,167	\$4,224	\$1,057	1.33
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000147
Discounted Participant Payback (years)					13.73

Table 7 - Wattsmart Business Energy Management Cost-Effectiveness Results (Load Shape – WY_Industrial_Machinery_General)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$27.0187	\$1,528,632	\$2,306	-\$1,526,326	n/a
Total Resource Cost Test (TRC) No Adder	\$27.0187	\$1,528,632	\$2,096	-\$1,526,536	n/a
Utility Cost Test (UCT)	\$27.0189	\$1,528,646	\$2,096	-\$1,526,550	n/a
Rate Impact Test (RIM)		\$1,533,798	\$2,096	-\$1,531,702	n/a
Participant Cost Test (PCT)		\$695	\$7,322	\$6,627	10.53
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000543081
Discounted Participant Payback (years)					0.08

**Table 8 - Wattsmart Business HVAC Cost-Effectiveness Results
(Load Shape – WY_Health_HVAC_Aux)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0670	\$49,398	\$40,980	-\$8,419	0.83
Total Resource Cost Test (TRC) No Adder	\$0.0670	\$49,398	\$37,254	-\$12,144	0.75
Utility Cost Test (UCT)	\$0.0327	\$24,081	\$37,254	\$13,174	1.55
Rate Impact Test (RIM)		\$91,548	\$37,254	-\$54,294	0.41
Participant Cost Test (PCT)		\$39,727	\$86,310	\$46,583	2.17
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000003830
Discounted Participant Payback (years)					5.51

**Table 9 - Wattsmart Business Irrigation Cost-Effectiveness Results
(Load Shape – WY_Irrigation_General)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0885	\$78,804	\$49,891	-\$28,913	0.63
Total Resource Cost Test (TRC) No Adder	\$0.0885	\$78,804	\$45,355	-\$33,449	0.58
Utility Cost Test (UCT)	\$0.0378	\$33,698	\$45,355	\$11,657	1.35
Rate Impact Test (RIM)		\$109,544	\$45,355	-\$64,189	0.41
Participant Cost Test (PCT)		\$70,927	\$103,498	\$32,571	1.46
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000007559
Discounted Participant Payback (years)					6.02

**Table 10 - Wattsmart Business Lighting Cost-Effectiveness Results
(Load Shape – WY_Miscellaneous_Lighting)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0545	\$2,266,031	\$2,021,819	-\$244,212	0.89
Total Resource Cost Test (TRC) No Adder	\$0.0545	\$2,266,031	\$1,838,017	-\$428,014	0.81
Utility Cost Test (UCT)	\$0.0372	\$1,549,860	\$1,838,017	\$288,157	1.19
Rate Impact Test (RIM)		\$5,345,677	\$1,838,017	-\$3,507,660	0.34
Participant Cost Test (PCT)		\$1,753,658	\$5,603,378	\$3,849,720	3.20
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000309513
Discounted Participant Payback (years)					2.97

**Table 11 - Wattsmart Business Motors Cost-Effectiveness Results
 (Load Shape – WY_Miscellaneous_Mfg_General)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0816	\$15,497	\$9,910	-\$5,587	0.64
Total Resource Cost Test (TRC) No Adder	\$0.0816	\$15,497	\$9,009	-\$6,488	0.58
Utility Cost Test (UCT)	\$0.0715	\$13,570	\$9,009	-\$4,561	0.66
Rate Impact Test (RIM)		\$30,049	\$9,009	-\$21,040	0.30
Participant Cost Test (PCT)		\$3,332	\$17,884	\$14,552	5.37
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001857
Discounted Participant Payback (years)					1.13

**Table 12 - Wattsmart Business Refrigeration Cost-Effectiveness Results
 (Load Shape – WY_Grocery_Refrigeration)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0515	\$18,352	\$20,416	\$2,064	1.11
Total Resource Cost Test (TRC) No Adder	\$0.0515	\$18,352	\$18,560	\$208	1.01
Utility Cost Test (UCT)	\$0.0206	\$7,344	\$18,560	\$11,215	2.53
Rate Impact Test (RIM)		\$39,917	\$18,560	-\$21,357	0.46
Participant Cost Test (PCT)		\$20,138	\$43,728	\$23,590	2.17
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001885
Discounted Participant Payback (years)					4.21

**Table 13 - Wattsmart Business Vendor Promotion Cost-Effectiveness Results
 (Load Shape – n/a)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	n/a	\$0	\$0	\$0	n/a
Total Resource Cost Test (TRC) No Adder	n/a	\$0	\$0	\$0	n/a
Utility Cost Test (UCT)	n/a	\$600	\$0	-\$600	n/a
Rate Impact Test (RIM)		\$600	\$0	-\$600	n/a
Participant Cost Test (PCT)		\$0	\$600	\$600	n/a
Lifecycle Revenue Impacts (\$/kWh)					n/a
Discounted Participant Payback (years)					n/a

**Table 14 - Wattsmart Business Energy Proj Mgr Co-Fund Cost-Effectiveness Results
 (Load Shape – n/a)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	n/a	\$0	\$0	\$0	n/a
Total Resource Cost Test (TRC) No Adder	n/a	\$0	\$0	\$0	n/a
Utility Cost Test (UCT)	n/a	\$102,701	\$0	-\$102,701	n/a
Rate Impact Test (RIM)		\$102,701	\$0	-\$102,701	n/a
Participant Cost Test (PCT)		\$0	\$102,701	\$102,701	n/a
Lifecycle Revenue Impacts (\$/kWh)					n/a
Discounted Participant Payback (years)					n/a



Memorandum

To: Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 30, 2021
Re: Cost-Effectiveness Results for the Wattsmart Business Program Category 3 - Wyoming

Guidehouse estimated the cost-effectiveness results for the Wyoming Wattsmart Business Program Category 3, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall Category 3 program and for the 7 measure categories.

Cost-effectiveness was tested using the 2019 IRP decrement. The program passes cost-effectiveness for PTRC, TRC, UCT, and PCT tests. The memo consists of the following tables.

- Table 1 - Utility Inputs
- Table 2 – Annual Wattsmart Business Program Costs by Measure Category – Category 3
- Table 3 – Annual Wattsmart Business Program Savings by Measure Category – Category 3
- Table 4 - Benefit/Cost Ratios by Measure Category
- Table 5 – Wattsmart Business Program Level Cost-Effectiveness Results – Category 3
- Table 6 - Wattsmart Business Energy Management Cost-Effectiveness Results
- Table 7 - Wattsmart Business Energy Project Manager Co-Funding Cost-Effectiveness Results
- Table 8 - Wattsmart Business HVAC Cost-Effectiveness Results
- Table 9 - Wattsmart Business Lighting Cost-Effectiveness Results
- Table 10 - Wattsmart Business Motors Cost-Effectiveness Results
- Table 11 - Wattsmart Business Oil & Gas Cost-Effectiveness Results
- Table 12 - Wattsmart Business Compressed Air Cost-Effectiveness Results

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.92%
Commercial Line Loss	10.00%
Industrial Line Loss	5.85%
Irrigation Line Loss	10.21%
Commercial Energy Rate (\$/kWh) ¹	\$0.0850
Industrial Energy Rate (\$/kWh) ¹	\$0.0638
Irrigation Energy Rate (\$/kWh) ¹	\$0.0792
Inflation Rate	2.28%

¹ Future rates determined using a 2.28% annual escalator.

Table 2 – Annual Wattsmart Business Program Costs by Measure Category – Category 3

Measure Category	Engineering & Inspection Costs	Utility Admin	Program Delivery	Program Dev.	Incentives	Total Utility Costs	Gross Customer Costs
Additional Measures	\$35	\$1,170	\$29,652	\$1,157	\$87,329	\$119,343	\$193,856
Energy Management	\$589	\$20,683	\$901,022	\$19,806	\$189,794	\$1,131,894	\$242,937
HVAC	\$0	\$4,279	\$31,250	\$1,220	\$90,961	\$127,709	\$472,855
Lighting	\$13	\$3,747	\$466,483	\$1,358	\$66,111	\$537,713	\$238,786
Motors	\$1,342	\$44,998	\$2,307,737	\$44,508	\$2,288,596	\$4,687,180	\$3,957,771
Oil & Gas	\$243	\$8,154	\$381,698	\$8,065	\$176,979	\$575,139	\$466,010
Energy Proj Mgr Co-Fund	\$0	\$2,624	\$0	\$0	\$223,215	\$225,839	\$0
Total	\$2,222	\$85,654	\$4,117,841	\$76,114	\$3,122,986	\$7,404,816	\$5,572,215

Table 3 – Annual Wattsmart Business Program Savings by Measure Category – Category 3

Measure Category	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Additional Measures	554,526	100%	554,526	88%	487,983	15
Energy Management	9,489,714	100%	9,489,714	76%	7,212,183	3
HVAC	584,405	100%	584,405	88%	514,276	19
Lighting	650,734	99%	645,949	76%	491,449	12
Motors	21,325,558	90%	19,193,002	100%	19,193,002	15
Oil & Gas	3,864,280	100%	3,864,280	100%	3,864,280	7
Energy Proj Mgr Co-Fund	0	n/a	0	n/a	0	0
Total	36,469,217	94%	34,331,876	93%	31,763,173	11

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Category	PTRC	TRC	UCT	RIM	PCT
Additional Measures	1.34	1.22	2.07	0.52	2.54
Energy Management	0.69	0.63	0.62	0.28	8.13
HVAC	0.82	0.74	2.64	0.47	1.60
Lighting	0.33	0.30	0.37	0.22	2.37
Motors	1.68	1.53	2.07	0.52	4.12
Oil & Gas	1.26	1.15	1.72	0.47	3.71
Energy Proj Mgr Co-Fund	n/a	n/a	n/a	n/a	n/a
Total	1.39	1.26	1.64	0.47	3.96

Table 5 – Wattsmart Business Program Level Cost-Effectiveness Results – Category 3

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0368	\$9,658,584	\$13,396,862	\$3,738,278	1.39
Total Resource Cost Test (TRC) No Adder	\$0.0368	\$9,658,584	\$12,178,965	\$2,520,382	1.26
Utility Cost Test (UCT)	\$0.0282	\$7,404,816	\$12,178,965	\$4,774,149	1.64
Rate Impact Test (RIM)		\$25,662,324	\$12,178,965	-\$13,483,359	0.47
Participant Cost Test (PCT)		\$5,572,215	\$22,057,330	\$16,485,115	3.96
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000201055
Discounted Participant Payback (years)					1.18

Table 6 - Table 12 provide cost-effectiveness results for all 7 measure categories in Category 3.

Table 6 - Wattsmart Business Additional Measures Cost-Effectiveness Results (Load Shape – WY_Miscellaneous_Mfg_General)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0390	\$202,607	\$271,304	\$68,696	1.34
Total Resource Cost Test (TRC) No Adder	\$0.0390	\$202,607	\$246,640	\$44,033	1.22
Utility Cost Test (UCT)	\$0.0230	\$119,343	\$246,640	\$127,297	2.07
Rate Impact Test (RIM)		\$475,941	\$246,640	-\$229,301	0.52
Participant Cost Test (PCT)		\$193,856	\$492,554	\$298,698	2.54
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000016177
Discounted Participant Payback (years)					3.54

**Table 7 - Wattsmart Business Energy Management Cost-Effectiveness Results
 (Load Shape – WY_Industrial_Machinery_General)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0570	\$1,126,731	\$775,866	-\$350,865	0.69
Total Resource Cost Test (TRC) No Adder	\$0.0570	\$1,126,731	\$705,333	-\$421,398	0.63
Utility Cost Test (UCT)	\$0.0572	\$1,131,894	\$705,333	-\$426,561	0.62
Rate Impact Test (RIM)		\$2,489,379	\$705,333	-\$1,784,046	0.28
Participant Cost Test (PCT)		\$242,937	\$1,975,959	\$1,733,022	8.13
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000632552
Discounted Participant Payback (years)					0.11

**Table 8 - Wattsmart Business HVAC Cost-Effectiveness Results
 (Load Shape – WY_Health_HVAC_Aux)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0707	\$452,860	\$370,441	-\$82,420	0.82
Total Resource Cost Test (TRC) No Adder	\$0.0707	\$452,860	\$336,764	-\$116,096	0.74
Utility Cost Test (UCT)	\$0.0199	\$127,709	\$336,764	\$209,056	2.64
Rate Impact Test (RIM)		\$714,513	\$336,764	-\$377,749	0.47
Participant Cost Test (PCT)		\$472,855	\$757,784	\$284,929	1.60
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000021029
Discounted Participant Payback (years)					10.45

**Table 9 - Wattsmart Business Lighting Cost-Effectiveness Results
 (Load Shape – WY_Miscellaneous_Lighting)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1441	\$653,236	\$218,056	-\$435,179	0.33
Total Resource Cost Test (TRC) No Adder	\$0.1441	\$653,236	\$198,233	-\$455,003	0.30
Utility Cost Test (UCT)	\$0.1186	\$537,713	\$198,233	-\$339,480	0.37
Rate Impact Test (RIM)		\$917,616	\$198,233	-\$719,383	0.22
Participant Cost Test (PCT)		\$238,786	\$565,525	\$326,739	2.37
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000063478
Discounted Participant Payback (years)					4.78

**Table 10 - Wattsmart Business Motors Cost-Effectiveness Results
 (Load Shape – WY_Miscellaneous_Mfg_General)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0311	\$6,356,355	\$10,670,731	\$4,314,376	1.68
Total Resource Cost Test (TRC) No Adder	\$0.0311	\$6,356,355	\$9,700,665	\$3,344,310	1.53
Utility Cost Test (UCT)	\$0.0230	\$4,687,180	\$9,700,665	\$5,013,485	2.07
Rate Impact Test (RIM)		\$18,712,648	\$9,700,665	-\$9,011,983	0.52
Participant Cost Test (PCT)		\$3,957,771	\$16,314,064	\$12,356,293	4.12
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000635770
Discounted Participant Payback (years)					1.35

**Table 11 - Wattsmart Business Oil & Gas Cost-Effectiveness Results
 (Load Shape – WY_Petroleum_Refining_General)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0381	\$864,170	\$1,090,463	\$226,293	1.26
Total Resource Cost Test (TRC) No Adder	\$0.0381	\$864,170	\$991,330	\$127,160	1.15
Utility Cost Test (UCT)	\$0.0254	\$575,139	\$991,330	\$416,191	1.72
Rate Impact Test (RIM)		\$2,126,388	\$991,330	-\$1,135,058	0.47
Participant Cost Test (PCT)		\$466,010	\$1,728,229	\$1,262,218	3.71
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000172055
Discounted Participant Payback (years)					1.15

**Table 12 - Wattsmart Business Energy Proj Mgr Co-Fund Cost-Effectiveness Results
 (Load Shape – n/a)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	n/a	\$2,624	\$0	-\$2,624	n/a
Total Resource Cost Test (TRC) No Adder	n/a	\$2,624	\$0	-\$2,624	n/a
Utility Cost Test (UCT)	n/a	\$225,839	\$0	-\$225,839	n/a
Rate Impact Test (RIM)		\$225,839	\$0	-\$225,839	n/a
Participant Cost Test (PCT)		\$0	\$223,215	\$223,215	n/a
Lifecycle Revenue Impacts (\$/kWh)					n/a
Discounted Participant Payback (years)					n/a