



Wyoming Annual Demand-Side Management Report

January 1, 2019 – December 31, 2019

Issued July 1, 2020



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List of Abbreviations and Acronyms

CCS	Council of Community Services
DSM	Demand-Side Management
ECM	Electronically Commutated Motors
GWh	Gigawatt-hour
HVAC	Heating, ventilation and air conditioning
IRP	Integrated Resource Plan
kWh	Kilowatt hour
LED	Lighting-emitting Diode
PCT	Participant Cost Test
PTRC	Total Resource Cost Test with 10 percent adder
RIM	Ratepayer Impact Measure Test
SBDI	Small Business Direct Install
Schedule 191	Schedule 191 Customer Efficiency Service Charges
TRC	Total Resource Cost Test
UCT	Utility Cost Test
VFD	Variable Frequency Drive
WBVN	Wattsmart Business Vendor Network
WFS	Wyoming Department of Family Services
WWS	Wyoming Weatherization Services

EXECUTIVE SUMMARY

PacifiCorp dba Rocky Mountain Power (“Company”) is a multi-jurisdictional electric utility providing retail service to customers in California, Idaho, Oregon, Utah, Washington, and Wyoming. Rocky Mountain Power serves approximately 147,000 customers in Wyoming.

The Company offers its customers energy efficiency services and incentives through programs targeting residential, agricultural, commercial and industrial customers. In its Order in Docket No. 20000-264-EA-06 (Record No. 10960), the Wyoming Public Service Commission (“Commission”) approved a Stipulation between Rocky Mountain Power, Office of Consumer Advocates, Wyoming Industrial Energy Consumers, and Southwest Energy Efficiency Project, and directed the Company to file reports addressing the performance of Wyoming demand-side management (“DSM”) programs through 2012. In continuing with the standard, the Company has completed an annual report for 2019.

The report provides details on program results, activities, expenditures, and Customer Efficiency Service Charge (“Schedule 191”) revenue from January 1, 2019 through December 31, 2019. The Company, on behalf of its customers, invested \$9.8 million in energy efficiency resource acquisition in 2019. The investment yielded approximately 49.1 gigawatt-hours (“GWh”) in first year energy savings¹ and approximately 10.93 megawatts (at generation) of energy efficiency savings related to capacity reductions.² Net benefits based on the projected value of the energy savings³ over the life of the individual measures are estimated at \$175,546.

The energy efficiency portfolio was cost effective for both the Utility Cost Test (UCT) and Participant Cost Test (PCT) for the reporting period reflected in Table 1 below. A further discussion of cost effectiveness is located in the residential and non-residential sections of the report.

Portfolio-level cost effectiveness includes portfolio costs, such as the Potential Assessment and the DSM system database. Sector-level cost effectiveness, reported in the Residential and Non-Residential sections of this report includes sector-specific evaluation, measurement and verification expenditures. The Company includes quantifiable non-energy impacts at the portfolio and residential level, as well as the Wattsmart Homes and Low Income Weatherization program level. Appendix 1 provides 2019 cost effectiveness performance.

¹ Reported savings at generation.

² See Energy Efficiency Program section for explanation on how the capacity contribution savings values are calculated.

³ See Table 1 – Utility Cost Net Benefits.

Table 1
Cost Effectiveness for the Energy Efficiency Portfolio

Benefit / Cost Test	Benefit / Cost Ratio (inc. Portfolio Costs)
Total Resource Cost ("PTRC") Test plus 10 percent	0.85
Total Resource Cost Test ("TRC")	0.77
Utility Cost Test ("UCT")	1.02
Participant Cost Test ("PCT")	3.42
Ratepayer Impact Cost Test ("RIM")	0.34

REGULATORY HISTORY

The following is a list of regulatory compliance activities during the 2019 reporting period that occurred in support of Company DSM programs:

- On January 9, 2019, in Docket No. 20000-264-EA-06, the Company filed a notice with a web link to where the 2016-2017 Wattsmart Business Program Evaluation was posted on the Company's website.
- On January 31, 2019, 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 programs from October 1, 2018 – December 31, 2018.
- On January 31, 2019, 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 April 29, 2019, the Company posted a 30-day notice on its website to make modifications to the Wattsmart Homes program. Key modifications included the reduction of incentive levels for evaporative coolers and transitioning evaporative cooler incentives from a post-purchase application to an instant discount at the point of sale. These modifications went into effect May 29, 2019.
- On May 9, 2019, 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 programs from January 1, 2019 – March 31, 2019.
- On May 9, 2019, in Docket No. 20000-383-EA-10, the Company filed its quarterly program status reports with monthly participation levels, energy savings, DSM program cost data and Schedule 191 balances by category.
- On June 5, 2019, the Company posted a 45-day notice on its website to make modifications to the Wattsmart Homes program. Key modifications included the discontinuation of incentives for new gas furnaces with electronically commutated motors due to changes in minimum market standards. These modifications went into effect July 22, 2019.
- On August 1, 2019, in Docket No. 20000-264-EA-06, the Wyoming 2018 Annual DSM Report and was filed.
- On August 8, 2019, the Company posted a 45-day notice on its website to make modifications to the Wattsmart Business program. Key modifications included increasing incentives for various mid-market lighting offerings in an effort to increase program participation and adoption of energy efficient lighting. These modifications went into effect September 23, 2019.
- On August 15, 2019, 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 programs from April 1, 2019 – June 30, 2019.

- On August 15, 2019, in Docket No. 20000-383-EA-10, the Company filed its quarterly program status reports with monthly participation levels, energy savings, DSM program cost data and Schedule 191 balances by category.
- On November 15, 2019, 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 programs from July 1, 2019 – September 30, 2019.
- November 15, 2019, in Docket No. 20000-383-EA-10, the Company filed its quarterly program status reports with monthly participation levels, energy savings, DSM program cost data and Schedule 191 balances by category.
- On December 17, 2019, in Docket No. 20000-264-EA-06, the Company filed its 2020 promotional plan to educate the public concerning energy efficiency and to promote its DSM programs.

Wattsmart

DSM EXPENDITURES

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

Tables 2 - 4 show Schedule 191 balances by category as of December 31, 2019.

Table 2
Schedule 191 Balance - Category 1 (Residential)

Month	Monthly Program Costs	Accrued Costs	Rate Recovery	Carrying Charge	Cash Basis Accumulated Balance	Accrual Based Accumulated Balance
18-Dec					\$ 1,784,045	\$ 1,695,501
19-Jan	\$ 158,390	\$ 55,198	\$ (142,022)	\$ (5,224)	\$ (1,772,900)	\$ (1,629,159)
19-Feb	\$ 118,795	\$ (37,558)	\$ (130,019)	\$ (5,232)	\$ (1,789,356)	\$ (1,683,173)
19-Mar	\$ 36,725	\$ 31,410	\$ (128,042)	\$ (5,398)	\$ (1,886,071)	\$ (1,748,477)
19-Apr	\$ 78,210	\$ 53,121	\$ (98,602)	\$ (5,578)	\$ (1,912,041)	\$ (1,721,325)
19-May	\$ 63,022	\$ 46,760	\$ (87,161)	\$ (5,660)	\$ (1,941,840)	\$ (1,704,364)
19-Jun	\$ 93,239	\$ 67,826	\$ (85,251)	\$ (5,700)	\$ (1,939,552)	\$ (1,634,251)
19-Jul	\$ 50,729	\$ 38,425	\$ (92,588)	\$ (5,767)	\$ (1,987,178)	\$ (1,643,452)
19-Aug	\$ 340,029	\$ (240,442)	\$ (108,528)	\$ (5,505)	\$ (1,761,183)	\$ (1,657,898)
19-Sep	\$ 127,731	\$ 24,652	\$ (94,082)	\$ (5,131)	\$ (1,732,665)	\$ (1,604,728)
19-Oct	\$ 68,848	\$ 81,076	\$ (82,807)	\$ (5,117)	\$ (1,751,741)	\$ (1,542,728)
19-Nov	\$ 105,010	\$ (34,592)	\$ (109,292)	\$ (5,159)	\$ (1,761,182)	\$ (1,586,761)
19-Dec	\$ 194,189	\$ 142,158	\$ (136,309)	\$ (5,096)	\$ (1,708,397)	\$ (1,391,818)
2019 Total	\$ 1,434,918	\$ 228,036	\$ (1,294,703)	\$ (64,567)		

Table 3
Schedule 191 Balance - Category 2 (Small Commercial and Industrial)

Month	Monthly Program Costs	Accrued Costs	Rate Recovery	Carrying Charge	Cash Basis Accumulated Balance	Accrual Based Accumulated Balance
18-Dec					\$ (240,244)	\$ (113,963)
19-Jan	\$ 178,389	\$ 40,508	\$ (445,799)	\$ (1,100)	\$ (508,755)	\$ (341,966)
19-Feb	\$ 242,993	\$ (111,902)	\$ (424,722)	\$ (1,764)	\$ (692,247)	\$ (637,360)
19-Mar	\$ 1,674,507	\$ 93,331	\$ (448,810)	\$ (234)	\$ 533,216	\$ 681,434
19-Apr	\$ 230,453	\$ 30,439	\$ (413,998)	\$ 1,299	\$ 350,970	\$ 529,626
19-May	\$ 179,852	\$ (35,542)	\$ (408,193)	\$ 697	\$ 123,326	\$ 266,441
19-Jun	\$ 207,029	\$ 82,762	\$ (409,970)	\$ 64	\$ (79,552)	\$ 146,325
19-Jul	\$ 202,984	\$ 4,352	\$ (436,310)	\$ (577)	\$ (313,454)	\$ (83,224)
19-Aug	\$ 25,851	\$ 14,155	\$ (446,672)	\$ (1,541)	\$ (735,815)	\$ (491,430)
19-Sep	\$ 114,035	\$ 11,273	\$ (443,763)	\$ (2,649)	\$ (1,068,193)	\$ (812,535)
19-Oct	\$ 268,356	\$ 67,884	\$ (409,239)	\$ (3,349)	\$ (1,212,425)	\$ (888,883)
19-Nov	\$ 129,439	\$ 30,737	\$ (427,330)	\$ (4,005)	\$ (1,514,321)	\$ (1,160,042)
19-Dec	\$ 397,221	\$ 87,070	\$ (451,009)	\$ (4,534)	\$ (1,572,643)	\$ (1,131,294)
2019 Total	\$ 3,851,110	\$ 315,068	\$ (5,165,816)	\$ (17,693)		

Table 4
Schedule 191 Balance - Category 3 (Large Commercial and Industrial)

Month	Monthly Program Costs	Accrued Costs	Rate Recovery	Carrying Charge	Cash Basis Accumulated Balance	Accrual Based Accumulated Balance
18-Dec					\$ 8,531,448	\$ 8,802,106
19-Jan	\$ 203,223	\$ 106,819	\$ (277,279)	\$ 63,715	\$ 8,521,107	\$ 8,898,583
19-Feb	\$ 334,930	\$ (94,698)	\$ (264,644)	\$ 64,179	\$ 8,655,571	\$ 8,938,350
19-Mar	\$ (889,328)	\$ 78,717	\$ (300,027)	\$ 60,463	\$ 7,526,680	\$ 7,888,175
19-Apr	\$ 589,468	\$ (28,972)	\$ (271,041)	\$ 57,651	\$ 7,902,757	\$ 8,235,281
19-May	\$ 400,158	\$ (8,322)	\$ (242,285)	\$ 59,869	\$ 8,120,499	\$ 8,444,701
19-Jun	\$ 276,780	\$ 63,778	\$ (319,122)	\$ 60,752	\$ 8,138,909	\$ 8,526,889
19-Jul	\$ 420,105	\$ (43,002)	\$ (272,954)	\$ 61,600	\$ 8,347,660	\$ 8,692,638
19-Aug	\$ 289,289	\$ 307,676	\$ (264,095)	\$ 62,709	\$ 8,435,563	\$ 9,088,217
19-Sep	\$ 110,468	\$ 289,072	\$ (318,952)	\$ 62,492	\$ 8,289,570	\$ 9,231,297
19-Oct	\$ 952,781	\$ (421,829)	\$ (245,585)	\$ 64,831	\$ 9,061,598	\$ 9,581,495
19-Nov	\$ 447,791	\$ 34,849	\$ (338,121)	\$ 68,381	\$ 9,239,648	\$ 9,794,395
19-Dec	\$ 643,188	\$ 263,780	\$ (229,165)	\$ 70,858	\$ 9,724,529	\$ 10,543,055
2019 Total	\$ 3,778,852	\$ 547,869	\$ (3,343,271)	\$ 757,500		

Column Explanations:

Monthly Program Costs: Monthly expenditures for all energy efficiency program activities.

Monthly Net Accrued Costs: Monthly net change of program costs incurred during the period not yet posted.

Rate Recovery: Revenue collected through Schedule 191.

Carrying Charge: Monthly carrying charge is based on “Cash Basis Accumulated Balance” of the account. The rate is a reciprocal interest charge with the Schedule 300 Customer Deposit Interest Rate.

Cash Basis Accumulated Balance Current balance of the account; a running total of account activities. A negative accumulative balance means cumulative revenue exceeds cumulative expenditures; a positive accumulative balance means cumulative expenditures exceed cumulative revenue.

Accrual Basis Accumulative Balance: Current balance of account including accrued costs.

PLANNING PROCESS

Integrated Resource Plan

The Company develops a biennial integrated resource plan (“IRP”) as a means of balancing cost, risk, uncertainty, supply reliability/deliverability and long-run public policy goals.⁴ The plan presents a framework of future actions to ensure the Company continues to provide reliable, reasonably priced service to customers. Energy efficiency and peak management opportunities are incorporated into the IRP based on their availability, characteristics and costs.

PacifiCorp divides energy efficiency and peak management resources into four general classes:

- **Class 1 DSM – Resources from fully dispatchable or scheduled firm capacity product offerings/programs** – Class 1 DSM programs are those for which capacity savings occur as a result of active Company control or advanced scheduling. Once customers agree to participate in a Class 1 DSM program, the timing and persistence of the load reduction is involuntary on their part within the agreed upon limits and parameters of the program. Program examples include residential and small commercial central air conditioner load control programs that are dispatchable, and irrigation load management and interruptible or curtailment programs (which may be dispatchable or scheduled firm, depending on the particular program design or event noticing requirements).
- **Class 2 DSM – Resources from non-dispatchable, firm energy and capacity product offerings/programs** – Class 2 DSM programs are those for which sustainable energy and related capacity savings are achieved through facilitation of technological advancements in equipment, appliances, lighting and structures, or repeatable and predictable voluntary actions on a customer’s part to manage the energy use at their facility or home. Class 2 DSM programs generally provide financial or service incentives to customers to improve the efficiency of existing or new customer-owned facilities through: (1) the installation of more efficient equipment, such as lighting, motors, air conditioners, or appliances; (2) upgrading building efficiency through improved insulation levels, windows, etc.; or (3) behavioral modifications, such as strategic energy management efforts at business facilities and home energy reports for residential customers. The savings endure (are considered firm) over the life of the improvement or customer action. Program examples include comprehensive commercial and industrial new and retrofit energy efficiency programs, comprehensive home improvement retrofit programs, strategic energy management and home energy reports.
- **Class 3 DSM – Resources from price responsive energy and capacity product offerings/programs** – Class 3 DSM programs seek to achieve short-duration (hour by hour) energy and capacity savings from actions taken by customers voluntarily, based on a financial incentive or signal. As a result of their voluntary nature, participation tends to

⁴ Information on the Company’s integrated resource planning process can be found at the following address: <http://www.pacifiCorp.com/es/irp.html>

be low and savings are less predictable, making Class 3 DSM resources less suitable to incorporate into resource planning, at least until their size and customer behavior profile provide sufficient information for a reliable diversity result (predictable impact) for modeling and planning purposes. Savings typically only endure for the duration of the incentive offering and, in many cases, loads tend to be shifted rather than being avoided. The impacts of Class 3 DSM resources may not be explicitly considered in the resource planning process; however, they are captured naturally in long-term load growth patterns and forecasts. Program examples include time-of-use pricing plans, critical peak pricing plans, and inverted block tariff designs.

- **Class 4 DSM - Non-incented behavioral-based savings achieved through broad energy education and communication efforts** - Class 4 DSM programs promote reductions in energy or capacity usage through broad-based energy education and communication efforts. The program objectives are to help customers better understand how to manage their energy usage through no-cost actions such as conservative thermostat settings and turning off appliances, equipment and lights when not in use. The programs are also used to increase customer awareness of additional actions they might take to save energy and the service and financial tools available to assist them. Class 4 DSM programs help foster an understanding and appreciation of why utilities seek customer participation in Classes 1, 2 and 3 DSM programs. Similar to Class 3 DSM resources, the impacts of Class 4 DSM programs may not be explicitly considered in the resource planning process; however, they are captured naturally in long-term load growth patterns and forecasts. Program examples include Company brochures with energy savings tips, customer newsletters focusing on energy efficiency, case studies of customer energy efficiency projects, and public education and awareness programs.

Class 1 and 2 DSM resources are included as resource options in the resource planning process. Class 3 and 4 DSM actions are not considered explicitly in the resource planning process, however, the impacts are captured naturally in long-term load growth patterns and forecasts.

As technical support for the IRP, the Company engages a third-party consultant to conduct a DSM Potential Assessment.⁵ The study primarily seeks to develop reliable estimates of the magnitude, timing and cost of DSM resources likely available to PacifiCorp over the 20-year planning horizon of the IRP. The main focus of the Potential Assessment is on resources with sufficient reliability characteristics that are anticipated to be technically feasible and considered achievable during the IRP's 20-year planning horizon. By definition, the estimated achievable technical potential is the energy efficiency potential that may be achievable to acquire during the 20-year planning horizon prior to cost effectiveness screening.

Demand-side resources vary in their reliability, load reduction and persistence over time. Based on the significant number of measures and resource options reviewed and evaluated in the Potential Assessment, it is impractical to incorporate each as a stand-alone resource in the IRP. To address this issue, Class 2 DSM measures and Class 1 DSM programs are bundled by cost for modeling

⁵ PacifiCorp's Demand-side Resource Potential Assessments can be found at <http://www.pacificorp.com/es/dsm.html>.

against competing supply-side resource options reducing the number of discrete resource options the IRP must consider to a more manageable number.

Cost Effectiveness

The Company evaluates program implementation cost effectiveness (both prospectively and retrospectively) under a variety of tests to identify the relative impact and/or value (*e.g.*, near-term rate impact, program value to participants, etc.) to customers and the Company.

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. For Wyoming, the Company has historically emphasized the TRC test in its planning, evaluation and reporting.

ENERGY EFFICIENCY PROGRAMS

Energy efficiency programs are offered to all major customer sectors: residential, commercial, industrial, and agricultural. The overall energy efficiency portfolio included four programs: *Low Income Weatherization*, *Home Energy Reports*, *Wattsmart Homes*, and *Wattsmart Business* (Non-Residential Energy Efficiency). In addition to energy efficiency programs, the Company invests in outreach and communications to make customers aware of energy efficiency program services and incentives available, promotes efficient use of electricity and improves program performance. Program savings and cost results for 2019 are provided in Table 5.

Table 5
Wyoming Results January 1, 2019 – December 31, 2019⁶

Category and Program	kWh/Yr Savings (@ site)	kWh/Yr Savings (@ generator)	Program Expenditures
Category 1 - Residential			
Low Income Weatherization	35,964	39,385	\$ 16,023
Home Energy Reporting	2,481,020	2,716,990	\$ 71,904
wattsmart Homes	6,770,030	7,413,927	\$ 1,289,404
Total Category 1	9,287,014	10,170,302	\$ 1,377,331
Category 2 - Commercial, Industrial & Irrigation			
wattsmart Business	10,360,956	11,274,393	\$ 2,933,075
Total Category 2	10,360,956	11,274,393	\$ 2,933,075
Category 3 - Commercial & Industrial			
wattsmart Business	26,165,293	27,695,861	\$ 5,226,078
Total Category 3	26,165,293	27,695,861	\$ 5,226,078
Total Energy Efficiency (Categories 1, 2 and 3)	45,813,263	49,140,555	\$ 9,536,484
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 1			\$ 103,002
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 2			\$ 20,257
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 3			\$ 20,604
Outreach & Communication - Cat 1			\$ 77,868
Outreach & Communication - Cat 2			\$ 32,341
Outreach & Communication - Cat 3			\$ 30,476
Total Wyoming 2019 Expenditures			\$ 9,821,032

⁶ The values at generation include line losses between the customer site and the generation source. The Company's line losses by sector for 2019 are 9.51 percent for residential, 8.9 percent for commercial, 5.61 percent for industrial and 9.28 percent for irrigation.

Estimated Peak Contributions

The reported capacity reduction of 10.93 MW (at generation) for energy efficiency programs during 2019 represents the estimated MW impact of the energy efficiency portfolio during PacifiCorp's system peak period. An energy-to-capacity conversion factor developed from Class 2 DSM selections in the 2017 IRP is used to translate 2019 energy savings to estimated demand reduction during the system peak. This factor in the MW calculation assumes that the energy efficiency resources acquired through the Company's programs have the same average load profile as those energy efficiency resources selected in the 2017 IRP. Use of this factor in determining the MW contribution of energy efficiency programs is detailed in Table 6 below.

Table 6
Estimated Peak Contribution

Description	Value
First year MWh EE program savings acquired in 2019	49,141
Conversion Factor: Coincident MW/MWh	0.00022
Estimated Coincident peak MW contribution of 2019 Energy Efficiency Acquisitions	10.93

RESIDENTIAL PROGRAMS

The residential energy efficiency portfolio is comprised of three programs: Wattsmart Homes, Home Energy Report, and Low Income Weatherization. The cost effectiveness of the residential portfolio is presented in Table 7 with and without residential portfolio level costs.

Table 7
Cost Effectiveness for Residential Portfolio

Benefit / Cost Test	Benefit / Cost Ratio (Includes Portfolio Costs)	Benefit / Cost Ratio (Excludes Portfolio Costs)
PTRC	1.07	1.18
TRC	0.97	1.07
UCT	1.17	1.32
PCT	6.18	6.18
RIM	0.30	0.31

HOME ENERGY REPORTS

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 program achieved 2,481,020 kWh of savings at site in 2019 as outlined in Table 8. Program cost effectiveness is provided in Table 9. See Appendix 1 for details on cost effectiveness.

Table 8
Savings and Participation for Home Energy Reports

	Legacy	Expansion	Total
2019 Savings kWh	2,111,690	369,330	2,481,020
Participation as of Dec. 2019	11,053	17,042	28,095

Table 9
Cost Effectiveness for Home Energy Reports Program

Benefit / Cost Test	Benefit / Cost Ratio
PTRC	1.73
TRC	1.57
UCT	1.57
PCT ⁷	n/a
RIM	0.37

Reports were initially provided to approximately 31,807 customers in 2019. The number of participants decrease over time due to customer attrition related to general customer churn (customer move-outs) and customers requesting to be removed from the program. In 2019, less than 1% customers (247 customers) have requested to be removed from the program. As of December 2019, there were 28,095 active recipients of Home Energy Reports.

Program Management

The program manager who is responsible for the *Home Energy Reports* program in Wyoming is also responsible for the program in Idaho and Utah as well as *Irrigation Load Control* program in Idaho and Utah and *Cool Keeper* program in Utah. For each program and in each state the program manager is responsible for the cost effectiveness of the program, identifying and contracting with

⁷ Participants do not incur costs for the Home Energy Reporting program, therefore that Participant Cost Test is not applicable for cost effectiveness.

the program administrator through a competitive bid process, establishing and monitoring program performance and compliance, and continually improving the program.

Program Administration

Bigdely administer the *Home Energy Reports* program.

Bigdely's Utility Artificial Intelligence platform leverages energy disaggregation to provide customers with personalized information regarding their energy usage by appliance and how their usage compares to similar homes. Furthermore, users receive recommendations on how to save energy and money by making small behavioral changes to their energy consumption. The Company contracted with Bigdely to provide energy savings, software services and delivery of energy reports to customers.

Bigdely is responsible for the following:

- Design and distribute paper and electronic reports. Reports are available to customers based on their preferences.
- Maximizing email treatment for customers receiving electronic reports.
- Deploying and maintaining a web portal – Bigdely operates and maintains a customer web portal, which users can visit for additional information about their energy usage and saving opportunities. Customers can access the web portal from the Rocky Mountain Power website. This portal is available to all Wyoming customers, regardless if they are participants in the program.

LOW INCOME WEATHERIZATION

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.

In 2019, the program achieved savings of 35,964 kWh at site and served 19 homes. The measures installed through the *Low Income Weatherization* program are limited to those that reduce electricity use in participant's homes. Program cost effectiveness is provided in Table 10. See Appendix 1 for details on cost effectiveness.

Table 10
Cost Effectiveness for Low Income Weatherization

Benefit / Cost Test	Benefit / Cost Ratio
PTRC	2.71
TRC	2.46
UCT	2.46
PCT ⁸	n/a
RIM	0.49

Total homes treated under the program in 2019, as well as the type and frequency of specific energy-efficiency measures installed in each home, is provided in Table 11.

Table 11
Eligible Program Measures (Units)

Participation - Total # of Completed / Treated Homes	19
Number of Homes Receiving Specific Measures	
Air Sealing	17
Doors	1
Ducting	4
Flow Control	2
General Service Lamps	17
Grounds	3
Insulation	9
Payment	19
Pipe Insulation	7
Refrigerators	13
Weatherization	12
Windows	3

⁸ Low Income participants do not incur costs associated with the program, therefore the Participant Cost Test does not apply.

Program Management

The program manager overseeing program activity in Wyoming is responsible for the program in California, Idaho, Utah and Washington; energy assistance programs in Wyoming, California, Idaho, Oregon, Utah and Washington; and income eligible bill discount programs in California, Utah and Washington. For each program and in each state the program manager is responsible for the cost effectiveness of the program, partnerships and agreements in place with local agencies that serve income eligible households, establishing and monitoring program performance and compliance, and recommending changes in the terms and conditions set out in the tariff.

Program Administration

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.

By contract with the Company, CCS and WWS are responsible for the following:

- Income Verification – Agencies determine if participants are income eligible based on WFS guidelines. Household’s interested in obtaining weatherization services apply through the WFS’s Low Income Energy Assistance Program Application. The current income guidelines can be viewed at www.wyolieap.com/Application/Rights.aspx.
- Energy Audit – Agencies complete a United States Department of Energy approved audit to determine the cost effective measures to install in the participant’s homes (audit results must indicate a savings to investment ratio of 1.0 or greater).
- Installation of Measures – Agencies install measures listed in Schedule 118.
- Post Inspections – Agencies inspect 100 percent of completed homes and WFS randomly inspects 5-10 percent for verification of services. See Appendix 3 for verification summary.
- Billing Notification - Agencies are required to submit a billing to Company within 60 days after job completion. A homeowner agreement and invoice form indicating the measures installed and associated cost is submitted on each completed home.

WATTSMART HOMES

The Wattsmart Homes program, is designed to provide access to and incentives for more efficient products and services installed or received by customers in new or existing homes, multi-family housing units or manufactured homes for residential customers under Electric Service Schedules 2 or 18. Landlords who own property where the tenant is billed under Electric Service Schedules 2 or 18 also qualify for the program.

Program cost effectiveness is provided in Table 12. See Appendix 1 for details on cost effectiveness.

Table 12
Cost Effectiveness for Wattsmart Homes

Benefit / Cost Test	Benefit / Cost Ratio
PTRC	1.14
TRC	1.04
UCT	1.30
PCT	5.85
RIM	0.30

Program participation by measure category is provided in Table 13.

Table 13
Eligible Program Measures (Units)⁹

Measure Category	Total kWh (@ Site)	Total Incentive	Quantity
Appliances	4,086	\$ 1,710	39
Building Shell	24,140	\$ 9,074	19,568 sq ft
Electronics	133,704	\$ 19,808	619
Energy Kits	98,190	\$ 2,643	298
HVAC	585,495	\$ 72,414	448
Lighting	5,029,789	\$ 270,421	273,680
Water Heating	894,626	\$ 35,294	19,600
Grand Total	6,770,030	\$ 411,364	

⁹ Units are dependent on the type of measure (i.e. insulation is in square feet, appliances by unit count, LEDs are total bulbs count, etc.).

Program Management

The program manager who is responsible for the program in Wyoming is also responsible for the Wattsmart Homes program in Idaho and Utah. For each program and in each state the program manager is responsible for the cost effectiveness of the program, identifying and contracting with the program administrator through a competitive bid process, establishing and monitoring program

Performance and compliance, and recommending changes in the terms and conditions set out in the tariff.

Program Administration

The Wattsmart Homes program is administered by CLEAResult and Evergreen Consulting, together they are responsible for the following:

- Retailer and trade ally engagement – these tasks transitioned from CLEAResult to Evergreen Consulting in April of 2019. Evergreen Consulting identifies, recruits, supports and assists retailers to increase the sale of energy efficient lighting, appliances and electronics. CLEAResult enters into promotion agreements with each lighting manufacturer and retailer for the promotion of discounted LED bulbs. The agreements include specific retail locations, lighting products receiving incentives and not-to-exceed annual budgets. Weatherization and HVAC trade allies engaged with the program are provided with program materials, training, and regular updates
- Managing savings acquisition to targets within budget.
- Continual improvement of program operations and customer satisfaction.
- Inspections – this task also transitioned from CLEAResult to Evergreen Consulting in April of 2019. Evergreen Consulting recruits and hires inspectors to verify on an on-going basis the installation of measures. A summary of the inspection process is in Appendix 3.
- Incentive processing and call-center operations – CLEAResult receives all requests for incentives, determines whether the applications are completed, works directly with customers when information is incorrect and/or missing from the application and processes the application for payment.
- Program specific customer communication and outreach – A summary of the communication and outreach conducted on behalf of the Company is outlined in the Communication, Outreach and Education section

Infrastructure

The total number of retailers and trade allies participating in the program is currently 33. Detail of participating retailers and trade allies by delivery channel and measure is provided in Appendix 2.

Program Changes

The program discontinued incentivizing new gas furnaces with ECMs due to changes in minimum market standards and the qualified products list for smart thermostats was expanded to include all ENERGY STAR certified models.

Non-Residential Energy Efficiency Program

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 electricity usage through installation of energy efficiency measures and adoption of improved energy management protocols. Qualifying measures include those which, when implemented in an eligible facility, produce verifiable electric energy efficiency improvements.

Program performance results for 2019 is provided in Table 14 below. The program passed the UCT and PCT when non-residential portfolio costs were excluded. Program year 2019 experienced declining participation in the lighting measure category and category 3 motors measure category, with increasing program delivery costs in category 3 energy management and oil and gas measure categories.

The nature of Wattsmart Business projects in Wyoming is characterized by a large number of small to medium sized projects and relatively few very large projects. A small number of very large projects that were scheduled for completion in 2019 ended up being postponed to 2020 which resulted in the savings decrease compared to 2018 and contributed to reduced cost effectiveness.

The Company has gone out to bid in calendar year 2020 for the delivery of commercial program administration services to both lighting and oil and gas customers in an effort to improve cost effectiveness results in future years.

Table 14
Program Cost Effectiveness

Benefit / Cost Test	Benefit / Cost Ratio (inc. Portfolio Costs)	Benefit / Cost Ratio (exc. Portfolio Costs)
PTRC	0.81	0.82
TRC	0.73	0.74
UCT	0.99	1.00
PCT	3.02	3.02
RIM	0.35	0.35

Total incentives, savings and completed projects are provided in Table 15 by category and measure.

Table 15
Savings by Category and Measure Category

Measure Category	Total kWh (@ Site)	Total Incentive	Total Bill Credits	Total Projects
Category 2	10,360,956	\$ 1,525,678	-	620
Additional Measures	46,441	\$ 7,416	\$ -	4
Direct Install	2,475,685	\$ 792,219	\$ -	307
Energy Management	167,568	\$ 3,351	\$ -	2
Energy Project Mgr Co-Fund	-	\$ 35,510	\$ -	1
Food Service Equipment	208,137	\$ 31,039	\$ -	2
HVAC	941,976	\$ 105,781	\$ -	6
Irrigation	25,245	\$ 2,991	\$ -	5
Lighting	6,091,682	\$ 500,958	\$ -	274
Motors	155,095	\$ 7,842	\$ -	18
Refrigeration	249,128	\$ 38,570	\$ -	1
Category 3	26,165,293	\$ 1,537,916	\$ -	120
Energy Management	9,759,210	\$ 195,184	\$ -	6
Energy Project Mgr Co-Fund	-	\$ 191,486	\$ -	2
HVAC	13,612	\$ 2,142	\$ -	1
Lighting	1,712,645	\$ 132,736	\$ -	49
Motors	2,615,792	\$ 413,953	\$ -	19
Oil & Gas	11,755,876	\$ 554,192	\$ -	41
Compressed Air	308,158	\$ 48,224	\$ -	2
Grand Total	36,526,249	\$ 3,063,594	-	740

Incentives and services offered through Wattsmart Business include:

- Typical Upgrades: streamlined incentives for lighting, HVAC, compressed air and other equipment upgrades that increase electrical energy efficiency and exceed code energy efficiency requirements.
- Small Business Direct Install: provides enhanced incentives for lighting retrofits installed by a Rocky Mountain Power contractor at eligible small business customer facilities.
- Midstream/LED instant incentives: Provides instant, point-of-purchase incentives for LED lamps, fixtures and retrofit kits sold through qualifying participating distributors. Customers purchasing qualifying equipment from non-participating suppliers can apply for incentives after purchase.
- Custom Analysis: investment-grade energy analysis studies and recommendations for more complex projects.
- Energy Management: provides expert facility and process analysis to help lower energy costs by optimizing customer's energy use. Energy management projects can range in size from small Tune-ups to the robust Strategic Energy Management offering.
- Energy Project Manager Co-funding: available to customers who commit to an annual goal of delivering in a minimum of 1,000,000 kWh per year in energy savings.

Program Management

The Wyoming Wattsmart Business Program Manager is also responsible for the Wattsmart Business programs in Idaho and Utah. For each state, the Program Manager is responsible for managing program implementers, achieving and monitoring program performance/compliance, recommending changes in customer and vendor participation terms and conditions, cost effectiveness, inputs for regulatory changes, marketing, ensuring satisfactory customer complaint resolution, overseeing customer care center agent training (internal and third party call centers) and contracting with program implementers through competitive bid processes.

Program Administration

Wattsmart Business was historically administered through two delivery models that were differentiated based upon customer size and need: 1) internal DSM delivery and 2) contracted DSM delivery. Internal delivery centered on large customers for primarily custom projects, whereas contracted delivery centered on small/medium customers for primarily typical measure projects. The internal program delivery approach was used from January 1, 2019 to June 30, 2019. On July 1, 2019 the program shifted to a fully contracted model, meaning all Wyoming Wattsmart Business delivery became administered by contracted implementers. The change in program administration was intended to improve customer experience by adding more contracted staff dedicated specifically to Wyoming Wattsmart Business customers and reducing project timelines. A narrative of the program administration approaches is described below.

Internal DSM Delivery (January 1, 2019 to June 30, 2019)

Internal DSM Delivery targeted large energy users who generally had multiple opportunities for energy efficiency improvements, such as those that required complex custom analysis. These large projects were administered by internal Company project managers and allowed for a single point of contact to assist customers with their various opportunities. Project managers were responsible for the following:

- Single point of contact for large customers to assist with energy efficiency projects.
- Provide customer outreach and education of energy efficiency opportunities.
- Facilitate custom energy efficiency analysis, quality assurance and verification of savings through a pre-contracted group of engineering firms. (See Table 17 below.)
- Manage engineering firms to ensure program compliance, quality of work and customer satisfaction.
- Manage Wattsmart Business projects through the whole project lifecycle from project inception to incentive payment.

Contracted DSM Delivery

The Contracted DSM delivery channel targets typical measure upgrades that serve all business customers. Administration is provided through Company contracts with Nexant, Inc. (“Nexant”), Cascade Energy (“Cascade”) and Willdan Energy Solutions (“Willdan”).

Nexant and Cascade manage vendor coordination, training and application processing services for commercial measures and industrial/agricultural measures respectively. As of July 1st 2019, Cascade now manages the former “Internal DSM Delivery” (DSM relationship management and custom energy analysis services for large customers). Willdan manages the Small Business Direct Install and Resource Extraction offers.

Nexant and Cascade are responsible for the following:

- Vendor and Midstream/LED instant incentive engagement – includes identification, recruiting, training, supporting and assisting vendors and distributors to increase sales and installation of energy efficient equipment at qualifying business customer facilities.
- Incentive processing and administrative support – includes handling incoming inquiries as assigned, processing incentive applications, developing and maintaining standardized analysis tools, providing program design services, and evaluation and regulatory support upon request.
- Custom analysis and incentive project management on small/medium customer projects, including the Energy Management offer.
- Nexant provides typical measure support to vendors and customers while also receiving typical measure applications and processing/delivering incentive checks to customers and qualified vendors.
- DSM relationship management and custom analysis for large customer projects, including Energy Management and Energy Project Manager Co-funding. (Cascade – July 1, 2019 to present)
- Managing savings acquisition to targets within budget.
- Continual improvement of program operations and customer satisfaction.
- Inspections – includes verifying the installation of measures on an on-going basis. A summary of the inspection process is in Appendix 3.

Willdan is responsible for:

- Small Business Direct Install (SBDI) – includes direct customer outreach, energy assessment, product supply, product installation, project inspection, incentive processing, and administrative support (handling incoming inquiries as assigned, processing incentive applications, developing and maintaining standardized analysis tools, providing program design services, and evaluation and regulatory support upon request).
 - Managing savings acquisition to SBDI targets within budget.
 - Continual improvement of SBDI program operations and customer satisfaction.
- Resource Extraction (Oil, Gas and Mining) – Customer relationship management and energy analysis services specific to resource extraction (oil, gas and mining) customers.

Infrastructure

Contracted DSM Delivery – Vendor, Typical Measures & Midstream Distributor Networks

To help increase and improve the supplier and installation contractor infrastructure for energy efficient equipment and services, the Company maintains the Wattsmart Business Vendor Network (WBVN) for lighting, HVAC, motors/VFDs and Green Motor Rewinds. This work includes identifying and recruiting vendors, providing program and technical training and providing vendor sales training and support on an ongoing basis.

The current list of Wattsmart Business Vendors who have applied and been approved as participating vendors are posted on the Company website and is included as Appendix 4 to this report. In most cases, customers are not required to select a vendor from these lists to receive an incentive.¹⁰ Table 16 provides the implementer/engineering firms associated with the WBVN.

Table 16 – Wattsmart Business Vendor Network Delivery Firms

Engineering Firm	Main Office Location	Expertise
Nexant, Incorporated (with subcontractors Evergreen Consulting Group, EMP2 and RM)	Salt Lake City, UT	Commercial
Cascade Energy, with subcontractor partner Rick Rumsey, LLC	Pleasant Grove, UT Ammon, ID	Industrial, Agriculture, Irrigation

Since 2002, the WBVN has grown into a large, mature vendor network. In 2019, participating vendors continued receiving Quarterly Vendor Performance Scorecards to provide timely feedback and encourage vendors to reach “Premium” status, which entitles qualifying vendors to improved visibility and enhanced co-branding with RMP. The following vendor performance criteria were established to align with program objectives:

- Industry Certification
- Level of participation (quarterly project count and delivered kWh savings)
- Customer satisfaction (measured by post-project customer surveys)
- Program satisfaction
- Project submission quality (number of submission errors)

In 2019, no Wyoming-based vendors achieved Premium Vendor status but between five and seven (depending on the quarter) Utah-based vendors that service Wyoming customers did. No disciplinary actions were determined necessary for any Wyoming-based WBVN members.

¹⁰ Customers receiving Small Business Lighting incentives do need to use an approved contractor that has been selected from a competitive request for bid process.

Contracted DSM Delivery – Small Business Direct Installation Offer

The Small Business Direct offering targets small business customers with an expedited lighting incentive and targets specific geographical locations with marketing and outreach. In 2019, the offer resulted in:

- A total of 2,475,685 kWh installed directly at customer sites;
- The following four cities were served: Douglas, Green River, Rock Springs, and Thermopolis.
- 303 installed projects
- Average kWh per installed project: 8,171
- Average co-pay per installed project: \$871
- Average incentive per installed project: \$2,615

Internal DSM Delivery – January 1, 2019 to June 30, 2019

Internal DSM delivery historically targeted large, non-residential customers with custom project opportunities. Each large customer's project was directly managed by one of the Company's internal project managers. A pre-approved, pre-contracted group of engineering firms were used to perform custom facility-specific energy efficiency analysis, quality assurance and verification services for the Wattsmart Business program.

Table 17 lists the engineering firms under contract with the Company during this time to provide energy efficiency analysis for internal DSM delivery.

Table 17
Engineering Stable
Engineering firms on contract through June 30, 2019

Engineering Firm	Main Office Location
Brendle Group	Fort Collins, CO
Cascade Energy Engineering	Pleasant Grove, UT
EMP2, Inc	Richland, VA
Energy Resource Integration, LLC	Sausalito, CA
4Sight Energy	Boise, ID
ETC Group, Incorporated	Salt Lake City, UT
Evergreen Consulting Group	Beaverton, OR
kW Engineering, Inc.	Salt Lake City, UT
Nexant, Incorporated	Salt Lake City, UT
RM Energy Consulting	Pleasant Grove, UT
Rick Rumsey, LLC	Ammon, ID
Solarc Architecture & Engineering, Inc.	Eugene, OR

Contracted DSM Delivery – July 1, 2019 to present

As of July 1, 2019, Cascade Energy and a team of subcontractors took over delivery of the former Internal DSM Delivery project management role (see Table 18 below). Cascade is responsible for

their portion of the Wyoming energy savings target, forecasting and budgeting, relationship management with large energy user and community customers, custom energy analysis, project measurement and verification, quality control services, and coordination with vendor delivery program personnel.

There is one project manager that assists large commercial and community customers (kW Engineering) and one project manager that assists large industrial customers (Cascade Energy). Project managers travel throughout Wyoming on a regular basis to visit and assist customers. These project managers provide direct assistance to access all Wattsmart Business program offerings based on rate schedule. This approach ensures that each large customer understands and is taking advantage of the Wattsmart Business program offerings as much as they would like. Cascade is managed by a Company Program Manager. Table 18 shows the engineering firms associated with delivering products and services within this delivery channel.

Table 18
Large Customer Program Delivery Staff
July 1, 2019 to Present

Implementer Role	Engineering Firm	Main Office Location
Prime	Cascade Energy	Pleasant Grove, UT
Partner	kW Engineering	Salt Lake City, UT
Partner	Solarc Energy Group	Salt Lake City, UT
Partner	The Brendle Group	Fort Collins, CO
Partner	4Sight Energy	Spokane, WA

Contracted DSM Delivery – Resource Extraction (Oil, Gas and Mining)

Implementer (Willdan) is responsible for turnkey management and delivery of Oil, Gas and Mining sector, which is identified as a unique and specific market in Wyoming. Willdan (prime) and ERI (sub-contractor) are responsible for this sectors portion of energy savings targets, forecasting, budgeting, customer relationship managing for Wyoming’s extraction customers. Willdan conducts energy analysis, project measurement and verification, quality control services and coordination with customer personnel.

Energy Management

Energy Management is a system of practices that creates reliable and persistent electric energy savings through improved operations, maintenance and management practices in customer facilities. Energy management can result in improved system operation, lower energy costs, reduced maintenance and repair costs and extended equipment life, and improved occupant comfort and productivity for tenants and employees. In 2019, the Company engaged in energy management projects with municipal and school district customers in Wyoming. These efforts are expected to yield additional savings in future year

Energy Project Manager Co-Funding

The Energy Project Manager (EPM) offering is a co-funded staff resource within a customer facility to identify and implement energy projects. Customers establish an annual energy savings goal that exceeds one million kWh and they receive Energy Project Manager Co-funding incentives proportionate to that goal (subject to caps). Table 19 below table illustrates how EPMS may be incented.

Table 19
Energy Project Manager Incentive Structure

Payment Structure	Payment Amount	Milestone
1 - Initial payment (optional)	1/3 of funding amount* (not to exceed \$25,000)	<ol style="list-style-type: none"> 1. Customer selects an Energy Project Manager. 2. Company & Customer work together on comprehensive plan for electric energy savings. 3. Customer signs the Energy Project Manager Offer.
2 - Final payment	\$0.025 per kWh of energy savings achieved, to a maximum 100 percent of approved Energy Project Manager Salary (salary plus benefits) and less the initial payment.	<ol style="list-style-type: none"> 1. At the end of performance period as defined in the Energy Project Manager Offer.

To summarize the Wattsmart Business structure, Table 20 shows delivery channels, targeted customer segments, provider(s), and service type.

Table 20
Wattsmart Business Structure

Delivery Channel	Targeted Customer Segment	Providers	Measure Types
(1/1/19 to 6/30/19) Internal Project Management	Managed Accounts (Large customer accounts)	Internal staff, Contracted Engineering Firms	Custom, typical, energy management, energy project manager co-funding
Contracted Delivery	Small Business	Willdan	Small Business Direct Install
	Non-Managed Accounts (small to medium customers)	Nexant (commercial) Cascade (industrial)	Typical, midstream, custom, energy management
	(July 1, 2019 to present) Managed Accounts (non-Extraction)	Cascade Energy & Partners	Custom, typical, energy management, energy project manager co-funding
	Resource Extraction	Willdan	Custom, typical, energy management, energy project manager co-funding

Program Changes

There were minor changes to the Wattsmart Business Program in 2019, including, adding some LED fixtures to the midstream incentive offering.

COMMUNICATIONS, OUTREACH AND EDUCATION

The Company uses earned media, customer communications, paid media, and program specific media to communicate the value of energy efficiency and provide information regarding low-cost, no-cost energy efficiency measures. The Company endeavors to educate customers on the availability of technical assistance, services and incentives with the overall goal to engage customers in reducing their energy usage. The Company calls this multi-faceted campaign “Wattsmart” and shares a common theme: Rocky Mountain Power wants to help you save money and energy.

Customer Communications

As part of the Company’s regular communications to its customers, newsletters are delivered to residential customers to promote energy efficiency tips, programs and initiatives. Bill inserts and outer envelopes that feature energy efficiency messages are consistently used. The Company also uses its website and social media, such as Twitter and Facebook, to communicate and engage customers on energy efficiency offers and incentives.

Table 21 shows the communication source and the frequency of the message.

Table 21
Communication Source and Frequency

Communication Source	Frequency of Message
Web: rockymountainpower.net/wattsmart and promotional URL Wattsmart.com link directly to the energy efficiency landing page. Once there customers can self-select their state for specific programs and incentives.	Messages rotate each month based on the season.
Twitter	Weekly tweets
Facebook	Information and tips posted 3-4 times per month. Promoted posts and mobile ads are also used where appropriate.
<i>Connect</i> residential newsletter	Newsletters are sent via bill insert and email 4 times per year with energy efficiency information.

Paid Media/ Wattsmart Campaign

In 2019, the Company continued the Wattsmart advertising campaign to inform and educate residential customers about the benefits energy efficiency contributes to the greater good in addition to saving money. “Being Wattsmart saves me money, and it’s good for Wyoming.” The overall paid media plan objective is to effectively reach our customers through a multi-media mix that extends both reach and frequency. Tapping into all resources with consistent messaging has been the Company’s approach and will continue to be refined.

Key strategies include:

- Implementing an advertising campaign that features Wattsmart energy efficiency messaging and connects it to benefits for Wyoming.
- Promoting customer conservation (behavioral changes) and increasing participation and savings through the Company's Wattsmart DSM programs.
- Motivating Wyoming customers to reduce consumption independently or to do so by participating in the Company's Wattsmart DSM programs.
- Educating customers on how these programs can help them save money on their utility bills, reduce energy consumption and help Wyoming thrive.
- Demonstrate by example how business customers are saving energy and enjoying the benefits of being Wattsmart.

To reach residential customers, the Company used TV, radio, social and digital media (such as YouTube). Large-scale typography along with beautiful scenic images of Wyoming was combined with footage of people taking small steps (changing lighting to LED lamps, adjusting smart thermostat setting) to save energy and money and to make a big difference for Wyoming, now and into the future.

New creative was developed to target business customers and included TV, radio, print, social and digital. An overlay of typography to punctuate key points was included in TV created. This was done so messages resonate better when played on hand-held devices when the sound is muted. Ads were case study focused, highlighting business customers saving energy and money by partnering with Rocky Mountain Power.

The Company also sponsored University of Wyoming football and basketball seasons with permanent and digital signage inside the stadium and arena.

Table 22 outlines the value each communication channel provides the impressions achieved.

Table 22
Communication Channels

Communication Channel	Value to Communication Portfolio	Impressions to date
Television	Television has the broadest reach and works as the most effective media channel	424,960 impressions
Radio	Given the cost relative to television, radio builds on communications delivered via television while providing for increased frequency of messages	455,680 impressions
Newspaper/Magazine	Supports broadcast messages and guarantees coverage in areas harder to reach with broadcast	262,272 impressions
Digital Display	Online advertising – banner ads	1,821,377 impressions
Social (i.e. Facebook)	Promoted posts on social support broadcast and digital media to increase overall awareness	1,799,007 impressions

Communication Channel	Value to Communication Portfolio	Impressions to date
Internet Search (i.e. Google)	Supports broadcast messages for residential customers	11,035 impressions
Twitter (@RMP_Wyoming)	Awareness regarding energy efficiency tips; Tweets posted on a weekly basis	1,290 followers
Facebook www.facebook.com/rockymountainpower.wattsmart	Awareness regarding energy efficiency tips and a location to share information.	26,391 total fans.
Sponsorship	University of Wyoming	680,000 impressions

The total number impressions for the Wattsmart campaign was 5,482,012.

Program Specific

All energy efficiency program marketing and communications are under the Wattsmart umbrella to ensure a seamless transition from changing customer behavior to the actions they could take by participating in specific programs. Separate marketing activities administered by and specific to the programs ran in conjunction with the Wattsmart campaign.

Wattsmart Homes

Information on the Wattsmart Homes program is communicated to customers, retailers and trade allies through a variety of channels, including newsletters, emails, direct mail, website and social media.

The program communications team supported these key initiatives in 2019:

- 1) Smart thermostat promotions.
- 2) Evaporative cooler promotion.
- 3) Energy-saving products distributed via food banks.
- 4) Launching a new and improved customer web portal.

Several promotions ran throughout the year to encourage customers to purchase a new smart thermostat with an instant \$100 incentive. The messages were delivered via in-store point of purchase collateral, email and through social media ads. A few different emails were sent to customers during key selling seasons, and social media advertising for smart thermostats ran on Facebook and Instagram during the holidays.

In the summer, Wyoming customers received an offer for a \$150 instant discount on evaporative coolers. This offer went out via email and direct mail postcards.

To meet lighting goals and assist low-income families with free, energy efficient solutions, the program team partnered with local food banks in Wyoming to provide shipments of LED light bulbs along with aerators and showerheads. Handouts were placed in patron food boxes ahead of when the food bank plans to distribute the energy efficiency items.

The program team also launched a new and improved customer web portal, Wattsmarthomes.com, in the fall. The new site offers improved content, functionality and navigation, along with an easy and seamless transition between Rocky Mountain Power’s main website, rockymountainpower.net, and Wattsmarthomes.com.

Table 23 shows the Wattsmart Homes communications channels and its approximate totals.

Table 23
Communication Channels

Communications Channel	2019 Approximate Totals
Paid Facebook and Instagram ads	545,355 impressions; 3,392 clicks
Direct mail pieces	12,665
Emails	107,441

Home Energy Reports

Thousands of print and email Home Energy Reports were delivered to Wyoming customers in 2019.

With Rocky Mountain Power’s new and improved website launch in July, the company added an additional promotion for customers to easily access their usage data, appliance breakdown and recommendations on the Bidgely platform.

Customer satisfaction and engagement with the Bidgely program demonstrated early and consistently positive results. Email open rates averaged 38% – nearly double the utility industry norm. Email recipients also gave the email communications they received 80% “likes” via thumbs up and thumbs down voting buttons included with every message.

Wattsmart Business

During 2019, communications reminded customers to inquire about incentives for LED lighting, HVAC, irrigation and other energy efficiency measures. Radio and print ads featured case study examples from program participants. Eblasts, digital display and search ads directed viewers to the Company’s website.¹¹ This was in addition to customer direct contact by Company project managers and regional business managers, trade ally partners, and content on the Company website and on Facebook.

Promoted posts on Wattsmart Small Business Direct, a program specifically designed to help small businesses upgrade to energy efficient lighting, was promoted in geo-targeted zip codes on Facebook.

¹¹ Wattsmart.com

Direct mail was also used in the spring and fall to target irrigation customers and to encourage energy-saving retrofits and introduce new low-elevation technology.

A breakdown of impressions by media type is shown in Table 24.

Table 24
Impressions by Media Type

Communications Channel	2019
Radio	230,400
Newspaper	550,544
Eblasts	7,517
Digital Display	751,423
Social	351,196
Digital Search	8,408
Irrigation Direct Mail	1,034

Quarterly, the Company files its education and promotional materials used during that timeframe. To review all Company materials, see Docket No. 20000-264-EA-06.

Evaluations

Evaluations are performed by independent external evaluators to validate energy and demand savings derived from the Company's energy efficiency programs. Industry best practices are adopted by the Company with regards to principles of operation, methodologies, evaluation methods, definitions of terms, and protocols including those outlined in the National Action Plan for Energy Efficiency Program Impact Evaluation and the California Evaluation Framework guides.

A component of the overall evaluation efforts is aimed at the reasonable verification of installations of energy efficient measures and associated documentation through review of documentation, surveys and/or ongoing onsite inspections.

Information on evaluation activities completed or in progress during 2019 is summarized in Table 25. Evaluation reports are available at the following link:

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

Table 25
2019 Evaluation Activities

Program	Years Evaluated	Evaluator	Progress Status	Estimated Completion
Home Energy Reports	2018-2019	Cadmus	In-Process	Q3 2020
Wattsmart Business	2018-2019	Cadmus	In-Process	Q4 2020
Wattsmart Homes	2017-2018	ADM	Completed	Q1 2020
Low Income Weatherization	2016-2017	ADM	Completed	Q1 2020



Appendix 1

Wyoming Cost Effectiveness



Memorandum

To: Nicole Karpavich and Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 24, 2020
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 2019 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 2019
Table 3 – Benefit/Cost Ratios by Portfolio Type
Table 4 – 2019 Total Energy Efficiency Portfolio Cost-Effectiveness Results
Table 5 - 2019 C&I Energy Efficiency Portfolio Cost-Effectiveness Results
Table 6 – 2019 Residential Energy Efficiency Portfolio Cost-Effectiveness Results

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.57%
Residential Line Loss	9.51%
Commercial Line Loss	8.90%
Industrial Line Loss	5.61%
Irrigation Line Loss	9.28%
Residential Energy Rate (\$/kWh) ¹	\$0.1069
Commercial Energy Rate (\$/kWh) ¹	\$0.0845
Industrial Energy Rate (\$/kWh) ¹	\$0.0618
Irrigation Energy Rate (\$/kWh) ¹	\$0.0839
Inflation Rate	2.20%

¹ Future rates determined using a 2.20% annual escalator.

Table 2 – Portfolio Level Costs 2019

Cost	Value
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 1	\$103,002
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 2	\$20,257
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 3	\$20,604
Outreach & Communication - Cat 1	\$77,868
Outreach & Communication - Cat 2	\$32,341
Outreach & Communication - Cat 3	\$30,476
Total Costs	\$284,548

Table 3 – Benefit/Cost Ratios by Portfolio Type

Measure Group	PTRC	TRC	UCT	RIM	PCT
Total Portfolio	0.85	0.77	1.02	0.34	3.42
C&I Programs (with Portfolio Costs)	0.81	0.73	0.99	0.35	3.02
C&I Programs (without Portfolio Costs)	0.82	0.74	1.00	0.35	3.02
Residential Programs (with Portfolio Costs)	1.07	0.97	1.17	0.30	6.18
Residential Programs (without Portfolio Costs)	1.18	1.07	1.32	0.31	6.18

Table 4 – 2019 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	\$0.0547	\$13,004,979	\$10,996,235	-\$2,008,743	0.85
Total Resource Cost Test (TRC) No Adder	\$0.0547	\$13,004,979	\$9,996,577	-\$3,008,401	0.77
Utility Cost Test (UCT)	\$0.0413	\$9,821,032	\$9,996,577	\$175,546	1.02
Rate Impact Test (RIM)		\$29,488,081	\$9,996,577	-\$19,491,504	0.34
Participant Cost Test (PCT)		\$7,578,096	\$25,898,013	\$18,319,917	3.42
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000061002
Discounted Participant Payback (years)					1.48

Table 5 - 2019 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	\$0.0560	\$11,123,446	\$8,991,536	-\$2,131,910	0.81
Total Resource Cost Test (TRC) No Adder	\$0.0560	\$11,123,446	\$8,174,123	-\$2,949,323	0.73
Utility Cost Test (UCT)	\$0.0416	\$8,262,831	\$8,174,123	-\$88,708	0.99
Rate Impact Test (RIM)		\$23,422,302	\$8,174,123	-\$15,248,178	0.35
Participant Cost Test (PCT)		\$6,619,651	\$19,975,810	\$13,356,159	3.02
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000083421
Discounted Participant Payback (years)					1.72

Table 6 – 2019 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	\$0.0478	\$1,881,533	\$2,004,699	\$123,167	1.07
Total Resource Cost Test (TRC) No Adder	\$0.0478	\$1,881,533	\$1,822,454	-\$59,079	0.97
Utility Cost Test (UCT)	\$0.0396	\$1,558,201	\$1,822,454	\$264,253	1.17
Rate Impact Test (RIM)		\$6,065,780	\$1,822,454	-\$4,243,326	0.30
Participant Cost Test (PCT)		\$958,445	\$5,922,203	\$4,963,758	6.18
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000031032
Discounted Participant Payback (years)					0.76



Memorandum

To: Nicole Karpavich and Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 22, 2020
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 2019 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program.

Cost-effectiveness was tested using the 2017 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	6.57%
Residential Line Loss	9.51%
Residential Energy Rate (\$/kWh) ¹	\$0.1069
Inflation Rate	2.20%

¹ Future rates determined using a 2.20% 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	\$6,396	\$65,346	\$162	\$0	\$71,904	\$0
Total	\$0	\$6,396	\$65,346	\$162	\$0	\$71,904	\$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	2,481,020	87%	2,158,487	100%	2,158,487	1
Total	2,481,020	87%	2,158,487	100%	2,158,487	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	\$0.0348	\$71,904	\$124,043	\$52,140	1.73
Total Resource Cost Test (TRC) No Adder	\$0.0348	\$71,904	\$112,767	\$40,863	1.57
Utility Cost Test (UCT)	\$0.0348	\$71,904	\$112,767	\$40,863	1.57
Rate Impact Test (RIM)		\$307,722	\$112,767	-\$194,956	0.37
Participant Cost Test (PCT)		\$0	\$235,819	\$235,819	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000184291
Discounted Participant Payback (years)					n/a



Memorandum

To: Nicole Karpavich and Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 22, 2020
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 2019 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program.

Cost-effectiveness was tested using the 2017 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	6.57%
Residential Line Loss	9.51%
Residential Energy Rate (\$/kWh) ¹	\$0.1069
Inflation Rate	2.20%

¹ Future rates determined using a 2.20% 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	\$2,506	\$1,222	\$76	\$12,219	\$16,023	\$0
Total	\$0	\$2,506	\$1,222	\$76	\$12,219	\$16,023	\$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	35,964	100%	35,964	100%	35,964	27
Total	35,964	100%	35,964	100%	35,964	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	\$0.0284	\$16,023	\$43,396	\$27,373	2.71
Total Resource Cost Test (TRC) No Adder	\$0.0284	\$16,023	\$39,451	\$23,428	2.46
Utility Cost Test (UCT)	\$0.0284	\$16,023	\$39,451	\$23,428	2.46
Rate Impact Test (RIM)		\$80,905	\$39,451	-\$41,454	0.49
Participant Cost Test (PCT)		\$0	\$77,101	\$77,101	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001493
Discounted Participant Payback (years)					n/a



Memorandum

To: Nicole Karpavich and Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 22, 2020
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 2019 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 2017 IRP decrement. The program passes cost-effectiveness for all tests except the RIM test. 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	6.57%
Residential Line Loss	9.51%
Residential Energy Rate (\$/kWh) ¹	\$0.1069
Inflation Rate	2.20%

¹ Future rates determined using a 2.20% 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	\$10	\$1,554	\$18	\$1,710	\$3,292	\$4,510
Building Shell	\$0	\$58	\$9,180	\$106	\$9,074	\$18,418	\$20,663
Electronics	\$0	\$320	\$50,844	\$587	\$19,808	\$71,558	\$25,261
Energy kits - DHW	\$0	\$200	\$15,705	\$368	\$1,657	\$17,930	\$1,656
Energy Kits - Lighting	\$0	\$34	\$2,695	\$63	\$986	\$3,779	\$986
HVAC	\$0	\$1,400	\$222,646	\$2,570	\$72,414	\$299,030	-\$96,307
Lighting	\$0	\$12,028	\$189,314	\$22,075	\$270,421	\$493,837	\$981,163
Water Heating	\$0	\$2,139	\$340,200	\$3,926	\$35,294	\$381,560	\$20,513
Total	\$0	\$16,190	\$832,138	\$29,712	\$411,364	\$1,289,404	\$958,445

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	4,086	100%	4,086	80%	3,269	14
Building Shell	24,140	100%	24,140	100%	24,140	30
Electronics	133,704	100%	133,704	82%	109,637	5
Energy Kits - DHW	83,808	80%	67,046	94%	63,024	11
Energy Kits - Lighting	14,382	80%	11,506	94%	10,815	12
HVAC	585,495	100%	586,331	82%	480,693	10
Lighting	5,029,789	69%	3,470,554	76%	2,637,621	12
Water Heating	894,626	100%	894,626	100%	894,043	10
Total	6,770,030	77%	5,191,993	81%	4,223,242	11

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Group	PTRC	TRC	UCT	RIM	PCT
Appliances	0.34	0.30	0.48	0.22	1.45
Building Shell	1.03	0.94	1.53	0.44	2.67
Electronics	0.25	0.22	0.23	0.13	3.45
Energy Kits - DHW	1.43	1.30	1.29	0.29	40.82
Energy Kits - Lighting	1.31	1.19	1.17	0.29	13.28
HVAC	1.78	1.62	0.80	0.32	0.00
Lighting	1.22	1.11	2.18	0.33	4.00
Water Heating	0.84	0.76	0.73	0.23	41.47
Total	1.14	1.04	1.30	0.30	5.85

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	\$0.0439	\$1,612,736	\$1,837,260	\$224,525	1.14
Total Resource Cost Test (TRC) No Adder	\$0.0439	\$1,612,736	\$1,670,237	\$57,501	1.04
Utility Cost Test (UCT)	\$0.0351	\$1,289,404	\$1,670,237	\$380,833	1.30
Rate Impact Test (RIM)		\$5,496,283	\$1,670,237	-\$3,826,046	0.30
Participant Cost Test (PCT)		\$958,445	\$5,609,284	\$4,650,839	5.85
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000035452
Discounted Participant Payback (years)					1.19

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	\$0.1540	\$5,189	\$1,739	-\$3,450	0.34
Total Resource Cost Test (TRC) No Adder	\$0.1540	\$5,189	\$1,581	-\$3,608	0.30
Utility Cost Test (UCT)	\$0.0977	\$3,292	\$1,581	-\$1,711	0.48
Rate Impact Test (RIM)		\$7,155	\$1,581	-\$5,574	0.22
Participant Cost Test (PCT)		\$4,510	\$6,539	\$2,029	1.45
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000384
Discounted Participant Payback (years)					9.27

**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	\$0.0751	\$30,007	\$30,951	\$944	1.03
Total Resource Cost Test (TRC) No Adder	\$0.0751	\$30,007	\$28,137	-\$1,869	0.94
Utility Cost Test (UCT)	\$0.0461	\$18,418	\$28,137	\$9,719	1.53
Rate Impact Test (RIM)		\$64,419	\$28,137	-\$36,282	0.44
Participant Cost Test (PCT)		\$20,663	\$55,075	\$34,412	2.67
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001178
Discounted Participant Payback (years)					4.76

**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	\$0.1500	\$72,465	\$17,933	-\$54,531	0.25
Total Resource Cost Test (TRC) No Adder	\$0.1500	\$72,465	\$16,303	-\$56,162	0.22
Utility Cost Test (UCT)	\$0.1481	\$71,558	\$16,303	-\$55,255	0.23
Rate Impact Test (RIM)		\$126,734	\$16,303	-\$110,431	0.13
Participant Cost Test (PCT)		\$25,261	\$87,096	\$61,834	3.45
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000020982
Discounted Participant Payback (years)					0.46

**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	\$0.0329	\$17,830	\$25,456	\$7,626	1.43
Total Resource Cost Test (TRC) No Adder	\$0.0329	\$17,830	\$23,141	\$5,312	1.30
Utility Cost Test (UCT)	\$0.0331	\$17,930	\$23,141	\$5,211	1.29
Rate Impact Test (RIM)		\$79,903	\$23,141	-\$56,762	0.29
Participant Cost Test (PCT)		\$1,656	\$67,586	\$65,930	40.82
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000004951
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	\$0.0374	\$3,719	\$4,862	\$1,142	1.31
Total Resource Cost Test (TRC) No Adder	\$0.0374	\$3,719	\$4,420	\$700	1.19
Utility Cost Test (UCT)	\$0.0380	\$3,779	\$4,420	\$641	1.17
Rate Impact Test (RIM)		\$15,159	\$4,420	-\$10,739	0.29
Participant Cost Test (PCT)		\$986	\$13,093	\$12,107	13.28
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000860
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	\$0.0386	\$147,661	\$262,441	\$114,781	1.78
Total Resource Cost Test (TRC) No Adder	\$0.0386	\$147,661	\$238,583	\$90,922	1.62
Utility Cost Test (UCT)	\$0.0781	\$299,030	\$238,583	-\$60,447	0.80
Rate Impact Test (RIM)		\$737,162	\$238,583	-\$498,579	0.32
Participant Cost Test (PCT)		-\$96,307	\$606,830	\$703,137	-6.30
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000047751
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	\$0.0400	\$969,101	\$1,185,685	\$216,585	1.22
Total Resource Cost Test (TRC) No Adder	\$0.0400	\$969,101	\$1,077,896	\$108,795	1.11
Utility Cost Test (UCT)	\$0.0204	\$493,837	\$1,077,896	\$584,058	2.18
Rate Impact Test (RIM)		\$3,269,309	\$1,077,896	-\$2,191,414	0.33
Participant Cost Test (PCT)		\$981,163	\$3,922,357	\$2,941,194	4.00
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000175484
Discounted Participant Payback (years)					2.55

**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	\$0.0515	\$366,765	\$308,193	-\$58,572	0.84
Total Resource Cost Test (TRC) No Adder	\$0.0515	\$366,765	\$280,176	-\$86,589	0.76
Utility Cost Test (UCT)	\$0.0536	\$381,560	\$280,176	-\$101,384	0.73
Rate Impact Test (RIM)		\$1,196,442	\$280,176	-\$916,266	0.23
Participant Cost Test (PCT)		\$20,513	\$850,708	\$830,195	41.47
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000087755
Discounted Participant Payback (years)					n/a



Memorandum

To: Nicole Karpavich and Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 24, 2020
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 2019 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 2017 IRP decrement. The program passes cost-effectiveness for the 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	6.57%
Commercial Line Loss	8.90%
Industrial Line Loss	5.61%
Irrigation Line Loss	9.28%
Commercial Energy Rate (\$/kWh) ¹	\$0.0845
Industrial Energy Rate (\$/kWh) ¹	\$0.0618
Irrigation Energy Rate (\$/kWh) ¹	\$0.0839
Inflation Rate	2.20%

¹ Future rates determined using a 2.20% 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	\$40,901	\$36,711	\$1,280,011	\$49,773	\$1,525,678	\$2,933,075	\$3,096,785
Category 3	\$75,604	\$61,695	\$3,502,793	\$48,070	\$1,537,916	\$5,226,078	\$3,522,866
Total	\$116,505	\$98,406	\$4,782,804	\$97,844	\$3,063,594	\$8,159,153	\$6,619,651

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	10,360,956	96%	9,990,150	86%	8,547,337	13
Category 3	26,165,293	85%	22,190,432	95%	21,070,857	7
Total	36,526,249	88%	32,180,581	92%	29,618,194	9

Table 4 - Benefit/Cost Ratios by Category

Category	PTRC	TRC	UCT	RIM	PCT
Category 2	1.02	0.92	1.27	0.36	3.27
Category 3	0.70	0.64	0.85	0.34	2.79
Total	0.82	0.74	1.00	0.35	3.02

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	\$0.0555	\$11,019,768	\$8,991,536	-\$2,028,232	0.82
Total Resource Cost Test (TRC) No Adder	\$0.0555	\$11,019,768	\$8,174,123	-\$2,845,644	0.74
Utility Cost Test (UCT)	\$0.0411	\$8,159,153	\$8,174,123	\$14,970	1.00
Rate Impact Test (RIM)		\$23,318,623	\$8,174,123	-\$15,144,500	0.35
Participant Cost Test (PCT)		\$6,619,651	\$19,975,810	\$13,356,159	3.02
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000082854
Discounted Participant Payback (years)					1.72

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	\$0.0491	\$4,032,784	\$4,103,298	\$70,514	1.02
Total Resource Cost Test (TRC) No Adder	\$0.0491	\$4,032,784	\$3,730,271	-\$302,513	0.92
Utility Cost Test (UCT)	\$0.0357	\$2,933,075	\$3,730,271	\$797,196	1.27
Rate Impact Test (RIM)		\$10,288,016	\$3,730,271	-\$6,557,745	0.36
Participant Cost Test (PCT)		\$3,096,785	\$10,133,058	\$7,036,273	3.27
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000061260
Discounted Participant Payback (years)					2.20

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	\$0.0601	\$6,986,984	\$4,888,238	-\$2,098,746	0.70
Total Resource Cost Test (TRC) No Adder	\$0.0601	\$6,986,984	\$4,443,853	-\$2,543,131	0.64
Utility Cost Test (UCT)	\$0.0449	\$5,226,078	\$4,443,853	-\$782,226	0.85
Rate Impact Test (RIM)		\$13,030,608	\$4,443,853	-\$8,586,755	0.34
Participant Cost Test (PCT)		\$3,522,866	\$9,842,752	\$6,319,886	2.79
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000113374
Discounted Participant Payback (years)					1.47



Memorandum

To: Nicole Karpavich and Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 24, 2020
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 2019 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall Category 2 program and for the 10 measure categories.

Cost-effectiveness was tested using the 2017 IRP decrement. The program passes cost-effectiveness for the PTRC, 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 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 Additional Measures Cost-Effectiveness Results
- Table 7 - Wattsmart Business Direct Install Cost-Effectiveness Results
- Table 8 - Wattsmart Business Energy Management Cost-Effectiveness Results
- Table 9 - Wattsmart Business Energy Project Mgr. Co-Fund Cost-Effectiveness Results
- Table 10 - Wattsmart Business Food Service Equipment Cost-Effectiveness Results
- Table 11 - Wattsmart Business HVAC Cost-Effectiveness Results
- Table 12 - Wattsmart Business Irrigation Cost-Effectiveness Results
- Table 13 - Wattsmart Business Lighting Cost-Effectiveness Results
- Table 14 - Wattsmart Business Motors Cost-Effectiveness Results
- Table 15 - Wattsmart Business Refrigeration Cost-Effectiveness Results

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.57%
Commercial Line Loss	8.90%
Industrial Line Loss	5.61%
Irrigation Line Loss	9.28%
Commercial Energy Rate (\$/kWh) ¹	\$0.0845
Industrial Energy Rate (\$/kWh) ¹	\$0.0618
Irrigation Energy Rate (\$/kWh) ¹	\$0.0839
Inflation Rate	2.20%

¹ Future rates determined using a 2.20% 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
Additional Measures	\$19	\$1	\$1,938	\$223	\$7,416	\$9,597	\$40,720
Direct Install	\$1,209	\$18,616	\$205,992	\$11,893	\$792,219	\$1,029,929	\$264,073
Energy Management	\$68	\$3	\$6,993	\$805	\$3,351	\$11,221	\$4,290
Energy Project Mgr Co-Fund	\$0	\$0	\$0	\$0	\$35,510	\$35,510	\$0
Food Service Equipment	\$84	\$526	\$31,933	\$1,000	\$31,039	\$64,583	\$22,651
HVAC	\$381	\$1,545	\$105,226	\$4,525	\$105,781	\$217,458	\$422,655
Irrigation	\$0	\$114	\$22,050	\$121	\$2,991	\$25,276	\$14,882
Lighting	\$38,744	\$14,758	\$896,207	\$29,264	\$500,958	\$1,479,931	\$2,123,130
Motors	\$295	\$1,145	\$8,861	\$745	\$7,842	\$18,887	\$17,773
Refrigeration	\$101	\$5	\$810	\$1,197	\$38,570	\$40,682	\$186,610
Total	\$40,901	\$36,711	\$1,280,011	\$49,773	\$1,525,678	\$2,933,075	\$3,096,785

Table 3 – Annual Wattsmart 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
Additional Measures	46,441	91%	42,261	93%	39,303	15
Direct Install	2,475,685	93%	2,302,387	92%	2,118,196	12
Energy Management	167,568	91%	152,487	93%	141,813	3
Energy Project Mgr Co-Fund	0	NA	0	NA	0	0
Food Service Equipment	208,137	91%	189,405	93%	176,146	12
HVAC	941,976	100%	941,976	98%	923,136	15
Irrigation	25,245	100%	25,245	84%	21,206	5
Lighting	6,091,682	98%	5,965,445	80%	4,785,443	13
Motors	155,095	93%	144,238	91%	131,257	13
Refrigeration	249,128	91%	226,706	93%	210,837	15
Total	10,360,956	96%	9,990,150	86%	8,547,337	13

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Category	PTRC	TRC	UCT	RIM	PCT
Additional Measures	0.57	0.52	2.17	0.43	1.20
Direct Install	1.95	1.77	0.83	0.31	10.18
Energy Management	1.16	1.06	1.12	0.27	9.62
Energy Project Mgr Co-Fund	-	-	-	-	-
Food Service Equipment	1.46	1.32	1.12	0.34	8.33
HVAC	1.04	0.95	2.30	0.44	2.44
Irrigation	0.11	0.10	0.14	0.11	0.87
Lighting	0.86	0.78	1.42	0.37	2.71
Motors	2.27	2.06	2.97	0.52	5.96
Refrigeration	0.69	0.63	2.73	0.45	1.40
Total	1.02	0.92	1.27	0.36	3.27

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	\$0.0491	\$4,032,784	\$4,103,298	\$70,514	1.02
Total Resource Cost Test (TRC) No Adder	\$0.0491	\$4,032,784	\$3,730,271	-\$302,513	0.92
Utility Cost Test (UCT)	\$0.0357	\$2,933,075	\$3,730,271	\$797,196	1.27
Rate Impact Test (RIM)		\$10,288,016	\$3,730,271	-\$6,557,745	0.36
Participant Cost Test (PCT)		\$3,096,785	\$10,133,058	\$7,036,273	3.27
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000061260
Discounted Participant Payback (years)					2.20

Table 6 - Table 15 provide cost-effectiveness results for all 10 measure categories in Category 2.

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	\$0.0940	\$40,050	\$22,947	-\$17,103	0.57
Total Resource Cost Test (TRC) No Adder	\$0.0940	\$40,050	\$20,861	-\$19,189	0.52
Utility Cost Test (UCT)	\$0.0225	\$9,597	\$20,861	\$11,264	2.17
Rate Impact Test (RIM)		\$48,200	\$20,861	-\$27,339	0.43
Participant Cost Test (PCT)		\$40,720	\$48,925	\$8,205	1.20
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001759
Discounted Participant Payback (years)					12.30

Table 7 - Wattsmart Business Direct Install 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	\$0.0247	\$480,657	\$937,478	\$456,820	1.95
Total Resource Cost Test (TRC) No Adder	\$0.0247	\$480,657	\$852,252	\$371,595	1.77
Utility Cost Test (UCT)	\$0.0529	\$1,029,929	\$852,252	-\$177,677	0.83
Rate Impact Test (RIM)		\$2,773,959	\$852,252	-\$1,921,707	0.31
Participant Cost Test (PCT)		\$264,073	\$2,687,904	\$2,423,831	10.18
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000153886
Discounted Participant Payback (years)					n/a

**Table 8 - 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	\$0.0303	\$11,859	\$13,813	\$1,955	1.16
Total Resource Cost Test (TRC) No Adder	\$0.0303	\$11,859	\$12,557	\$699	1.06
Utility Cost Test (UCT)	\$0.0287	\$11,221	\$12,557	\$1,337	1.12
Rate Impact Test (RIM)		\$46,475	\$12,557	-\$33,918	0.27
Participant Cost Test (PCT)		\$4,290	\$41,259	\$36,970	9.62
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000010704
Discounted Participant Payback (years)					0.08

**Table 9 - Wattsmart Business Energy Project 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	\$35,510	\$0	-\$35,510	n/a
Rate Impact Test (RIM)		\$0	\$0	\$0	n/a
Participant Cost Test (PCT)		\$0	\$0	\$0	n/a
Lifecycle Revenue Impacts (\$/kWh)					n/a
Discounted Participant Payback (years)					n/a

**Table 10 - Wattsmart Business Food Service Equipment Cost-Effectiveness Results
(Load Shape – WY_Restaurant_Water_Heat)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0337	\$54,610	\$79,508	\$24,898	1.46
Total Resource Cost Test (TRC) No Adder	\$0.0337	\$54,610	\$72,280	\$17,670	1.32
Utility Cost Test (UCT)	\$0.0399	\$64,583	\$72,280	\$7,697	1.12
Rate Impact Test (RIM)		\$211,096	\$72,280	-\$138,816	0.34
Participant Cost Test (PCT)		\$22,651	\$188,580	\$165,929	8.33
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000011116
Discounted Participant Payback (years)					n/a

**Table 11 - Wattsmart Business HVAC Cost-Effectiveness Results
 (Load Shape – WY_School_HVAC_Aux)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0526	\$525,879	\$549,121	\$23,241	1.04
Total Resource Cost Test (TRC) No Adder	\$0.0526	\$525,879	\$499,200	-\$26,679	0.95
Utility Cost Test (UCT)	\$0.0217	\$217,458	\$499,200	\$281,742	2.30
Rate Impact Test (RIM)		\$1,124,149	\$499,200	-\$624,948	0.44
Participant Cost Test (PCT)		\$422,655	\$1,030,976	\$608,320	2.44
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000040209
Discounted Participant Payback (years)					4.25

**Table 12 - 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	\$0.3723	\$34,786	\$3,916	-\$30,870	0.11
Total Resource Cost Test (TRC) No Adder	\$0.3723	\$34,786	\$3,560	-\$31,226	0.10
Utility Cost Test (UCT)	\$0.2705	\$25,276	\$3,560	-\$21,716	0.14
Rate Impact Test (RIM)		\$33,652	\$3,560	-\$30,092	0.11
Participant Cost Test (PCT)		\$14,882	\$12,962	-\$1,920	0.87
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000005718
Discounted Participant Payback (years)					7.46

**Table 13 - 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	\$0.0575	\$2,682,064	\$2,312,765	-\$369,299	0.86
Total Resource Cost Test (TRC) No Adder	\$0.0575	\$2,682,064	\$2,102,513	-\$579,551	0.78
Utility Cost Test (UCT)	\$0.0317	\$1,479,931	\$2,102,513	\$622,582	1.42
Rate Impact Test (RIM)		\$5,694,593	\$2,102,513	-\$3,592,080	0.37
Participant Cost Test (PCT)		\$2,123,130	\$5,755,305	\$3,632,175	2.71
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000265951
Discounted Participant Payback (years)					4.21

**Table 14 - 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	\$0.0219	\$27,219	\$61,796	\$34,576	2.27
Total Resource Cost Test (TRC) No Adder	\$0.0219	\$27,219	\$56,178	\$28,959	2.06
Utility Cost Test (UCT)	\$0.0152	\$18,887	\$56,178	\$37,291	2.97
Rate Impact Test (RIM)		\$108,129	\$56,178	-\$51,951	0.52
Participant Cost Test (PCT)		\$17,773	\$105,910	\$88,136	5.96
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000003846
Discounted Participant Payback (years)					1.07

**Table 15 - 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	\$0.0769	\$175,659	\$121,955	-\$53,704	0.69
Total Resource Cost Test (TRC) No Adder	\$0.0769	\$175,659	\$110,868	-\$64,791	0.63
Utility Cost Test (UCT)	\$0.0178	\$40,682	\$110,868	\$70,186	2.73
Rate Impact Test (RIM)		\$247,763	\$110,868	-\$136,895	0.45
Participant Cost Test (PCT)		\$186,610	\$261,238	\$74,628	1.40
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000008808
Discounted Participant Payback (years)					9.70



Memorandum

To: Nicole Karpavich and Alesha Pino, PacifiCorp
From: David Basak, Guidehouse
Date: June 24, 2020
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 2019 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 2017 IRP decrement. The program passes cost-effectiveness for PCT test. 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	6.57%
Commercial Line Loss	8.90%
Industrial Line Loss	5.61%
Irrigation Line Loss	9.28%
Commercial Energy Rate (\$/kWh) ¹	\$0.0845
Industrial Energy Rate (\$/kWh) ¹	\$0.0618
Irrigation Energy Rate (\$/kWh) ¹	\$0.0839
Inflation Rate	2.20%

¹ Future rates determined using a 2.20% 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
Energy Management	\$8,554	\$22,177	\$1,210,175	\$17,929	\$195,184	\$1,454,020	\$249,836
Energy Project Mgr Co-Fund	\$0	\$0	\$0	\$0	\$191,486	\$191,486	\$0
HVAC	\$15	\$83	\$42	\$25	\$2,142	\$2,306	\$22,275
Lighting	\$10,916	\$9,058	\$563,695	\$3,146	\$132,736	\$719,551	\$548,682
Motors	\$9,993	\$5,458	\$195,115	\$4,806	\$413,953	\$629,325	\$1,195,576
Oil & Gas	\$44,947	\$24,283	\$1,500,844	\$21,598	\$554,192	\$2,145,864	\$1,427,250
Compressed Air	\$1,178	\$637	\$32,923	\$566	\$48,224	\$83,527	\$79,247
Total	\$75,604	\$61,695	\$3,502,793	\$48,070	\$1,537,916	\$5,226,078	\$3,522,866

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
Energy Management	9,759,210	91%	8,880,881	93%	8,259,219	3
Energy Project Mgr Co-Fund	0	n/a	0	n/a	0	0
HVAC	13,612	100%	13,612	98%	13,340	20
Lighting	1,712,645	96%	1,648,932	84%	1,386,732	0
Motors	2,615,792	93%	2,430,582	91%	2,213,785	15
Oil & Gas	11,755,876	76%	8,934,466	100%	8,934,466	7
Compressed Air	308,158	91%	281,959	93%	263,315	15
Total	26,165,293	85%	22,190,432	95%	21,070,857	7

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Category	PTRC	TRC	UCT	RIM	PCT
Energy Management	0.52	0.48	0.49	0.24	7.37
Energy Project Mgr Co-Fund	-	-	-	-	-
HVAC	0.47	0.43	4.10	0.52	0.83
Lighting	0.65	0.59	0.86	0.33	2.78
Motors	0.96	0.87	1.81	0.51	1.81
Oil & Gas	0.67	0.61	0.85	0.32	2.84
Compressed Air	1.36	1.24	1.62	0.50	3.16
Total	0.70	0.64	0.85	0.34	2.79

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	\$0.0601	\$6,986,984	\$4,888,238	-\$2,098,746	0.70
Total Resource Cost Test (TRC) No Adder	\$0.0601	\$6,986,984	\$4,443,853	-\$2,543,131	0.64
Utility Cost Test (UCT)	\$0.0449	\$5,226,078	\$4,443,853	-\$782,226	0.85
Rate Impact Test (RIM)		\$13,030,608	\$4,443,853	-\$8,586,755	0.34
Participant Cost Test (PCT)		\$3,522,866	\$9,842,752	\$6,319,886	2.79
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000113374
Discounted Participant Payback (years)					1.47

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

**Table 6 - 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	\$0.0655	\$1,491,183	\$781,438	-\$709,745	0.52
Total Resource Cost Test (TRC) No Adder	\$0.0655	\$1,491,183	\$710,398	-\$780,785	0.48
Utility Cost Test (UCT)	\$0.0639	\$1,454,020	\$710,398	-\$743,622	0.49
Rate Impact Test (RIM)		\$2,984,139	\$710,398	-\$2,273,741	0.24
Participant Cost Test (PCT)		\$249,836	\$1,840,473	\$1,590,638	7.37
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000717566
Discounted Participant Payback (years)					0.10

**Table 7 - Wattsmart Business Energy Project Manager Co-Funding 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	\$191,486	\$0	-\$191,486	n/a
Rate Impact Test (RIM)		\$0	\$0	\$0	n/a
Participant Cost Test (PCT)		\$0	\$0	\$0	n/a
Lifecycle Revenue Impacts (\$/kWh)					n/a
Discounted Participant Payback (years)					n/a

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

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1253	\$21,993	\$10,401	-\$11,593	0.47
Total Resource Cost Test (TRC) No Adder	\$0.1253	\$21,993	\$9,455	-\$12,538	0.43
Utility Cost Test (UCT)	\$0.0131	\$2,306	\$9,455	\$7,150	4.10
Rate Impact Test (RIM)		\$18,240	\$9,455	-\$8,784	0.52
Participant Cost Test (PCT)		\$22,275	\$18,401	-\$3,874	0.83
Lifecycle Revenue Impacts (\$/kWh)					\$0.000000426
Discounted Participant Payback (years)					26.69

**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	\$0.0761	\$1,041,266	\$678,842	-\$362,424	0.65
Total Resource Cost Test (TRC) No Adder	\$0.0761	\$1,041,266	\$617,129	-\$424,137	0.59
Utility Cost Test (UCT)	\$0.0526	\$719,551	\$617,129	-\$102,422	0.86
Rate Impact Test (RIM)		\$1,894,245	\$617,129	-\$1,277,116	0.33
Participant Cost Test (PCT)		\$548,682	\$1,523,130	\$974,448	2.78
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000094555
Discounted Participant Payback (years)					3.88

**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	\$0.0544	\$1,304,309	\$1,252,823	-\$51,486	0.96
Total Resource Cost Test (TRC) No Adder	\$0.0544	\$1,304,309	\$1,138,930	-\$165,379	0.87
Utility Cost Test (UCT)	\$0.0262	\$629,325	\$1,138,930	\$509,606	1.81
Rate Impact Test (RIM)		\$2,219,414	\$1,138,930	-\$1,080,484	0.51
Participant Cost Test (PCT)		\$1,195,576	\$2,159,760	\$964,183	1.81
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000069518
Discounted Participant Payback (years)					6.23

**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	\$0.0571	\$3,018,922	\$2,015,642	-\$1,003,280	0.67
Total Resource Cost Test (TRC) No Adder	\$0.0571	\$3,018,922	\$1,832,402	-\$1,186,520	0.61
Utility Cost Test (UCT)	\$0.0406	\$2,145,864	\$1,832,402	-\$313,462	0.85
Rate Impact Test (RIM)		\$5,641,896	\$1,832,402	-\$3,809,494	0.32
Participant Cost Test (PCT)		\$1,427,250	\$4,050,224	\$2,622,974	2.84
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000518560
Discounted Participant Payback (years)					1.57

**Table 12 - Wattsmart Business Compressed Air 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	\$0.0383	\$109,310	\$149,093	\$39,782	1.36
Total Resource Cost Test (TRC) No Adder	\$0.0383	\$109,310	\$135,539	\$26,228	1.24
Utility Cost Test (UCT)	\$0.0293	\$83,527	\$135,539	\$52,011	1.62
Rate Impact Test (RIM)		\$272,674	\$135,539	-\$137,136	0.50
Participant Cost Test (PCT)		\$79,247	\$250,764	\$171,517	3.16
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000008823
Discounted Participant Payback (years)					1.90

Appendix 2

wattsmart Homes Retailers

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Table 1: 2019 Participating Midstream/Upstream Retailers

Retailer	City	State	LEDs	Fixtures
Ace Hardware - Baileys	Casper	WY	✓	
Ace Hardware - Cazin's	Evanston	WY	✓	
Ace Hardware #10776	Kemmerer	WY	✓	
Ace Hardware #11263	Green River	WY	✓	
Ace Hardware #8349	Rock Springs	WY	✓	
Batteries Plus #748	Casper	WY	✓	
Best Buy #1527	Casper	WY	✓	
Dollar Tree #2891	Rock Springs	WY	✓	
Dollar Tree #3288	Casper	WY	✓	
Dollar Tree #3851	Casper	WY	✓	
Dollar Tree #4544	Evanston	WY	✓	
Dollar Tree #5266	Rawlins	WY	✓	
Food Bank Of Sweetwater Co	Rock Springs	WY	✓	
Food Bank Of The Rockies	Evansville	WY	✓	
Home Depot #6001	Casper	WY	✓	✓
Home Depot #6003	Rock Springs	WY	✓	✓
Menards #3243	Casper	WY	✓	
Natrona Cty Meals On Wheels	Casper	WY	✓	
Ridley's #1132	Casper	WY	✓	
Ridley's #1133 CLOSED 2019	Casper	WY	✓	
Ridley's #1163	Kemmerer	WY	✓	
Ridley's #14758	Pinedale	WY	✓	
Sam's Club #6425	Casper	WY	✓	
Smith's #182	Rock Springs	WY	✓	
Smith's #185	Casper	WY	✓	
Smith's #187	Green River	WY	✓	
Smith's #86	Evanston	WY	✓	
Sutherlands #2219	Casper	WY	✓	
Target Store 164	Casper	WY	✓	✓
Walmart #1456	Evanston	WY	✓	✓
Walmart #1461	Rock Springs	WY	✓	✓
Walmart #1617	Casper	WY	✓	✓
Walmart #3778	Casper	WY	✓	✓
Walmart #4471	Rawlins	WY	✓	✓

Table 2: 2019 Participating Downstream Retailers

Participating Retailer (Retailers who are actively enrolled in the program)	City	State	Energy Efficient Clothes Washer	Energy Efficient Freezer	Energy Efficient Refrigerator
Best Buy	Casper	WY	✓	✓	
Home Depot	Rock Springs	WY	✓	✓	
Home Depot	Cheyenne	WY	✓		
Home Depot	Sheridan	WY		✓	
LOWES	Cheyenne	WY	✓	✓	
Lowe's	Cheyenne	WY		✓	
LOWE'S HOME CENTERS, LLC	Cheyenne	WY	✓		
The Home Depot	Casper	WY			✓
Best Buy #1527	Casper	WY	✓		
Ace Hardware - Cazin's	Evanston	WY		✓	
Home Depot #6001	Casper	WY	✓		✓
Brown's Western Appliance	Worland	WY	✓	✓	✓
Meyer's Gambles	Lander	WY	✓		
Lowe's of Cheyenne	Cheyenne	WY	✓		
Gizmo's/Cost Plus Appliance	Cody	WY	✓		

Table 3: 2019 Non-Participating Downstream Retailers

Participating Retailer (Retailers who are NOT actively enrolled in the program)	City	State	Energy Efficient Clothes Washer	Energy Efficient Freezer	Energy Efficient Refrigerator
Energy Federation Inc. (EFI)	Westborough	MA			
Fred's Appliance	Billings	MT	✓		
Lowe's #907	Billings	MT	✓		✓
Home Depot 3101	Billings	MT	✓		✓
Lowe's #1906	Idaho Falls	ID	✓		

Participating Retailer (Retailers who are NOT actively enrolled in the program)	City	State	Energy Efficient Clothes Washer	Energy Efficient Freezer	Energy Efficient Refrigerator
Synergy Efficiency LLC	Chubbuck	ID			
SEAR.COM	Online Order	NJ	✓	✓	

Table 4: 2019 Participating Wyoming HVAC Trade Allies

Trade Ally Name (Trade Ally may be located outside of the territory)	City	State	95% Gas Furnace with ECM Blower - WY	Central Air Conditioner Best Proactive Installation & Sizing	Efficient Gas Furnace with ECM	Electric System to Heat Pump Conversion	Evaporative Cooler	Heat Pump Water Heater, Self-installed	Heat Pump, Ductless	Smart Thermostat
Tim Force Tin Shop Inc.	Casper	WY		✓	✓					
Casper Tin Shop	Casper	WY							✓	
Air Comfort Complete, Inc.	Casper	WY				✓				
Air Innovations	Casper	WY	✓		✓	✓			✓	

Table 5: 2019 Participating Wyoming Weatherization Trade Allies

Trade Ally Name	City	State	Insulation - Attic	Insulation - Floor	Insulation - Wall	Windows
Wyoming Insulation LLC	Casper	WY	✓	✓		
Insulation Inc.	Rock Springs	WY	✓			
Bloedorn Lumber	Lander	WY				✓
Polypro	Rock Springs	WY	✓			
Moore Insulation Company, Inc.	Cheyenne	WY	✓		✓	

Table 6: 2019 Participating Wyoming Manufactured Homes Trade Allies

Trade Ally Name (Trade Ally may be located outside of the territory)	City	State	Manufactured Homes Duct Sealing
Synergy Efficiency LLC	Chubbuck	ID	✓



Appendix 3

Wyoming Measure Installation Verifications

Wyoming Measure Installation Verification

Low Income Weatherization

	Inspection Requirement	Baseline Verification Techniques
Agency Verification	100%	Inspection by agency inspector of all homes treated, reconciling work completed and quality prior to invoicing Company.
State of Wyoming	5-10%	State inspectors randomly inspect 5-10 percent of completed homes

1. All measures are qualified through US Department of Energy approved audit tool or priority list.

Wattsmart Homes

	Inspection Requirement	Baseline Verification Techniques
Retrofit / New Home	100%	Post-purchase incented measures include verification of proof of purchase receipt review and eligible equipment review. Verification of customer account and address.
Single Family	>=5%	
Manufactured Home	>=5%	
Multifamily	100%	

1. Measures inspected include; central air conditioners, ductless heat pumps, duct sealing, duct sealing and insulation, electrically commutated motor (ECM) retrofit on existing gas furnace, heat pumps, heat pump water heaters, and insulation
2. Measures not inspected include, gas furnace with ECM, electric water heaters, evaporative coolers, smart thermostats, and light fixtures
3. Site inspections are not performed on measures that are upstream, or manufacturer buy down model.
4. Promotion agreement contracts are signed with manufacturers and retailers to set incentive levels, final product prices, and limits the total number of units that can be purchased per customer.
5. The Program Administrator verifies the measures for product eligibility and correct pricing. Pricing is also verified by the Program Administrator field visits to retail locations. These measures include; LED bulbs, evaporative coolers, and smart thermostats
6. Customer eligibility for wattsmart Starter Kits is verified using the customer's account number, last name, and cross-verifying with the current Rocky Mountain customer database.

Wattsmart Business

	Inspection Requirement	Baseline Verification Techniques
Wyoming Small Business Direct Install	None	Program implementer and customer completed a Pre and Post implementation walkthrough on each project. There are no inspection thresholds needed on this offering as project size is set by tariff
Large Lighting	PRE/POST	A representative percentage of large lighting retrofit projects with an estimated incentive over a certain amount received on-site pre-installation and post-installation inspections. All large lighting projects that were self-installed by customer without the assistance of a vendor were subject to both pre and post-installation inspections.
Large Custom Lighting	PRE/POST	Large custom lighting projects with an estimated incentive over a certain amount received a post-installation on-site inspection (New Construction) and, for retrofits, a pre-installation on-site inspection.
Midstream Lighting	2% Sampling	A representative sampling of all projects selected by a third-party administrator during incentive batch process for phone inspections were conducted prior to completing incentive batch processes to detect fraudulent activities. An additional representative sampling selected by a third party program administrator during the incentive batch process for on-site inspections was conducted prior to batching.
Custom >=100,000 kWh	PRE/POST	Pre and post-implementation inspections were completed either remotely or on site, depending on the availability of data. Remote inspections were preferred whenever possible for projects of this size
Custom 100,000 - 200,000 kWh	PRE/POST	Either a remote or site visit was performed for the pre-installation inspection, depending on the availability of data. Post installation inspections for projects of this size were completed via on-site visit.
Custom >200,000 kWh	PRE/POST	Both the pre and post-installation inspections were completed via site visit.
New Construction (Large and Custom, non-lighting)	POST	New construction design projects received a mandatory pre-project design document review. Projects over 100,000 kWh received an on-site post installation inspection.

All Programs

As part of the third-party program evaluations (two-year cycle) process, the Company utilized post-project customer satisfaction surveys sent to customers via email. The Company also utilized semi-annual customer surveys to collect evaluation-relevant data more frequently to cure for memory loss and other detractors such as customers moving and data not be readily available at evaluation time). This serves as a further check to verify customer participation, satisfaction and measures installed. Additional record reviews and site inspections (including metering/data logging) are conducted as part of the process and impact evaluations, which serve as a final verification of measure installations.



Appendix 4

wattsmart Business Vendor Network

wattsmart® Business Vendor Network



The following is a list of contractors, distributors, manufacturers and other vendors participating in Rocky Mountain Power's wattsmart® Business Vendor Network displayed in random order (unless sorted by the user) based on the search criteria selected. This listing is provided solely as a convenience to our customers. Rocky Mountain Power does not warrant or guarantee the work performed by these participating vendors. You are solely responsible for any contract with a participating vendor and the performance of any vendor you have chosen.

Search Criteria:

State(s) [Wyoming]
Program(s) [Commercial]
Specialties [Appliances, Building envelope, Compressed air, Controls – HVAC, Controls – Lighting, Farm and dairy, Food service, HVAC - evaporative, HVAC - unitary, HVAC check-up, HVAC instant incentives, Irrigation, Lighting, Lighting instant incentives, Motors and VFDs, Office equipment, Other Specialty]
Service Address
Business Name

Search Results: 50 record(s) found

About Us	Service Areas	Company Name	Contact Information	Specialty	Business Type	Projects Completed	Distance (miles)
Premium Vendor	Idaho, Utah, Wyoming	CED- Logan Address: 636 N. 600 W. Logan, UT 84321 Website: http://cedlogan.shopce d.com	Phone: 435-752-8905 Name: Devin Migliori Email: devinm@cedlogan.co m	Farm and dairy, Irrigation, Lighting, Lighting instant incentives	Distributor	6	
Premium Vendor	Idaho, Utah, Wyoming	Automated Mechanical Address: 1574 West 2650 South Ogden, UT 84010 Website: http://www.automated mechanical.com	Phone: 801-525-9500 Name: Thomas Mudge Email: tmudge@automatedm echanical.com	Controls – HVAC, Controls – Lighting, HVAC - evaporative, HVAC - unitary, HVAC check-up, Motors and VFDs	Contractor	39	

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Premium Vendor Learn More: https://wattsmartbusiness.com/premiumvendors/codale-slc/	Idaho, Utah, Wyoming	Codale - Salt Lake City Address: 5225 West 2400 South Salt Lake City, UT 84120 Website:	Phone: 801-975-5525 Name: Tammy Smith Email: tammys@codale.com	Controls – Lighting, Lighting, Lighting instant incentives	Distributor	36
	Wyoming	Virile Electric Address: 410 Lawson Ave Worland, WY 82401 Website:	Phone: 307-347-4787 Name: Jonathon Williams Email: jw@virileinc.com	Controls – Lighting, Lighting, Motors and VFDs	Contractor	1
	Wyoming	Codale Electric Supply, Inc - Rock Springs Address: 1718 Decora Dr Rock Springs, WY 82901 Website: http://www.codale.com	Phone: 307-922-5000 Name: Linden Olson Email: lindeno@codale.com	HVAC - unitary, Lighting, Lighting instant incentives, Motors and VFDs	Distributor	9
	Wyoming	WIRED ELECTRIC Address: 3741 ASPEN P L CASPER, WY 82604 Website:	Phone: 307-262-9523 Name: JONAH WOODALL Email: WIREDELECTRICLLC@GMAIL.COM	Lighting, Motors and VFDs	Contractor	2
	Idaho, Utah, Wyoming	Trane Address: 2817 South 1030 West Salt Lake City , UT 84119 Website: http://www.trane.com	Phone: 801-415-2032 Name: Mario Maestas Email: mmaestas@trane.com	Building envelope, Compressed air, Controls – HVAC, HVAC - evaporative, HVAC - unitary, Motors and VFDs, Other Specialty	Contractor, Distributor, Manufacturer_Rep, Other	1
	Idaho, Wyoming	D&S Electrical Address: 455 South Eastern Avenue Idaho Falls, ID 83402 Website: http://www.d-s.com/index.html	Phone: 208-731-3701 Name: Dave Bennett Email: davebennett@d-s.com	Lighting, Motors and VFDs	Distributor	29
	Wyoming	Border States Address: 206 S. Plainview St. Billings, MT 59101 Website: www.borderstates.com	Phone: 406-238-1327 Name: Joe Bryan Email: jbryan@borderstates.com	Controls – Lighting, Lighting, Motors and VFDs	Distributor	

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Utah, Wyoming	Light Energy Development Address: 41 N Rio Grande, Suite 101 Salt Lake City, UT 84101 Website: http://www.ledllc.net	Phone: 801-456-3910 Name: Adam Oakley Email: adamo@ledllc.net	Building envelope, Controls – Lighting, HVAC - evaporative, HVAC - unitary, Lighting, Motors and VFDs	Distributor, Other	1
Wyoming	Bar-T Electric, Inc. Address: 488 West North St Powell, WY 82435 Website:	Phone: 307-754-8480 Name: Jonathon Robbins Email: jcr-bar-t@tctwest.net	Controls – Lighting, Farm and dairy, Irrigation, Lighting, Motors and VFDs	Contractor	3
Utah, Wyoming	Yesco Address: 1605 S. Gramercy Rd. Salt Lake City, UT 84104 Website: http://www.yesco.com	Phone: 801-487-8481 Name: Crissy Long Email: clong@yesco.com	Lighting, Other Specialty	Contractor, Manufacturer_Rep	5
Wyoming	Perfect Power Electric Inc. Address: P.O. Box 201 Lander, WY 82520 Website:	Phone: 307-332-7184 Name: Darin Hubble Email: dhubble@wyoming.com	Lighting	Contractor	1
Idaho, Utah, Wyoming	Electrical Company Address: PO Box 4667 Logan, UT 84323 Website:	Phone: 435-787-2008 Name: Lisa Evans Email: lisa_ies@yahoo.com	Controls – Lighting, Lighting	Contractor	7
Idaho, Utah, Wyoming	Brilliant Lighting Center Address: 1964 N 400 E North Ogden, UT 84414 Website: http://www.brilliantlightingcenter.com	Phone: 435-327-1020 Name: Mark Miller Email: mark@brilliantlightingcenter.com	Lighting, Lighting instant incentives	Distributor	2
Wyoming	Summit Electric LLC Address: 490 Foster Rd Casper, WY 82601 Website:	Phone: 307-577-1131 Name: Jesse Glasgow Email: summitelectric05@yahoo.com	Lighting	Other	6
Wyoming	AC Electrical Service Address: P.O.. Box 777 Alcova, WY 82620 Website:	Phone: 307-277-7347 Name: Brian Rhoades Email: berhoades@yahoo.com	Lighting	Contractor	1

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Wyoming	ProTech Electric Inc. Address: P.O. Box 2883 Casper, WY 82604 Website: http://www.protechelectric.net	Phone: 307-265-8045 Name: Ron Slack Email: ronslack@protechelectric.net	Lighting	Contractor	1
Idaho, Utah, Wyoming	OEO Energy Solutions Address: 143 East Main Street Lake Zurich, IL 60047 Website: www.oeo.com	Phone: 847-847-3989 Name: Greg Amick Email: greg@oeo.com	Controls – Lighting, Lighting	Distributor	1
Idaho, Utah, Wyoming	Harris Lighting Products Address: 1405 west 800 north Preston, ID 83263 Website: http://www.haleymhamblin.wixsite.com/harrislp	Phone: 208-852-2890 Name: Ryan Harris Email: ryan@harrislightingproducts.com	Controls – Lighting, Lighting	Distributor, Manufacturer_Rep, Other	10
Wyoming	Envision Electric, Inc. Address: 551 Durango Court Casper, WY 82609 Website: http://envisionelectriccasper.com/	Phone: 307-262-9990 Name: Matthew Reed Email: envisionelectric@yahoo.com	Lighting	Contractor	1
Idaho, Utah, Wyoming	Energy Management Collaborative llc Address: 2890 Vicksburg Lane N Plymouth, MN 55447 Website: http://www.emcllc.com	Phone: 952-542-7968 Name: Jolene Fenn-Jansen Email: jfenn-jansen@emcllc.com	Lighting	Other	4
Wyoming	Wyatt Electric Address: 2320 Jade Dr. Casper, WY 82604 Website:	Phone: 307-262-1251 Name: David Wyatt Email: dwyatt@wyatt-electric.com	Lighting	Contractor	5

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Wyoming	Electrical Connections, Inc Address: 2214 Upland Ste A Rock Springs, WY 82901 Website: www.electricalconnections.wy.com	Phone: 307-382-0647 Name: Leon WolfwalkerOakes Email: leon@eciwy.com	Controls – Lighting, Lighting, Motors and VFDs	Contractor	2
Idaho, Utah, Wyoming	Comfort Solutions Address: 1470 Wall Ave Ogden, UT 84404 Website: http://www.comfortsolutionsutah.com	Phone: 801-393-2206 Name: Adam Yearsley Email: adam@comfordsolutionutah.com	HVAC - unitary, HVAC instant incentives	Contractor	1
Wyoming	307 Electric Address: 2159 SW Wyoming Blvd Casper, WY 82604 Website: http://www.307electric.com	Phone: 307-259-9343 Name: Alex Dickinson Email: alex@307electric.com	Lighting, Motors and VFDs	Contractor	
Idaho, Utah, Wyoming	Clark's Quality Roofing, Inc. Address: 334 West Anderson Avenue Murray, UT 84107 Website: http://www.clarkroof.com	Phone: 801-266-3575 Name: Hilary Clark Email: hilaryc@clarkroof.com	Building envelope	Contractor	1
Wyoming	WESCO Distribution, Inc Address: 500 Mainline Ave Green River, WY 82935 Website: HTTP://www.wesco.com	Phone: 307-875-4910 Name: Heather Frolic Email: hfrolic@wesco.com	Lighting	Distributor	4
Wyoming	Alliance Electric LLC Address: 610 Warehouse Rd casper, WY 82601 Website: http://www.Allianceelectricllc.com	Phone: 307-315-6055 Name: Jon Trujillo Email: info@allianceelectricllc.com	Lighting	Contractor	3

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Wyoming	Crum Electric Supply - Rock Springs Address: 800 Elk St. Rock Springs Rock Springs, WY 82901 Website: http://www.crum.com	Phone: 307-362-4415 Name: Scott Behunin Email: sbehunin@crum.com	Lighting, Lighting instant incentives	Distributor	4
Utah, Wyoming	All American LED Address: 3234 E 4650 N Liberty, UT 84310 Website: http://www.All-AmericanLED.com	Phone: 801-920-7276 Name: Brett Laysyer Email: B.Laysyer@All-AmericanLED.com	Lighting	Distributor	1
Wyoming	Anchor Electric, Inc. Address: P.O. Box 40046 Casper, WY 82604 Website: http://www.anchorselectricinc.com	Phone: 307-234-8799 Name: Clint Reeder Email: anchor@bresnan.net	Controls – Lighting, Lighting	Contractor	1
Idaho, Utah, Wyoming	Relevant Solutions Address: 3186 Washington Street Salt Lake City, UT 84115 Website: http://www.relevantolutions.com	Phone: 801-214-3317 Name: Alan Sweatfield Email: alan.sweatfield@relevantolutions.com	Controls – HVAC, Motors and VFDs	Distributor	1
Idaho, Utah, Wyoming	BidEnergy Inc. Address: 1628 JFK Blvd, Suite 2100 Philadelphia, PA 19103 Website: http://bidenergy.com/	Phone: 215-732-4480 Name: Tim Mayo Email: tim.mayo@bidenergy.com	Appliances, Building envelope, Controls – Lighting, Food service, HVAC - evaporative, HVAC - unitary, Lighting, Motors and VFDs, Office equipment	Other	2
Wyoming	CED - Casper Address: 3330 E YELLOWSTONE HWY CASPER, WY 82609 Website: http://www.cedcasper.com/	Phone: 307-232-8300 Name: JUSTIN MAXWELL Email: jmaxwell@cedcasper.com	Controls – Lighting, Lighting, Lighting instant incentives, Motors and VFDs	Distributor	4

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Idaho, Utah, Wyoming	Optica Lighting Address: 1772 Ross Dr Ogden, UT 84403 Website: http://www.opticalighting.com	Phone: 801-510-6314 Name: Mike Walsh Email: mike@opticalighting.com	Lighting	Contractor, Distributor	3
Wyoming	Boyle Electric Inc Address: 707 Garfield ST Lander, WY 82520 Website: http://www.boyleelectric.com	Phone: 307-332-8139 Name: David Hess Email: dave@boyleelectric.net	Lighting, Motors and VFDs	Contractor	1
Idaho, Utah, Wyoming	Engie Services U.S. Inc Address: 136 Longwater Drive, Suite 103 Norwell, MA 02061 Website: http://www.engieservices.us	Phone: 415-632-6162 Name: Casey Erisman Email: casey.erisman@engie.com	Controls – Lighting, HVAC - unitary, Lighting, Motors and VFDs	Contractor, Engineering_Firm	11
Idaho, Utah, Wyoming	Elite Energy Solutions Address: 162 S 1900 W Suite 100 Lindon, UT 84042 Website: http://www.eliteenergysolutions.com	Phone: 801-640-9779 Name: Chet Stevens Email: cstevens@elitees.net	Building envelope	Contractor	42
Wyoming	Modern Electric Co Address: PO Box 2107 Casper, WY 82602 Website: http://www.modern-electric.com	Phone: 307-266-1711 Name: Wyatt Johnson Email: wjohnson@modern-electric.com	Lighting	Contractor	14
Wyoming	Casper Electric Inc Address: 3150 E Yellowstone Hwy Casper, WY 82609 Website: http://www.casperelectric.biz	Phone: 307-237-3003 Name: Ben Hansuld Email: ben@casperelectric.biz	Lighting	Contractor, Engineering_Firm	4

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Idaho, Utah, Wyoming	ACES Companies Address: 33 N Main St. Suite 207 Logan, UT 84321 Website: https://www.acescompanies.com/	Phone: 435-232-2821 Name: TY Haguewood Email: ty@acescompanies.com	Lighting, Other Specialty	Contractor	1
Utah, Wyoming	Encentiv Energy, LLC Address: 1501 Ardmore Blvd. Pittsburgh, PA 15221 Website: http://www.encentivenenergy.com	Phone: 412-723-1516 Name: Steve Bolibruck Email: sbolibruck@encentivenenergy.com	Building envelope, Controls – Lighting, HVAC - evaporative, HVAC - unitary, Lighting, Motors and VFDs	Other	1
Wyoming	Crum Electric Supply -Casper Address: 1165 English Ave. Casper, WY 82601 Website: http://www.crum.com	Phone: 307-233-6302 Name: David Crum Email: dmcrum@crum.com	Lighting, Lighting instant incentives	Distributor	3
Wyoming	Castle Rock Electric Address: 501 W Flaming Gorge Way Green River, WY 82935 Website:	Phone: 307-875-3012 Name: Bob Woodward Email: cre@wyoming.com	Lighting	Contractor	2
Idaho, Utah, Wyoming	Long Building Technologies Address: 4689 S. Cherry St. Murray, UT 84123 Website: http://www.long.com/	Phone: 801-290-6506 Name: Paul Christiansen Email: pchristiansen@long.com	HVAC - evaporative, HVAC instant incentives, Motors and VFDs	Distributor, Manufacturer_Rep	1
Wyoming	Big Horn Heating & Cooling, Inc Address: 401 Grace Ave Worland, WY 82401 Website: http://www.bighornheatingandcooling.com	Phone: 307-347-3438 Name: Babbee Wiggins Email: bighornheating@rtconnect.net	HVAC - unitary	Contractor	1
Wyoming	Northwestern Electric Address: P.O. box 2781 casper, WY 82604 Website:	Phone: 307-266-4206 Name: Ioran workman Email: loranworkman@aol.com	Farm and dairy, Lighting, Motors and VFDs	Contractor	

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Idaho, Utah, Wyoming	BriteSwitch, LLC Address: 195 Nassau St, Ste 13 Princeton, NJ 08542 Website: http://www.briteswitch.com	Phone: 609-945-5349 Name: Laura Oliver Email: laura.oliver@briteswitch.com	Controls – Lighting, Lighting	Other	1
Utah, Wyoming	Codale Electric Supply, Inc - Cedar City Address: 477 North 100 West Cedar City, UT 84720 Website: http://www.codale.com	Phone: 435-586-7681 Name: Cody Ille Email: codyi@codale.com	HVAC - unitary, Lighting, Lighting instant incentives, Motors and VFDs	Distributor	3