



# Wyoming Annual Demand-Side Management Report

January 1, 2018 – December 31, 2018

Issued August 1, 2019



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### List of Abbreviations and Acronyms

CCS	Council of Community Services
DSM	Demand-Side Management
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
Schedule 191	Schedule 191 Customer Efficiency Service Charges
TRC	Total Resource Cost Test
UCT	Utility Cost Test
VFD	Variable Frequency Drive
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 141,000 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 2018.

The report provides details on program results, activities, expenditures, and Customer Efficiency Service Charge (“Schedule 191”) revenue from January 1, 2018 through December 31, 2018. The Company, on behalf of its customers, invested \$9.8 million in energy efficiency resource acquisition in 2018. The investment yielded approximately 49.2 gigawatt-hours (“GWh”) in first year energy savings<sup>1</sup> and approximately 5.1 megawatts (at generation) of energy efficiency savings related to capacity reductions.<sup>2</sup> Net benefits based on the projected value of the energy savings<sup>3</sup> over the life of the individual measures are estimated at \$3.7 million.

The energy efficiency portfolio was cost effective based on four of the five standard cost effectiveness tests for the reporting period. The ratepayer impact test was less than 1.0 indicating near-term upward pressure was placed on the price per kilowatt-hour (“kWh”) given a reduction in sales. Table 1 provides the cost effectiveness of the energy efficiency program portfolio.

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<sup>1</sup> Reported savings at generation.

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

<sup>3</sup> See Table 1 – Utility Cost Net Benefits.

Table 1 - Cost Effectiveness for the Energy Efficiency Portfolio

Benefit/Cost Test	Benefit/Cost Ratio	Net Benefits
Total Resource Cost ("PTRC") Test plus 10 percent <sup>4</sup>	1.10	\$1,299,651
Total Resource Cost Test ("TRC") <sup>5</sup>	1.00	(\$53,003)
Utility Cost Test ("UCT") <sup>6</sup>	1.38	\$3,703,974
Participant Cost Test ("PCT") <sup>7</sup>	3.34	\$23,787,130
Ratepayer Impact Cost Test ("RIM") <sup>8</sup>	0.38	(\$21,659,175)

Appendix 1 and each program section in the report provides 2018 cost effectiveness performance in greater detail.

<sup>4</sup> The PTRC is the total resource cost test with an additional 10 percent added to the benefit side of the benefit/cost formula to account for non-quantified environmental and non-energy benefits of conservation resources over supply-side alternatives.

<sup>5</sup> The TRC considers the benefits and costs from the perspective of all utility customers, comparing the total costs and benefits from both the utility and utility customer perspectives. It's assumed to be the closest in valuation methodology to how supply-side resources are valued.

<sup>6</sup> The UCT provides a benefit/cost perspective from that of the utility only, comparing the total cost incurred by the utility to the benefit/value of the energy and capacity saved, it contains no customer costs or benefits in calculation.

<sup>7</sup> The PCT provides a comparison of the costs and benefits of the participant to taking the energy efficiency action.

<sup>8</sup> The RIM examines the impact of energy efficiency expenditures on non-participating ratepayers overall. Unlike supply-side investments, energy efficiency programs reduce energy sales. Reduced energy sales lower revenues putting upward pressure on rates as the remaining fixed costs are spread over fewer kilowatt-hours.

## REGULATORY HISTORY

During the 2018 reporting period, the Company filed numerous compliance filings, updates and requests with the Commission in support of Company DSM programs. The following is a list of those activities:

- On January 11, 2018, in Docket No. 20000-264-EA-06, the Company filed its 2018 promotional plan to educate the public concerning energy efficiency and to promote its DSM programs.
- On January 11, 2018, in Docket No. 20000-264-EA-06, the Company filed a notice with a web link to where the 2015-2016 Home Energy Savings Program Evaluation was posted on the Company's website.
- On January 12, 2018, in Docket No. 20000-526-EA-17, the Company filed its direct testimony in support of the Company's application for a 3-year DSM plan and Schedule 191 rate adjustment.
- On January 30, 2018, 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, 2017 – December 31, 2017.
- On January 30, 2018, 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 March 28, 2018, the Company posted a 45-day notice on its website to make modifications to the *wattsmart* Business program through the "up to" incentive process established in Docket No. 20000-500-ET-16. Key modifications included the reduction of retrofit lighting incentives to better align with market conditions. Notice of these changes was sent to the DSM Advisory Group and Commission Staff March 28, 2018. These modifications went into effect May 12, 2018.
- On April 6, 2018, in Docket No. 20000-526-EA-17, the Company filed its rebuttal testimony in support of the Company's application for a 3-year DSM plan and Schedule 191 rate adjustment.
- On May 2, 2018, 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, 2018 – March 31, 2018.
- On May 2, 2018, 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 May 29, 2018, in Docket No. 20000-526-EA-17, the Company filed its post-hearing brief in support of the Company's application for a 3-year DSM plan and Schedule 191 rate adjustment. The Commission approved the Company's application in its order issued July 24, 2018.

- On June 25, 2018, in Docket No. 20000-264-EA-06, the Wyoming 2017 Annual DSM Report and was filed.
- On July 31, 2018, 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, 2018 – June 30, 2018.
- On July 31, 2018, 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 7, 2018, 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, 2018 – September 30, 2018.
- November 7, 2018, 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 28, 2018, in Docket No. 20000-264-EA-06, the Company filed its 2019 promotional plan to educate the public concerning energy efficiency and to promote its DSM programs.



## 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, 2018

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
Balance Dec. 2017					\$ (1,415,605)	\$ (1,311,329)
Jan-18	\$ 86,884	\$ (6,160)	\$ (176,081)	\$ (3,200)	\$ (1,508,002)	\$ (1,409,886)
Feb-18	\$ 40,524	\$ 43,998	\$ (152,627)	\$ (3,428)	\$ (1,623,533)	\$ (1,481,419)
Mar-18	\$ 155,673	\$ (36,743)	\$ (148,647)	\$ (3,551)	\$ (1,620,058)	\$ (1,514,688)
Apr-18	\$ 59,947	\$ 11,781	\$ (124,032)	\$ (3,621)	\$ (1,687,763)	\$ (1,570,612)
May-18	\$ 58,333	\$ (12,854)	\$ (104,603)	\$ (3,750)	\$ (1,737,783)	\$ (1,633,486)
Jun-18	\$ 67,926	\$ 115,073	\$ (104,634)	\$ (3,849)	\$ (1,778,340)	\$ (1,558,970)
Jul-18	\$ 122,114	\$ 3,587	\$ (111,267)	\$ (3,886)	\$ (1,771,379)	\$ (1,548,422)
Aug-18	\$ 102,958	\$ (41,935)	\$ (103,146)	\$ (3,882)	\$ (1,775,449)	\$ (1,594,426)
Sep-18	\$ 104,189	\$ 6,395	\$ (88,402)	\$ (3,874)	\$ (1,763,535)	\$ (1,576,118)
Oct-18	\$ 150,028	\$ (61,961)	\$ (82,473)	\$ (3,791)	\$ (1,699,771)	\$ (1,574,314)
Nov-18	\$ 75,600	\$ (30,114)	\$ (99,196)	\$ (3,751)	\$ (1,727,118)	\$ (1,631,775)
Dec-18	\$ 79,737	\$ (6,799)	\$ (132,821)	\$ (3,843)	\$ (1,784,045)	\$ (1,695,501)
<b>2018 Total</b>	<b>\$ 1,103,914</b>	<b>\$ (15,733)</b>	<b>\$ (1,427,928)</b>	<b>\$ (44,426)</b>		

\*December 2018 total accrual was \$88,543

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
Balance Dec. 2017					\$ 1,828,725	\$ 1,930,677
Jan-18	\$ 132,752	\$ 76,371	\$ (318,469)	\$ 3,804	\$ 1,646,812	\$ 1,825,135
Feb-18	\$ 148,033	\$ (8,468)	\$ (303,765)	\$ 3,439	\$ 1,494,520	\$ 1,664,374
Mar-18	\$ 186,686	\$ (99,447)	\$ (297,107)	\$ 3,154	\$ 1,387,254	\$ 1,457,661
Apr-18	\$ 114,664	\$ (12,066)	\$ (288,182)	\$ 2,850	\$ 1,216,587	\$ 1,274,928
May-18	\$ 128,597	\$ 37,950	\$ (284,808)	\$ 2,495	\$ 1,062,871	\$ 1,159,163
Jun-18	\$ 97,414	\$ (32,460)	\$ (294,479)	\$ 2,114	\$ 867,920	\$ 931,752
Jul-18	\$ 164,231	\$ 23,365	\$ (364,454)	\$ 1,683	\$ 669,380	\$ 756,576
Aug-18	\$ 169,765	\$ 24,025	\$ (453,630)	\$ 1,156	\$ 386,671	\$ 497,892
Sep-18	\$ 215,134	\$ 70,372	\$ (425,901)	\$ 616	\$ 176,521	\$ 358,114
Oct-18	\$ 298,943	\$ (56,574)	\$ (408,914)	\$ 266	\$ 66,815	\$ 191,834
Nov-18	\$ 129,222	\$ (11,780)	\$ (421,992)	\$ (174)	\$ (226,128)	\$ (112,889)
Dec-18	\$ 425,673	\$ 13,042	\$ (439,278)	\$ (511)	\$ (240,244)	\$ (113,963)
<b>2018 Total</b>	<b>\$ 2,211,118</b>	<b>\$ 24,329</b>	<b>\$ (4,300,978)</b>	<b>\$ 20,892</b>		

\*December 2018 total accrual was \$126,281

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
Balance Dec. 2017					\$ 4,440,794	\$ 4,887,547
Jan-18	\$ 628,133	\$ (43,634)	\$ (279,209)	\$ 10,115	\$ 4,799,833	\$ 5,202,952
Feb-18	\$ 1,444,175	\$ (32,452)	\$ (268,321)	\$ 11,808	\$ 5,987,495	\$ 6,358,162
Mar-18	\$ 799,954	\$ (133,649)	\$ (263,189)	\$ 13,711	\$ 6,537,971	\$ 6,774,990
Apr-18	\$ 405,103	\$ (32,611)	\$ (271,229)	\$ 14,476	\$ 6,686,320	\$ 6,890,728
May-18	\$ 494,083	\$ (606)	\$ (256,231)	\$ 14,915	\$ 6,939,087	\$ 7,142,889
Jun-18	\$ 352,303	\$ (84,677)	\$ (266,947)	\$ 15,302	\$ 7,039,745	\$ 7,158,869
Jul-18	\$ 327,707	\$ 77,810	\$ (307,492)	\$ 52,880	\$ 7,112,841	\$ 7,309,775
Aug-18	\$ 451,710	\$ 176,652	\$ (263,550)	\$ 54,058	\$ 7,355,059	\$ 7,728,645
Sep-18	\$ 487,744	\$ (1,478)	\$ (321,796)	\$ 55,791	\$ 7,576,798	\$ 7,948,906
Oct-18	\$ 458,331	\$ (138,384)	\$ (221,703)	\$ 57,720	\$ 7,871,146	\$ 8,104,869
Nov-18	\$ 404,113	\$ 59,020	\$ (291,563)	\$ 59,462	\$ 8,043,158	\$ 8,335,902
Dec-18	\$ 729,975	\$ (22,086)	\$ (303,614)	\$ 61,929	\$ 8,531,448	\$ 8,802,106
<b>2018 Total</b>	<b>\$ 6,983,331</b>	<b>\$ (176,095)</b>	<b>\$ (3,314,844)</b>	<b>\$ 422,167</b>		

\*December 2018 total accrual was \$270,658

## 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.<sup>9</sup> 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

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<sup>9</sup> 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.<sup>10</sup> 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

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<sup>10</sup> 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 *Non-Residential Energy Efficiency (wattsmart Business)*. In addition to the energy efficiency programs, the Company invests in outreach and communications to make customers aware of the energy efficiency program services and incentives available, promotes the efficient use of electricity and improves program performance. Program savings and cost results for 2018 are provided in Table 5.

Table 5  
Wyoming Results January 1, 2018 – December 31, 2018<sup>11</sup>

Category and Program	kWh/Yr Savings (@ site)	kWh/Yr Savings (@ generator)	Program Expenditures
<b>Category 1 - Residential</b>			
Low Income Weatherization	107,081	117,265	\$ 29,567
Home Energy Reporting	2,328,000	2,549,416	\$ 160,470
wattsmart Homes	5,270,843	5,772,152	\$ 868,582
<b>Total Category 1</b>	<b>7,705,924</b>	<b>8,438,834</b>	<b>\$ 1,058,618</b>
<b>Category 2 - Commercial, Industrial &amp; Irrigation</b>			
wattsmart Business Commercial	12,075,164	13,149,974	\$ 2,687,197
wattsmart Business Industrial	969,123	1,023,500	\$ 204,946
wattsmart Business Irrigation	38,213	41,758	\$ 7,370
<b>Total Category 2</b>	<b>13,082,500</b>	<b>14,215,232</b>	<b>\$ 2,899,514</b>
<b>Category 3 - Commercial &amp; Industrial</b>			
wattsmart Business Commercial	2,518,625	2,742,808	\$ 430,428
wattsmart Business Industrial	22,525,907	23,789,836	\$ 5,000,649
<b>Total Category 3</b>	<b>25,044,532</b>	<b>26,532,643</b>	<b>\$ 5,431,077</b>
<b>Total Energy Efficiency (Categories 1, 2 and 3)</b>	<b>45,832,955</b>	<b>49,186,709</b>	<b>\$ 9,389,209</b>
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 1			\$ 50,722
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 2			\$ 88,213
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 3			\$ 142,431
Outreach & Communication - Cat 1			\$ 58,834
Outreach & Communication - Cat 2			\$ 49,879
Outreach & Communication - Cat 3			\$ 43,286
<b>Total Wyoming 2018 Expenditures</b>			<b>\$ 9,822,574</b>

<sup>11</sup> The values at generation include line losses between the customer site and the generation source. The Company's line losses by sector for 2018 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 5.08 MW (at generation) for energy efficiency programs during 2018 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 2018 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**

<b>Description</b>	<b>Value</b>
First year energy efficiency program MWh savings acquired during 2018	49,187
Conversion factor: Coincident MW/MWh	0.00010
Estimated coincident peak MW contribution of 2018 Wyoming energy efficiency acquisitions	5.08



## RESIDENTIAL PROGRAMS

The residential energy efficiency portfolio was comprised of three programs including *Low Income Weatherization*, *Home Energy Reports* and *wattsmart Homes*. The residential portfolio was not cost effective from the TRC perspective due to two of the three residential programs falling below 1.0: *Home Energy Reports* and *wattsmart Homes*. See Table 7 below.

Table 7  
Cost Effectiveness for Residential Portfolio

Benefit/Cost Test	Includes Portfolio Costs		Excludes Portfolio Costs	
	Benefit/Cost Ratio	Net Benefits	Benefit/Cost Ratio	Net Benefits
PTRC	0.89	(\$167,729)	0.96	(\$58,172)
TRC	0.81	(\$289,293)	0.87	(\$179,737)
UCT	1.04	\$47,475	1.15	\$157,031
PCT	4.30	\$3,834,285	4.30	\$3,834,285
RIM	0.28	(\$3,117,669)	0.29	(\$3,008,112)

Residential savings decreased approximately five percent from 2017. This savings decrease was a result of the *Home Energy Reports* program. Individual program performance, program management, program infrastructure and cost effectiveness is provided on the following pages.

## 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 2,328,000 kWh of savings at site in 2018. The program was not cost effective in 2018 from the TRC perspective due to the program incurring additional costs resulting from startup fees with a new program administrator. Additionally, reported savings decreased significantly from 2017 due to the transition to a new program administrator and a decline in participation. Program cost effectiveness is provided in Table 8 and is shown with and without startup fees. See Appendix 1 for details on cost effectiveness.

**Table 8**  
**Cost Effectiveness for Home Energy Reports Program**

Benefit/Cost Test	Includes Start Up Costs		Excludes Start Up Costs	
	Benefit/Cost Ratio	Net Benefits	Benefit/Cost Ratio	Net Benefits
PTRC	0.65	(\$56,391)	1.48	\$33,609
TRC	0.59	(\$65,853)	1.34	\$24,147
UCT	0.59	(\$65,853)	1.34	\$24,147
PCT	N/A	N/A	N/A	N/A
RIM	0.25	(\$288,471)	0.32	(\$198,471)

Reports were initially provided to approximately 12,746 customers in 2018. The number of participant's decreases over time due to customer attrition related to general customer churn (customer move-outs) and customers requesting to be removed from the program. In 2018, only 0.6 percent of customers have requested to be removed from the program. As of December 2018, there were 11,853 customers who were active recipients of home energy reports. In 2018, 78 total customers opted out of the program.

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

### Program Administration

In 2018, the Company signed a contract with Bidgely to administer the *Home Energy Reports* program. As a result, 2018 incurred additional cost for initial startup fees as the Company transitioned from Oracle to Bidgely. Bidgely began sending reports in May.

Bidgely'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 Bidgely to provide energy savings, software services and delivery of energy reports to customers.

Bidgely 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 – Bidgely 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.

### Evaluation

No evaluation activities occurred in 2018.

## 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 2018, the program achieved savings of 107,081 kWh at site and served 36 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 9. See Appendix 1 for details on cost effectiveness.

Table 9  
Cost Effectiveness for Low Income Weatherization

Benefit/Cost Test	Benefit/Cost Ratio	Net Benefits
PTRC	4.20	\$94,496
TRC	3.81	\$83,217
UCT	3.81	\$83,217
PCT <sup>12</sup>	N/A	N/A
RIM	0.50	(\$113,398)

Total homes treated under the program in 2018, as well as the type and frequency of specific energy efficiency measures installed in each home, is provided in Table 10.

Table 10  
Eligible Program Measures (Units)

Participation – Total # of Completed/Treated Homes	36
<b>Number of Homes Receiving Specific Measures</b>	
Ceiling Insulation	5
Floor Insulation	8
LEDs	35
Duct Sealing	2
Air Sealing/Infiltration	1
Water Pipe Insulation and Sealing	14
Weather-stripping	12
Windows	2
Thermal Doors	6
Refrigerators	27
Showerheads	7
Ground Cover	3

<sup>12</sup> Participants in *Low Income Weatherization* do not incur costs.

### 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](http://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.

### Evaluation

No evaluation activities occurred in 2018.

## 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.

The program was not cost effective from the TRC perspective in 2018, with costs exceeding benefits. Program cost effectiveness is provided in Table 11. See Appendix 1 for details on cost effectiveness.

Table 11  
Cost Effectiveness for *wattsmart Homes*

Benefit/Cost Test	Benefit/Cost Ratio	Net Benefits
PTRC	0.92	(\$96,277)
TRC	0.84	(\$197,102)
UCT	1.16	\$139,667
PCT	3.92	\$3,392,767
RIM	0.28	(\$2,606,244)

Program participation by measure category is provided in Table 12.

Table 12  
Eligible Program Measures (Units)<sup>13</sup>

Measure Category	Total kWh (@ Site)	Total Incentive	Quantity
Appliances	4,797	\$ 2,130	42
Building Shell	121,356	\$ 47,883	102,955 (sq ft)
Electronics	579,312	\$ 85,824	2,682
Energy Kits	1,399,335	\$ 35,833	3,881
HVAC	186,668	\$ 34,540	64
Lighting	2,973,993	\$ 186,301	145,118
Water Heating	5,382	\$ 900	3
<b>Grand Total</b>	<b>5,270,843</b>	<b>\$ 393,410</b>	

Program gross savings at site increased approximately 31 percent from 2017 and was driven by the Company's marketing and distribution of electronics and energy kit measures. The Company's

<sup>13</sup> 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.).

marketing and distribution of electronics had a significant effect on the benefit to cost ratio for the program.

### 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, who is responsible for:

- Retailer and trade ally engagement – CLEAResult 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.
- Manages savings acquisition to targets within budget.
- Continual improvement of program operations and customer satisfaction.
- Inspections – CLEAResult 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 by CLEAResult on behalf of the Company is outlined in the Communication, Outreach and Education section.

### Infrastructure

Multiple retailers and trade allies help deliver energy efficient products on behalf of the Company. The list of participating and non-participating retailers and trade allies by delivery channel and measure is provided in Appendix 2.

### Program Changes

In an effort to prepare for the expiration of the CLEAResult contract and to have the ability to improve program performance quickly, a Request for Proposal (“RFP”) for Master Service Agreements (“MSA”) was issued and awarded to six different firms who qualify to manage either all aspects of the program or specific deliveries, such as marketing and engineering services.

In the fourth quarter, an RFP was issued to the qualified bidders of the MSA firms to implement the Company’s residential program broken down by services categories. Six proposals were received. Two bidders, Evergreen Incorporated and CLEAResult won the bids and are positioned to begin program implementation.

### Evaluations

An RFP was issued and awarded for evaluation activities for program years 2017-2018, with results anticipated the end of 2019.



## Non-Residential Energy Efficiency Program

The *Non-Residential Energy Efficiency* program is promoted to the Company's customers as *wattsmart Business*. The *wattsmart Business* program is intended to maximize the efficient use of electricity for new and existing non-residential customers through the installation of energy efficiency measures and energy management protocols. Qualifying measures are any measures which, when implemented in an eligible facility, result in verifiable electric energy efficiency improvements.

The Non-Residential Portfolio was cost effective with a calculated TRC of 1.02. Program performance results for 2018 is provided in Table 13 below. See Appendix 1 for details on cost effectiveness.

Table 13  
Program Cost Effectiveness

Benefit/Cost Test	Includes Portfolio Costs		Excludes Portfolio Costs	
	Benefit/Cost Ratio	Net Benefits	Benefit/Cost Ratio	Net Benefits
PTRC	1.12	\$1,467,380	1.15	\$1,791,188
TRC	1.02	\$236,290	1.05	\$560,099
UCT	1.42	\$3,656,499	1.48	\$3,980,308
PCT	3.22	\$19,952,845	3.22	\$19,952,845
RIM	0.40	(\$18,541,506)	0.40	(\$18,217,697)

Total incentives, savings and completed projects are provided in Table 14 by customer category and sector. Savings increased from 2017 with increases in Category 2 lighting and Category 3 energy management measure categories.

Table 14  
Savings by Sector

Sector	Total kWh (@ Site)	Total Incentive	Total Bill Credits	Total Projects
<b>Category 2</b>	<b>13,082,500</b>	<b>\$ 1,790,238</b>	-	<b>623</b>
Commercial	12,075,164	\$ 1,684,634	-	594
Industrial	969,123	\$ 101,110	-	23
Irrigation	38,213	\$ 4,493	-	6
<b>Category 3</b>	<b>25,044,532</b>	<b>\$ 3,053,731</b>	<b>\$ 44,842</b>	<b>82</b>
Industrial	22,525,907	\$ 2,922,947	\$ 44,842	35
Commercial	2,518,625	\$ 130,783	-	47
<b>Total WSB</b>	<b>38,127,031</b>	<b>\$ 4,843,969</b>	<b>\$ 44,842</b>	<b>705</b>

Table 15 shows results by customer category and measure category.

**Table 15**  
**Savings by Category and Measure Category**

Measure Category	Total kWh (@ Site)	Total Incentive	Total Bill Credits	Total Projects
<b>Category 2</b>	<b>13,082,500</b>	<b>\$ 1,790,238</b>	<b>\$ -</b>	<b>623</b>
Additional Measures	264,000	\$ 41,300	-	1
Building Shell	34,052	\$ 18,945	-	2
Compressed Air	50,285	\$ 7,543	-	1
Direct Install	2,407,840	\$ 770,440		335
Food Service Equipment	48,132	\$ 1,125	-	1
HVAC	852,811	\$ 85,006	-	10
Irrigation	38,213	\$ 780,878	-	246
Lighting	8,373,124	\$ 48,144	-	18
Motors	534,653	\$ 32,364	-	3
Refrigeration	479,390	\$ 4,493	-	6
<b>Category 3</b>	<b>25,044,532</b>	<b>\$ 3,053,731</b>	<b>\$ 44,842</b>	<b>82</b>
Additional Measures	153,768	\$ 18,661	-	1
Building Shell	21,716	\$ 9,686	-	1
Energy Management	4,520,161	\$ 90,403	-	4
Energy Proj Mgr Co-funding		\$ 460,793		3
HVAC	351,387	\$ 31,703	-	2
Lighting	4,144,245	\$ 492,876	-	30
Motors	11,930,745	\$1,753,479	\$ 44,842	25
Oil & Gas	3,905,090	\$ 193,416	-	15
Refrigeration	17,420	\$ 2,713	-	1
<b>Total WSB</b>	<b>38,127,031</b>	<b>\$ 4,843,969</b>	<b>\$ 44,842</b>	<b>705</b>

Services offered through the *wattsmart* Business program include:

- Typical Upgrades: provides streamlined incentives for lighting, HVAC, compressed air and other equipment upgrades that increase electrical energy efficiency and exceed code requirements.
- Small Business Direct Install: provides enhanced incentives for lighting retrofits installed by a Rocky Mountain Power contractor at eligible small business customer facilities.
- Custom Analysis: offers 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 Project Manager Co-funding: available to customers who can commit to an annual goal of completing projects resulting in a minimum of 1,000,000 kWh per year in energy savings.

- Midstream/LED instant incentive: Provides instant, point-of-purchase incentive for LED lamps and retrofit kits sold through qualifying participating distributors. Customers purchasing lamps from non-participating suppliers can apply for incentives after purchase.

### Program Management

The program manager overseeing the business energy efficiency program activity in Wyoming is also responsible for the programs in Idaho and Utah. For each state the program manager is responsible for the management of the program administrators, cost effectiveness, identifying and contracting with the program administrators through a competitive bid process, program marketing, achieving and monitoring program performance and compliance, and recommending changes in the terms and conditions of the program.

### Program Administration

The program is primarily administered through two delivery channels that are differentiated based upon customer needs: contracted DSM delivery and internal DSM delivery. For customers with high energy savings potential, the program offers Energy Project Manager Co-funding administered through its internal DSM delivery.

#### *Contracted DSM Delivery*

The Contracted DSM Delivery channel generally targets typical opportunities that serve small to medium sized business customers and, to a lesser extent, large business customers. Administration is provided through Company contracts with Nexant, Inc. (“Nexant”), Cascade Energy (“Cascade”) and Willdan Energy Solutions (“Willdan”). Nexant and Cascade manage trade ally coordination, training and application processing services for commercial measures and industrial/agricultural measures respectively. Willdan manages the small business direct installation offer, as well as outreach to Oil and Gas customers.

Nexant and Cascade are responsible for the following:

- Trade ally engagement – includes identification, recruiting, training, supporting and assisting trade allies 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 project facilitation for small/medium customer projects.
- Managing savings acquisition to targets within budget.
- Continual improvement of program operations and customer satisfaction.
- Inspections – includes verifying on an on-going basis the installation of measures. A summary of the inspection process is in Appendix 3.

Willdan is responsible for:

- Small Business Direct Install customer outreach, energy assessment, product supply, installation and inspection.
- Oil and Gas customer outreach, energy assessment and customer engineering services.
- 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.
- Managing savings acquisition to targets within budget.
- Continual improvement of program operations and customer satisfaction.

### *Internal DSM Delivery*

The internal DSM delivery channel targets large energy users who generally have multiple opportunities for energy efficiency improvements, such as those that require complex custom analysis. These large projects are administered by internal Company project managers and allows for a single point of contact to assist customers with their various opportunities. In this delivery channel, project managers are responsible for the following:

- Single point of contact for large customers to assist with their 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 16.)
- Manage engineering firms to ensure program compliance, quality of work and customer satisfaction.
- Manage *wattsmart* Business projects through the whole project lifecycle.

### Infrastructure

#### *Contracted DSM Delivery - Trade Ally Networks*

To help increase and improve the supplier and installation contractor infrastructure for energy efficient equipment and services, the Company established and developed trade ally networks for lighting, HVAC and motors/VFDs. This work includes identifying and recruiting trade allies, providing program and technical training and providing sales support on an ongoing basis. The current list of trade allies 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.

Since 2002, the Company's trade ally network grew into a large, mature network of trade allies. However, the performance of trade allies varied with regard to industry experience, quality of workmanship, program knowledge and willingness to be a utility partner.

In late 2017 all trade allies were asked to re-apply under new program guidelines put in place to encourage good market behavior. This administrative action carried into 2018; and in an effort to

improve trade ally network performance a variety of actions were taken. Minimum participation requirements were raised, including mandatory industry trainings, proof of insurance, and proof of applicable licenses. Quarterly trade ally performance scorecards were introduced to provide timely feedback and encourage trade allies to reach “Premium” status. The following trade ally performance categories were established to align with program objectives:

- Level of participation (project count and savings)
- Customer satisfaction
- Program satisfaction
- Project submission quality
- Experience/training

#### *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 2018, the offer resulted in:

- kWh installed directly at customer sites: 2,407,839
- Four cities served: Evanston; Green River; Laramie; Rawlins; Rock Springs
- Installed customer projects: 333
- Average kWh per installed project: 7,230
- Average customer copay: \$771
- Average customer incentive: \$2,313

#### *Internal DSM Delivery*

Given the diversity of the non-residential customers served by the Company, a pre-approved, pre-contracted group of engineering firms are used to perform facility specific energy efficiency analysis, quality assurance and verification services. Larger customers are managed by internal project managers, while small/medium customers are outsourced directly to a qualified program administration firm for custom analysis. Each customer’s project is directly managed by one of the Company’s in-house project managers. The in-house team works directly with the customer or through the appropriate Company regional business manager located in Wyoming.

Table 16 lists the engineering firms under contract with the Company to provide energy efficiency analysis for internal project managers.

Table 16  
Engineering Firms

Engineering Firm	Main Office Location
Brendle Group	Fort Collins, CO
Cascade Energy Engineering	Cedar Hills, 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

### *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. This program offering is being emphasized by the utility and pushed out into the market in the coming year.

### *Energy Project Manager Co-Funding*

The Energy Project Manager offering is a co-funded staff resource at a customer facility to develop and manage energy projects. Customers can establish an annual energy savings goal and receive Energy Project Manager Co-funding proportionate to that goal (subject to caps). To date, there are four customers in Wyoming who have participated.. Table 17 illustrates how Energy Project Manager's may be incented.

Table 17  
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"> <li>Customer selects an Energy Project Manager.</li> <li>Company &amp; Customer work together on comprehensive plan for electric energy savings.</li> <li>Customer signs the Energy Project Manager Offer.</li> </ol>
2 - Final payment	\$0.025 per kWh of energy savings achieved, to a maximum 100 percent of approved Energy Project Manager Salary and less the initial payment	<ol style="list-style-type: none"> <li>At the end of performance period as defined in the Energy Project Manager Offer.</li> </ol>

To summarize the *wattsmart* Business internal structure, Table 18 shows the delivery channel, its targeted customer segment, provider(s), and the type of services.

Table 18  
*wattsmart* Business Structure

Delivery Channel	Targeted Customer Segment	Providers	Services
Internal Delivery	Commercial & Industrial	Outsourced Engineers	Custom, typical, energy management, energy project manager co-funding
Contracted Delivery (Small Business Direct Install, Trade Ally, Midstream, Oil and Gas)	Small Businesses & Oil and Gas	Willdan	Typical, Custom
	Commercial & Industrial	Nexant/Trade Allies	Typical, Midstream

### Program Changes

Changes to the *wattsmart* Business Program in 2018 were minimal. As LEDs have entered the mainstream lighting market, lighting incentives were adjusted as needed to encourage the behavior needed to push the market toward further adoption of new technologies.

### Evaluation

The *wattsmart* Business program evaluation for program years 2016-2017 was published in 2018. Key findings include:

- Overall realization rate of 91 percent and an overall net-to-gross of 93 percent.
- The program was cost effective from all perspectives except the RIM. The TRC passed at 1.31.
- The majority of savings came from motor systems (38.9 percent) and lighting (37 percent).

A complete list of program evaluation recommendations and the Company's response is provided in Appendix 5. Evaluations are available at the Company's website at <http://www.pacificorp.com/es/dsm/wyoming.html>



## 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 19 shows the communication source and the frequency of the message.

**Table 19**  
**Communication Source and Frequency**

Communication Source	Frequency of Message
Web: <a href="http://rockymountainpower.net/wattsmart">rockymountainpower.net/wattsmart</a> and promotional URL <a href="http://wattsmart.com">wattsmart.com</a> 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 2018, the Company deployed a new 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 and Pandora). 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. Ads geo-targeted by zip code were used on Facebook to reach small business customers with time-sensitive messages to encourage lighting upgrades.

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

Table 20 outlines the value each communication channel provides the impressions achieved.

**Table 20**  
**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	351,295 impressions
Radio	Given the cost relative to television, radio builds on communications delivered via television while providing for increased frequency of messages	224,000 impressions

Communication Channel	Value to Communication Portfolio	Impressions to date
Newspaper/Magazine	Supports broadcast messages and guarantees coverage in areas harder to reach with broadcast	273,272 impressions
Digital Display	Online advertising – banner ads	1,409,839 impressions
Social (i.e. Facebook)	Promoted posts on social support broadcast and digital media to increase overall awareness	155,717 impressions
Internet Search (i.e. Google)	Supports broadcast messages for business customers	5,447 impressions
Twitter (@RMP_Wyoming)	Awareness regarding energy efficiency tips; Tweets posted on a weekly basis	1,201 followers
Facebook <a href="http://www.facebook.com/rockymountainpower.wattsmart">www.facebook.com/rockymountainpower.wattsmart</a>	Awareness regarding energy efficiency tips and a location to share information.	24,989 total fans.
Sponsorship	University of Wyoming	679,284 impressions

The total number impressions for the *wattsmart* campaign was 3,098,854.

### *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, website and social media.

One of the main marketing initiatives for the program was to offer a free advanced power strip to customers. In the fall, Wyoming customers received an email and/or direct mail offer for a free advanced power strip. Approximately 3,360 customers ordered these power strips and received the package with information on how to use the device. Table 21 shows the *wattsmart Homes* communications channels and its approximate totals.

Table 21  
Communication Channels

Communications Channel	2018 Approximate Totals
Direct mail pieces	6,000
Emails	20,000
<b>Total</b>	<b>26,000</b>

### Home Energy Reports

In 2018, the Company transitioned the *Home Energy Reports* program administration from Oracle to Bidgely. With the Bidgely platform, program participants have the option to receive either quarterly paper reports or electronic reports. Customers who receive electronic reports receive two emails each month: (1) a monthly summary with an itemized lists of home energy costs by appliance, and (2) a similar homes comparison.

As a new feature, customers can easily use their Rocky Mountain Power login credentials to access their usage data, appliance breakdown and recommendations on the Bidgely platform.

### wattsmart Business

During 2018, 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.<sup>14</sup> 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.

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 22.

Table 22  
Impressions by Media Type

Communications Channel	2018
Radio	320,000
Newspaper	535,085
Eblasts	3,958
Digital Display	785,835
Social	210,569
Digital Search	8,093
Irrigation Direct Mail	1,006

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.

<sup>14</sup> [www.wattsmart.com](http://www.wattsmart.com)

## 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.

Verification of the potential to achieve savings involves regular inspection and commissioning of equipment. The Company engages in programmatic verification activities, including inspections, quality assurance reviews, and tracking checks and balances as part of routine program implementation and may rely upon these practices in the verification of installation information for the purposes of savings verifications in advance of more formal impact evaluation results. A summary of the inspection process is included in Appendix 3.

Evaluation, measurement and verification tasks are segregated within the Company's organization to ensure they are performed and managed by personnel who have a neutral interest in the benefits associated with anticipated savings.

Information on evaluation activities completed or in progress during 2018 is summarized in the chart below. A summary of the recommendations are provided in Appendix 5. Evaluation reports are available at [www.pacificorp.com/es/dsm/wyoming.html](http://www.pacificorp.com/es/dsm/wyoming.html)

<b>Program</b>	<b>Years Evaluated</b>	<b>Evaluator</b>	<b>Status</b>
<i>wattsmart Business</i>	2016-2017	The Cadmus Group	Completed
<i>wattsmart Homes</i>	2017-2018	ADM	In Progress



# Appendix 1

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## Wyoming Cost Effectiveness



## Memorandum

**To:** Esther Giezendanner, PacifiCorp  
**From:** David Basak, Navigant  
**Date:** July 19, 2019  
**Re:** Cost-Effectiveness for the Portfolio and Sector Level - Wyoming

Navigant estimated the cost-effectiveness for the overall energy efficiency portfolio and component sectors, based on 2018 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 cost-effectiveness for all tests except the RIM test. The memo consists of the following tables.

Table 1 - Utility Inputs  
Table 2 – Portfolio Level Costs 2018  
Table 3 – Benefit/Cost Ratios by Portfolio Type  
Table 4 – 2018 Total Energy Efficiency Portfolio Cost-Effectiveness Results  
Table 5 - 2018 C&I Energy Efficiency Portfolio Results (with Portfolio Costs)  
Table 6 - 2018 C&I Energy Efficiency Portfolio Results (without Portfolio Costs)  
Table 7 – 2018 Residential Energy Efficiency Portfolio Results (with Portfolio Costs)  
Table 8 – 2018 Residential Energy Efficiency Portfolio Results (without Portfolio Costs)

**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) <sup>1</sup>	\$0.1088
Commercial Energy Rate (\$/kWh) <sup>1</sup>	\$0.0861
Industrial Energy Rate (\$/kWh) <sup>1</sup>	\$0.0626
Irrigation Energy Rate (\$/kWh) <sup>1</sup>	\$0.0852
Inflation Rate	2.20%

<sup>1</sup> Future rates determined using a 2.20% annual escalator.

**Table 2 – Portfolio Level Costs 2018**

Cost	Value
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 1	\$50,722
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 2	\$88,213
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 3	\$142,431
Outreach & Communication - Cat 1	\$58,834
Outreach & Communication - Cat 2	\$49,879
Outreach & Communication - Cat 3	\$43,286
<b>Total Costs</b>	<b>\$433,365</b>

**Table 3 – Benefit/Cost Ratios by Portfolio Type**

Scenario	PTRC	TRC	UCT	RIM	PCT
Total Portfolio	1.10	1.00	1.38	0.38	3.34
C&I Programs (with Portfolio Costs)	1.12	1.02	1.42	0.40	3.22
C&I Programs (without Portfolio Costs)	1.15	1.05	1.48	0.40	3.22
Residential Programs (with Portfolio Costs)	0.89	0.81	1.04	0.28	4.30
Residential Programs (without Portfolio Costs)	0.96	0.87	1.15	0.29	4.30



**Table 4 – 2018 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	\$0.0424	\$13,579,551	\$14,879,203	\$1,299,651	1.10
Total Resource Cost Test (TRC) No Adder	\$0.0424	\$13,579,551	\$13,526,548	-\$53,003	1.00
Utility Cost Test (UCT)	\$0.0307	\$9,822,574	\$13,526,548	\$3,703,974	1.38
Rate Impact Test (RIM)		\$35,185,723	\$13,526,548	-\$21,659,175	0.38
Participant Cost Test (PCT)		\$10,158,439	\$33,945,569	\$23,787,130	3.34
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000054588
Discounted Participant Payback (years)					1.71

**Table 5 - 2018 C&I Energy Efficiency Portfolio Results (with Portfolio Costs)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0412	\$12,074,608	\$13,541,988	\$1,467,380	1.12
Total Resource Cost Test (TRC) No Adder	\$0.0412	\$12,074,608	\$12,310,898	\$236,290	1.02
Utility Cost Test (UCT)	\$0.0295	\$8,654,399	\$12,310,898	\$3,656,499	1.42
Rate Impact Test (RIM)		\$30,852,404	\$12,310,898	-\$18,541,506	0.40
Participant Cost Test (PCT)		\$8,996,645	\$28,949,490	\$19,952,845	3.22
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000075444
Discounted Participant Payback (years)					1.77

**Table 6 - 2018 C&I Energy Efficiency Portfolio Results (without Portfolio Costs)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0401	\$11,750,799	\$13,541,988	\$1,791,188	1.15
Total Resource Cost Test (TRC) No Adder	\$0.0401	\$11,750,799	\$12,310,898	\$560,099	1.05
Utility Cost Test (UCT)	\$0.0284	\$8,330,590	\$12,310,898	\$3,980,308	1.48
Rate Impact Test (RIM)		\$30,528,595	\$12,310,898	-\$18,217,697	0.40
Participant Cost Test (PCT)		\$8,996,645	\$28,949,490	\$19,952,845	3.22
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000074126
Discounted Participant Payback (years)					1.77

**Table 7 – 2018 Residential Energy Efficiency Portfolio Results (with Portfolio Costs)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0554	\$1,504,943	\$1,337,215	-\$167,729	0.89
Total Resource Cost Test (TRC) No Adder	\$0.0554	\$1,504,943	\$1,215,650	-\$289,293	0.81
Utility Cost Test (UCT)	\$0.0430	\$1,168,175	\$1,215,650	\$47,475	1.04
Rate Impact Test (RIM)		\$4,333,319	\$1,215,650	-\$3,117,669	0.28
Participant Cost Test (PCT)		\$1,161,794	\$4,996,079	\$3,834,285	4.30
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000020646
Discounted Participant Payback (years)					1.45

**Table 8 – 2018 Residential Energy Efficiency Portfolio Results (without Portfolio Costs)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0514	\$1,395,387	\$1,337,215	-\$58,172	0.96
Total Resource Cost Test (TRC) No Adder	\$0.0514	\$1,395,387	\$1,215,650	-\$179,737	0.87
Utility Cost Test (UCT)	\$0.0390	\$1,058,618	\$1,215,650	\$157,031	1.15
Rate Impact Test (RIM)		\$4,223,762	\$1,215,650	-\$3,008,112	0.29
Participant Cost Test (PCT)		\$1,161,794	\$4,996,079	\$3,834,285	4.30
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000019920
Discounted Participant Payback (years)					1.45



## Memorandum

**To:** Esther Giezendanner, PacifiCorp  
**From:** David Basak, Navigant  
**Date:** July 15, 2019  
**Re:** Cost-Effectiveness Results for the Home Energy Reporting Program - Wyoming

Navigant estimated the cost-effectiveness results for the Wyoming Home Energy Reporting Program, based on 2018 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 does not pass cost-effectiveness from all perspectives.

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) <sup>1</sup>	\$0.1088
Inflation Rate	2.20%

<sup>1</sup> 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	\$7,092	\$62,286	\$91,092	\$0	\$160,470	\$0
<b>Total</b>	<b>\$0</b>	<b>\$7,092</b>	<b>\$62,286</b>	<b>\$91,092</b>	<b>\$0</b>	<b>\$160,470</b>	<b>\$0</b>

**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	2,328,000	86%	2,002,080	100%	2,002,080	1
<b>Total</b>	<b>2,328,000</b>	<b>86%</b>	<b>2,002,080</b>	<b>100%</b>	<b>2,002,080</b>	<b>1</b>

**Table 4 - Home Energy Reporting Program Level 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	\$0.0837	\$160,470	\$104,079	-\$56,391	0.65
Total Resource Cost Test (TRC) No Adder	\$0.0837	\$160,470	\$94,617	-\$65,853	0.59
Utility Cost Test (UCT)	\$0.0837	\$160,470	\$94,617	-\$65,853	0.59
Rate Impact Test (RIM)		\$383,088	\$94,617	-\$288,471	0.25
Participant Cost Test (PCT)		\$0	\$222,618	\$222,618	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000276632
Discounted Participant Payback (years)					n/a



## Memorandum

**To:** Esther Giezendanner, PacifiCorp  
**From:** David Basak, Navigant  
**Date:** July 15, 2019  
**Re:** Cost-Effectiveness Results for the Home Energy Reporting Program - Wyoming

Navigant estimated the cost-effectiveness results for the Wyoming Home Energy Reporting Program, based on 2018 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 and PCT tests.

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) <sup>1</sup>	\$0.1088
Inflation Rate	2.20%

<sup>1</sup> 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	\$7,092	\$62,286	\$1,092	\$0	\$70,470	\$0
<b>Total</b>	<b>\$0</b>	<b>\$7,092</b>	<b>\$62,286</b>	<b>\$1,092</b>	<b>\$0</b>	<b>\$70,470</b>	<b>\$0</b>

**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	2,328,000	86%	2,002,080	100%	2,002,080	1
<b>Total</b>	<b>2,328,000</b>	<b>86%</b>	<b>2,002,080</b>	<b>100%</b>	<b>2,002,080</b>	<b>1</b>

**Table 4 - Home Energy Reporting Program Level 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	\$0.0367	\$70,470	\$104,079	\$33,609	1.48
Total Resource Cost Test (TRC) No Adder	\$0.0367	\$70,470	\$94,617	\$24,147	1.34
Utility Cost Test (UCT)	\$0.0367	\$70,470	\$94,617	\$24,147	1.34
Rate Impact Test (RIM)		\$293,088	\$94,617	-\$198,471	0.32
Participant Cost Test (PCT)		\$0	\$222,618	\$222,618	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000190326
Discounted Participant Payback (years)					n/a



## Memorandum

**To:** Esther Giezendanner, PacifiCorp  
**From:** David Basak, Navigant  
**Date:** July 15, 2019  
**Re:** Cost-Effectiveness Results for the Low Income Weatherization Program - Wyoming

Navigant estimated the cost-effectiveness results for the Wyoming Low Income Weatherization Program, based on 2018 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) <sup>1</sup>	\$0.1088
Inflation Rate	2.20%

<sup>1</sup> 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	\$4,923	\$2,228	\$131	\$22,285	\$29,567	\$0
<b>Total</b>	<b>\$0</b>	<b>\$4,923</b>	<b>\$2,228</b>	<b>\$131</b>	<b>\$22,285</b>	<b>\$29,567</b>	<b>\$0</b>

**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	107,081	100%	107,081	100%	107,081	27
<b>Total</b>	<b>107,081</b>	<b>100%</b>	<b>107,081</b>	<b>100%</b>	<b>107,081</b>	<b>27</b>

**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	\$0.0176	\$29,567	\$124,063	\$94,496	4.20
Total Resource Cost Test (TRC) No Adder	\$0.0176	\$29,567	\$112,784	\$83,217	3.81
Utility Cost Test (UCT)	\$0.0176	\$29,567	\$112,784	\$83,217	3.81
Rate Impact Test (RIM)		\$226,182	\$112,784	-\$113,398	0.50
Participant Cost Test (PCT)		\$0	\$218,900	\$218,900	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000004143
Discounted Participant Payback (years)					n/a





## Memorandum

**To:** Esther Giezendanner, PacifiCorp  
**From:** David Basak, Navigant  
**Date:** July 16, 2019  
**Re:** Cost-Effectiveness Results for the Home Energy Savings Program - Wyoming

Navigant estimated the cost-effectiveness results for the Wyoming Home Energy Savings Program, based on 2018 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 the UCT and PCT tests. The memo consists of the following tables.

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

**Table 1 - Home Energy Savings Inputs**

Parameter	Value
Discount Rate	6.57%
Residential Line Loss	9.51%
Residential Energy Rate (\$/kWh) <sup>1</sup>	\$0.1088
Inflation Rate	2.20%

<sup>1</sup> 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	\$15	\$1,261	\$7	\$2,130	\$3,413	\$2,896
Building Shell	\$0	\$382	\$31,904	\$178	\$47,883	\$80,346	\$58,563
Electronics	\$0	\$1,822	\$152,296	\$849	\$85,824	\$240,791	\$109,452
Energy kits - DHW	\$0	\$3,841	\$85,130	\$1,789	\$23,629	\$114,390	\$23,629
Energy Kits - Lighting	\$0	\$560	\$12,407	\$261	\$12,203	\$25,431	\$12,203
HVAC	\$0	\$587	\$49,073	\$273	\$34,540	\$84,474	\$40,156
Lighting	\$0	\$9,353	\$117,386	\$4,357	\$186,301	\$317,398	\$910,788
Water Heating	\$0	\$17	\$1,415	\$8	\$900	\$2,340	\$4,107
<b>Total</b>	<b>\$0</b>	<b>\$16,577</b>	<b>\$450,872</b>	<b>\$7,722</b>	<b>\$393,410</b>	<b>\$868,582</b>	<b>\$1,161,794</b>

**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	4,797	100%	4,797	65%	3,118	16
Building Shell	121,356	100%	121,356	64%	77,668	30
Electronics	579,312	29%	168,000	104%	174,720	5
Energy Kits - DHW	1,221,336	68%	830,509	87%	722,543	11
Energy Kits - Lighting	177,998	68%	121,039	87%	105,304	12
HVAC	186,668	80%	149,334	81%	120,961	19
Lighting	2,973,993	83%	2,468,414	56%	1,382,312	12
Water Heating	5,382	100%	5,382	79%	4,252	15
<b>Total</b>	<b>5,270,843</b>	<b>73%</b>	<b>3,868,832</b>	<b>67%</b>	<b>2,590,878</b>	<b>12</b>

**Table 4 - Benefit/Cost Ratios by Measure Category**

Measure Group	PTRC	TRC	UCT	RIM	PCT
Appliances	0.56	0.51	0.48	0.22	2.93
Building Shell	1.37	1.24	1.08	0.38	4.84
Electronics	0.10	0.09	0.10	0.07	1.57
Energy Kits - DHW	2.36	2.15	2.09	0.29	36.18
Energy Kits - Lighting	1.81	1.65	1.54	0.28	11.62
HVAC	1.33	1.21	1.18	0.38	6.39
Lighting	0.88	0.80	1.62	0.29	3.11
Water Heating	0.48	0.44	0.87	0.26	1.88
<b>Total</b>	<b>0.92</b>	<b>0.84</b>	<b>1.16</b>	<b>0.28</b>	<b>3.92</b>

**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	\$0.0512	\$1,205,350	\$1,109,073	-\$96,277	0.92
Total Resource Cost Test (TRC) No Adder	\$0.0512	\$1,205,350	\$1,008,248	-\$197,102	0.84
Utility Cost Test (UCT)	\$0.0369	\$868,582	\$1,008,248	\$139,667	1.16
Rate Impact Test (RIM)		\$3,614,492	\$1,008,248	-\$2,606,244	0.28
Participant Cost Test (PCT)		\$1,161,794	\$4,554,561	\$3,392,767	3.92
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000021259
Discounted Participant Payback (years)					2.77

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

**Table 6 - Home Energy Savings Appliances Cost-Effectiveness Results (Load Shape – Residential\_ERWH\_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0895	\$3,165	\$1,785	-\$1,381	0.56
Total Resource Cost Test (TRC) No Adder	\$0.0895	\$3,165	\$1,622	-\$1,543	0.51
Utility Cost Test (UCT)	\$0.0965	\$3,413	\$1,622	-\$1,791	0.48
Rate Impact Test (RIM)		\$7,541	\$1,622	-\$5,919	0.22
Participant Cost Test (PCT)		\$2,896	\$8,481	\$5,585	2.93
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000362
Discounted Participant Payback (years)					2.27

**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	\$0.0544	\$69,943	\$95,722	\$25,779	1.37
Total Resource Cost Test (TRC) No Adder	\$0.0544	\$69,943	\$87,020	\$17,077	1.24
Utility Cost Test (UCT)	\$0.0625	\$80,346	\$87,020	\$6,675	1.08
Rate Impact Test (RIM)		\$230,982	\$87,020	-\$143,961	0.38
Participant Cost Test (PCT)		\$58,563	\$283,251	\$224,688	4.84
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000004739
Discounted Participant Payback (years)					1.25

**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	\$0.3492	\$268,798	\$27,023	-\$241,774	0.10
Total Resource Cost Test (TRC) No Adder	\$0.3492	\$268,798	\$24,567	-\$244,231	0.09
Utility Cost Test (UCT)	\$0.3128	\$240,791	\$24,567	-\$216,224	0.10
Rate Impact Test (RIM)		\$330,284	\$24,567	-\$305,717	0.07
Participant Cost Test (PCT)		\$109,452	\$171,874	\$62,422	1.57
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000058847
Discounted Participant Payback (years)					1.23

**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	\$0.0179	\$111,318	\$262,662	\$151,344	2.36
Total Resource Cost Test (TRC) No Adder	\$0.0179	\$111,318	\$238,783	\$127,466	2.15
Utility Cost Test (UCT)	\$0.0184	\$114,390	\$238,783	\$124,394	2.09
Rate Impact Test (RIM)		\$837,518	\$238,783	-\$598,735	0.29
Participant Cost Test (PCT)		\$23,629	\$854,812	\$831,183	36.18
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000052879
Discounted Participant Payback (years)					0.29

**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	\$0.0246	\$23,844	\$43,150	\$19,306	1.81
Total Resource Cost Test (TRC) No Adder	\$0.0246	\$23,844	\$39,227	\$15,383	1.65
Utility Cost Test (UCT)	\$0.0263	\$25,431	\$39,227	\$13,797	1.54
Rate Impact Test (RIM)		\$138,207	\$39,227	-\$98,980	0.28
Participant Cost Test (PCT)		\$12,203	\$141,832	\$129,629	11.62
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000008027
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	\$0.0535	\$82,460	\$110,061	\$27,600	1.33
Total Resource Cost Test (TRC) No Adder	\$0.0535	\$82,460	\$100,055	\$17,595	1.21
Utility Cost Test (UCT)	\$0.0549	\$84,474	\$100,055	\$15,581	1.18
Rate Impact Test (RIM)		\$264,437	\$100,055	-\$164,381	0.38
Participant Cost Test (PCT)		\$40,156	\$256,716	\$216,560	6.39
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000008494
Discounted Participant Payback (years)					0.42

**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	\$0.0505	\$641,138	\$566,424	-\$74,713	0.88
Total Resource Cost Test (TRC) No Adder	\$0.0505	\$641,138	\$514,931	-\$126,206	0.80
Utility Cost Test (UCT)	\$0.0250	\$317,398	\$514,931	\$197,533	1.62
Rate Impact Test (RIM)		\$1,797,806	\$514,931	-\$1,282,875	0.29
Participant Cost Test (PCT)		\$910,788	\$2,829,888	\$1,919,100	3.11
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000104033
Discounted Participant Payback (years)					5.14

**Table 13 - Home Energy Savings Water Heating Cost-Effectiveness Results  
 (Load Shape – Residential\_HPWH\_7P)**

<b>Cost-Effectiveness Test</b>	<b>Levelized \$/kWh</b>	<b>Costs</b>	<b>Benefits</b>	<b>Net Benefits</b>	<b>Benefit/Cost Ratio</b>
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1017	\$4,684	\$2,246	-\$2,438	0.48
Total Resource Cost Test (TRC) No Adder	\$0.1017	\$4,684	\$2,042	-\$2,642	0.44
Utility Cost Test (UCT)	\$0.0508	\$2,340	\$2,042	-\$298	0.87
Rate Impact Test (RIM)		\$7,717	\$2,042	-\$5,675	0.26
Participant Cost Test (PCT)		\$4,107	\$7,706	\$3,599	1.88
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000370
Discounted Participant Payback (years)					7.78



## Memorandum

**To:** Esther Giezendanner, PacifiCorp  
**From:** David Basak, Navigant  
**Date:** July 15, 2019  
**Re:** Cost-Effectiveness Results for the Wattsmart Business Program Category 2 & 3 – Wyoming

Navigant estimated the cost-effectiveness results for the Wyoming Wattsmart Business Program Category 2 and 3, based on 2018 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program and for the individual 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 - 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) <sup>1</sup>	\$0.0861
Industrial Energy Rate (\$/kWh) <sup>1</sup>	\$0.0626
Irrigation Energy Rate (\$/kWh) <sup>1</sup>	\$0.0852
Inflation Rate	2.20%

<sup>1</sup> 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	\$83,041	\$39,648	\$935,331	\$51,257	\$1,790,238	\$2,899,514	\$3,754,252
Category 3	\$108,931	\$70,867	\$2,099,119	\$53,587	\$3,098,572	\$5,431,077	\$5,242,393
<b>Total</b>	<b>\$191,972</b>	<b>\$110,515</b>	<b>\$3,034,450</b>	<b>\$104,844</b>	<b>\$4,888,810</b>	<b>\$8,330,590</b>	<b>\$8,996,645</b>

**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	13,082,500	93%	12,216,105	92%	11,293,491	14
Category 3	25,044,532	90%	22,557,885	93%	20,943,700	11
<b>Total</b>	<b>38,127,031</b>	<b>91%</b>	<b>34,773,990</b>	<b>93%</b>	<b>32,237,191</b>	<b>12</b>

**Table 4 - Benefit/Cost Ratios by Category**

Measure Group	PTRC	TRC	UCT	RIM	PCT
Category 2	1.18	1.07	1.69	0.37	3.46
Category 3	1.14	1.03	1.36	0.43	3.05
<b>Total</b>	<b>1.15</b>	<b>1.05</b>	<b>1.48</b>	<b>0.40</b>	<b>3.22</b>



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	\$0.0401	\$11,750,799	\$13,541,988	\$1,791,188	1.15
Total Resource Cost Test (TRC) No Adder	\$0.0401	\$11,750,799	\$12,310,898	\$560,099	1.05
Utility Cost Test (UCT)	\$0.0284	\$8,330,590	\$12,310,898	\$3,980,308	1.48
Rate Impact Test (RIM)		\$30,528,595	\$12,310,898	-\$18,217,697	0.40
Participant Cost Test (PCT)		\$8,996,645	\$28,949,490	\$19,952,845	3.22
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000074126
Discounted Participant Payback (years)					1.77

**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	\$0.0400	\$4,584,241	\$5,391,371	\$807,130	1.18
Total Resource Cost Test (TRC) No Adder	\$0.0400	\$4,584,241	\$4,901,247	\$317,005	1.07
Utility Cost Test (UCT)	\$0.0253	\$2,899,514	\$4,901,247	\$2,001,733	1.69
Rate Impact Test (RIM)		\$13,252,590	\$4,901,247	-\$8,351,343	0.37
Participant Cost Test (PCT)		\$3,754,252	\$12,982,885	\$9,228,632	3.46
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000058267
Discounted Participant Payback (years)					2.06

**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	\$0.0402	\$7,166,558	\$8,150,616	\$984,058	1.14
Total Resource Cost Test (TRC) No Adder	\$0.0402	\$7,166,558	\$7,409,651	\$243,093	1.03
Utility Cost Test (UCT)	\$0.0304	\$5,431,077	\$7,409,651	\$1,978,575	1.36
Rate Impact Test (RIM)		\$17,276,005	\$7,409,651	-\$9,866,354	0.43
Participant Cost Test (PCT)		\$5,242,393	\$15,966,605	\$10,724,213	3.05
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000096317
Discounted Participant Payback (years)					1.56



## Memorandum

**To:** Esther Giezendanner, PacifiCorp  
**From:** David Basak, Navigant  
**Date:** July 15, 2019  
**Re:** Cost-Effectiveness Results for the Wattsmart Business Program Category 2 - Wyoming

Navigant estimated the cost-effectiveness results for the Wyoming Wattsmart Business Program Category 2, based on 2018 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 all tests except the RIM test. The memo consists of the following tables.

- Table 1 - Utility Inputs
- Table 2 – Annual Wattsmart Business Program Costs by Measure Category – Category 2
- Table 3 – Annual Wattsmart Business Program Savings by Measure Category – Category 2
- Table 4 - Benefit/Cost Ratios by Measure Category
- Table 5 – Wattsmart Business Program Level Cost-Effectiveness Results – Category 2
- Table 6 - Wattsmart Business Additional Measures Cost-Effectiveness Results
- Table 7 - Wattsmart Business Building Shell Cost-Effectiveness Results
- Table 8 - Wattsmart Business Compressed Air Cost-Effectiveness Results
- Table 9 - Wattsmart Business Direct Install 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) <sup>1</sup>	\$0.0861
Industrial Energy Rate (\$/kWh) <sup>1</sup>	\$0.0626
Irrigation Energy Rate (\$/kWh) <sup>1</sup>	\$0.0852
Inflation Rate	2.20%

<sup>1</sup> 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	\$0	\$4,622	\$0	\$1,034	\$41,300	\$46,956	\$89,420
Building Shell	\$0	\$64	\$2,967	\$133	\$18,945	\$22,109	\$66,380
Compressed Air	\$0	\$94	\$6,082	\$197	\$7,543	\$13,915	\$18,556
Direct Install	\$0	\$3,205	\$188,783	\$9,434	\$770,440	\$971,861	\$256,813
Food Service Equip.	\$0	\$90	\$4,279	\$189	\$1,125	\$5,683	\$2,069
HVAC	\$0	\$1,592	\$75,676	\$3,341	\$85,006	\$165,616	\$331,758
Irrigation	\$0	\$32	\$4,622	\$150	\$4,493	\$9,296	\$20,502
Lighting	\$74,426	\$24,205	\$647,490	\$32,806	\$780,878	\$1,559,805	\$2,795,072
Motors	\$8,615	\$4,849	\$4,119	\$2,095	\$48,144	\$67,821	\$100,624
Refrigeration	\$0	\$895	\$1,313	\$1,878	\$32,364	\$36,451	\$73,059
<b>Total</b>	<b>\$83,041</b>	<b>\$39,648</b>	<b>\$935,331</b>	<b>\$51,257</b>	<b>\$1,790,238</b>	<b>\$2,899,514</b>	<b>\$3,754,252</b>

**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	264,000	91%	240,240	93%	223,423	15
Building Shell	34,052	91%	30,987	93%	28,818	18
Compressed Air	50,285	100%	50,285	100%	50,285	15
Direct Install	2,407,840	93%	2,239,291	92%	2,060,148	12
Food Service Equip.	48,132	91%	43,800	93%	40,734	16
HVAC	852,811	100%	852,811	98%	835,755	15
Irrigation	38,213	100%	38,213	84%	32,099	7
Lighting	8,373,124	93%	7,787,005	92%	7,164,045	14
Motors	534,653	93%	497,227	91%	452,477	15
Refrigeration	479,390	91%	436,245	93%	405,708	13
<b>Total</b>	<b>13,082,500</b>	<b>93%</b>	<b>12,216,105</b>	<b>92%</b>	<b>11,293,491</b>	<b>14</b>

**Table 4 - Benefit/Cost Ratios by Measure Category**

Measure Category	PTRC	TRC	UCT	RIM	PCT
Additional Measures	1.31	1.19	2.26	0.51	2.42
Building Shell	0.30	0.27	0.79	0.33	0.80
Compressed Air	1.09	0.99	1.77	0.38	3.12
Direct Install	1.91	1.74	0.78	0.28	10.39
Food Service Equip.	3.62	3.30	3.76	0.44	22.72
HVAC	1.14	1.04	2.54	0.42	2.83
Irrigation	0.36	0.33	0.77	0.27	1.22
Lighting	1.04	0.95	2.03	0.38	2.89
Motors	2.07	1.88	3.09	0.46	4.67
Refrigeration	2.56	2.33	4.60	0.42	5.82
<b>Total</b>	<b>1.18</b>	<b>1.07</b>	<b>1.69</b>	<b>0.37</b>	<b>3.46</b>

**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	\$0.0400	\$4,584,241	\$5,391,371	\$807,130	1.18
Total Resource Cost Test (TRC) No Adder	\$0.0400	\$4,584,241	\$4,901,247	\$317,005	1.07
Utility Cost Test (UCT)	\$0.0253	\$2,899,514	\$4,901,247	\$2,001,733	1.69
Rate Impact Test (RIM)		\$13,252,590	\$4,901,247	-\$8,351,343	0.37
Participant Cost Test (PCT)		\$3,754,252	\$12,982,885	\$9,228,632	3.46
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000058267
Discounted Participant Payback (years)					2.06

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	\$0.0367	\$88,817	\$116,740	\$27,923	1.31
Total Resource Cost Test (TRC) No Adder	\$0.0367	\$88,817	\$106,127	\$17,310	1.19
Utility Cost Test (UCT)	\$0.0194	\$46,956	\$106,127	\$59,171	2.26
Rate Impact Test (RIM)		\$209,526	\$106,127	-\$103,399	0.51
Participant Cost Test (PCT)		\$89,420	\$216,106	\$126,686	2.42
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000006739
Discounted Participant Payback (years)					3.56

**Table 7 - Wattsmart Business Building Shell Cost-Effectiveness Results (Load Shape – WY\_School\_Space\_Cool)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1905	\$64,898	\$19,239	-\$45,659	0.30
Total Resource Cost Test (TRC) No Adder	\$0.1905	\$64,898	\$17,490	-\$47,408	0.27
Utility Cost Test (UCT)	\$0.0649	\$22,109	\$17,490	-\$4,619	0.79
Rate Impact Test (RIM)		\$53,601	\$17,490	-\$36,111	0.33
Participant Cost Test (PCT)		\$66,380	\$52,807	-\$13,574	0.80
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001968
Discounted Participant Payback (years)					n/a

**Table 8 - 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	\$0.0457	\$24,929	\$27,093	\$2,164	1.09
Total Resource Cost Test (TRC) No Adder	\$0.0457	\$24,929	\$24,630	-\$299	0.99
Utility Cost Test (UCT)	\$0.0255	\$13,915	\$24,630	\$10,714	1.77
Rate Impact Test (RIM)		\$64,240	\$24,630	-\$39,610	0.38
Participant Cost Test (PCT)		\$18,556	\$57,867	\$39,311	3.12
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000002582
Discounted Participant Payback (years)					2.58

**Table 9 - 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	\$0.0231	\$437,690	\$835,587	\$397,897	1.91
Total Resource Cost Test (TRC) No Adder	\$0.0231	\$437,690	\$759,624	\$321,934	1.74
Utility Cost Test (UCT)	\$0.0514	\$971,861	\$759,624	-\$212,237	0.78
Rate Impact Test (RIM)		\$2,717,877	\$759,624	-\$1,958,253	0.28
Participant Cost Test (PCT)		\$256,813	\$2,668,283	\$2,411,470	10.39
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000158802
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	\$0.0140	\$6,482	\$23,496	\$17,014	3.62
Total Resource Cost Test (TRC) No Adder	\$0.0140	\$6,482	\$21,360	\$14,878	3.30
Utility Cost Test (UCT)	\$0.0123	\$5,683	\$21,360	\$15,677	3.76
Rate Impact Test (RIM)		\$48,362	\$21,360	-\$27,002	0.44
Participant Cost Test (PCT)		\$2,069	\$47,016	\$44,947	22.72
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001652
Discounted Participant Payback (years)					0.26

**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	\$0.0448	\$405,732	\$462,375	\$56,643	1.14
Total Resource Cost Test (TRC) No Adder	\$0.0448	\$405,732	\$420,341	\$14,609	1.04
Utility Cost Test (UCT)	\$0.0183	\$165,616	\$420,341	\$254,726	2.54
Rate Impact Test (RIM)		\$1,002,024	\$420,341	-\$581,683	0.42
Participant Cost Test (PCT)		\$331,758	\$938,484	\$606,726	2.83
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000037912
Discounted Participant Payback (years)					3.54

**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	\$0.1159	\$22,025	\$7,919	-\$14,106	0.36
Total Resource Cost Test (TRC) No Adder	\$0.1159	\$22,025	\$7,199	-\$14,825	0.33
Utility Cost Test (UCT)	\$0.0489	\$9,296	\$7,199	-\$2,097	0.77
Rate Impact Test (RIM)		\$26,612	\$7,199	-\$19,413	0.27
Participant Cost Test (PCT)		\$20,502	\$25,107	\$4,606	1.22
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000002676
Discounted Participant Payback (years)					6.40

**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	\$0.0454	\$3,350,394	\$3,484,398	\$134,005	1.04
Total Resource Cost Test (TRC) No Adder	\$0.0454	\$3,350,394	\$3,167,635	-\$182,759	0.95
Utility Cost Test (UCT)	\$0.0211	\$1,559,805	\$3,167,635	\$1,607,829	2.03
Rate Impact Test (RIM)		\$8,276,662	\$3,167,635	-\$5,109,028	0.38
Participant Cost Test (PCT)		\$2,795,072	\$8,081,809	\$5,286,738	2.89
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000356263
Discounted Participant Payback (years)					3.42

**Table 14 - Wattsmart Business Motors 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	\$0.0233	\$111,245	\$230,210	\$118,966	2.07
Total Resource Cost Test (TRC) No Adder	\$0.0233	\$111,245	\$209,282	\$98,037	1.88
Utility Cost Test (UCT)	\$0.0142	\$67,821	\$209,282	\$141,461	3.09
Rate Impact Test (RIM)		\$451,790	\$209,282	-\$242,508	0.46
Participant Cost Test (PCT)		\$100,624	\$470,088	\$369,464	4.67
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000015806
Discounted Participant Payback (years)					1.53

**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	\$0.0182	\$72,031	\$184,315	\$112,284	2.56
Total Resource Cost Test (TRC) No Adder	\$0.0182	\$72,031	\$167,559	\$95,528	2.33
Utility Cost Test (UCT)	\$0.0092	\$36,451	\$167,559	\$131,108	4.60
Rate Impact Test (RIM)		\$401,896	\$167,559	-\$234,337	0.42
Participant Cost Test (PCT)		\$73,059	\$425,317	\$352,258	5.82
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000017570
Discounted Participant Payback (years)					1.15





## Memorandum

**To:** Esther Giezendanner, PacifiCorp  
**From:** David Basak, Navigant  
**Date:** July 15, 2019  
**Re:** Cost-Effectiveness Results for the Wattsmart Business Program Category 3 - Wyoming

Navigant estimated the cost-effectiveness results for the Wyoming Wattsmart Business Program Category 3, based on 2018 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall Category 3 program and for the 9 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 - 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
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**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) <sup>1</sup>	\$0.0861
Industrial Energy Rate (\$/kWh) <sup>1</sup>	\$0.0626
Irrigation Energy Rate (\$/kWh) <sup>1</sup>	\$0.0852
Inflation Rate	2.20%

<sup>1</sup> 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
Additional Measures	\$324	\$399	\$23,669	\$300	\$18,661	\$43,353	\$26,659
Building Shell	\$0	\$107	\$2,558	\$42	\$9,686	\$12,394	\$29,145
Energy Management	\$12,619	\$14,948	\$397,450	\$13,557	\$90,403	\$528,976	\$196,662
Energy Proj Mgr Co-funding	\$0	\$0	\$0	\$0	\$460,793	\$460,793	\$0
HVAC	\$0	\$1,739	\$41,389	\$685	\$31,703	\$75,516	\$64,062
Lighting	\$17,507	\$11,640	\$492,011	\$8,083	\$492,876	\$1,022,116	\$989,326
Motors	\$70,122	\$31,854	\$540,952	\$23,269	\$1,798,321	\$2,464,519	\$3,443,289
Oil & Gas	\$8,227	\$10,135	\$601,091	\$7,616	\$193,416	\$820,485	\$488,355
Refrigeration	\$133	\$45	\$0	\$34	\$2,713	\$2,925	\$4,895
<b>Total</b>	<b>\$108,931</b>	<b>\$70,867</b>	<b>\$2,099,119</b>	<b>\$53,587</b>	<b>\$3,098,572</b>	<b>\$5,431,077</b>	<b>\$5,242,393</b>

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

Measure Category	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Additional Measures	153,768	91%	139,929	93%	130,134	15
Building Shell	21,716	91%	19,762	93%	18,378	18
Energy Management	4,520,161	91%	4,113,347	93%	3,825,412	3
Energy Proj Mgr Co-funding	0	n/a	0	n/a	0	0
HVAC	351,387	100%	351,387	98%	344,359	15
Lighting	4,144,245	93%	3,854,148	92%	3,545,816	14
Motors	11,930,745	93%	11,095,593	91%	10,096,989	15
Oil & Gas	3,905,090	76%	2,967,868	100%	2,967,868	7
Refrigeration	17,420	91%	15,852	93%	14,743	13
<b>Total</b>	<b>25,044,532</b>	<b>90%</b>	<b>22,557,885</b>	<b>93%</b>	<b>20,943,700</b>	<b>11</b>

**Table 4 - Benefit/Cost Ratios by Measure Category**

Measure Category	PTRC	TRC	UCT	RIM	PCT
Additional Measures	1.37	1.25	1.43	0.45	4.52
Building Shell	0.46	0.41	1.00	0.36	1.13
Energy Management	0.56	0.51	0.59	0.24	4.75
Energy Proj Mgr Co-funding	n/a	n/a	n/a	n/a	n/a
HVAC	1.66	1.51	2.13	0.40	5.72
Lighting	1.18	1.08	1.51	0.43	3.29
Motors	1.37	1.25	1.92	0.48	2.87
Oil & Gas	0.56	0.51	0.69	0.29	2.80
Refrigeration	1.23	1.12	1.82	0.44	2.55
<b>Total</b>	<b>1.14</b>	<b>1.03</b>	<b>1.36</b>	<b>0.43</b>	<b>3.05</b>

**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	\$0.0402	\$7,166,558	\$8,150,616	\$984,058	1.14
Total Resource Cost Test (TRC) No Adder	\$0.0402	\$7,166,558	\$7,409,651	\$243,093	1.03
Utility Cost Test (UCT)	\$0.0304	\$5,431,077	\$7,409,651	\$1,978,575	1.36
Rate Impact Test (RIM)		\$17,276,005	\$7,409,651	-\$9,866,354	0.43
Participant Cost Test (PCT)		\$5,242,393	\$15,966,605	\$10,724,213	3.05
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000096317
Discounted Participant Payback (years)					1.56

Table 6 - Table 14 provide cost-effectiveness results for all 9 measure categories in Category 3.

**Table 6 - Wattsmart Business Additional Measures Cost-Effectiveness Results (Load Shape – WY\_Miscellaneous\_Mfg\_General)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0351	\$49,484	\$67,996	\$18,511	1.37
Total Resource Cost Test (TRC) No Adder	\$0.0351	\$49,484	\$61,814	\$12,330	1.25
Utility Cost Test (UCT)	\$0.0307	\$43,353	\$61,814	\$18,461	1.43
Rate Impact Test (RIM)		\$138,042	\$61,814	-\$76,228	0.45
Participant Cost Test (PCT)		\$26,659	\$120,478	\$93,819	4.52
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000004968
Discounted Participant Payback (years)					0.96

**Table 7 - Wattsmart Business Building Shell Cost-Effectiveness Results (Load Shape – WY\_School\_Space\_Cool)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1274	\$29,812	\$13,576	-\$16,237	0.46
Total Resource Cost Test (TRC) No Adder	\$0.1274	\$29,812	\$12,341	-\$17,471	0.41
Utility Cost Test (UCT)	\$0.0530	\$12,394	\$12,341	-\$52	1.00
Rate Impact Test (RIM)		\$34,032	\$12,341	-\$21,690	0.36
Participant Cost Test (PCT)		\$29,145	\$32,953	\$3,808	1.13
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001182
Discounted Participant Payback (years)					16.25

**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	\$0.0590	\$621,469	\$345,559	-\$275,911	0.56
Total Resource Cost Test (TRC) No Adder	\$0.0590	\$621,469	\$314,144	-\$307,325	0.51
Utility Cost Test (UCT)	\$0.0502	\$528,976	\$314,144	-\$214,832	0.59
Rate Impact Test (RIM)		\$1,313,469	\$314,144	-\$999,325	0.24
Participant Cost Test (PCT)		\$196,662	\$933,944	\$737,281	4.75
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000319633
Discounted Participant Payback (years)					0.39

**Table 9 - 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	\$460,793	\$0	-\$460,793	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 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	\$0.0300	\$106,594	\$177,090	\$70,496	1.66
Total Resource Cost Test (TRC) No Adder	\$0.0300	\$106,594	\$160,991	\$54,397	1.51
Utility Cost Test (UCT)	\$0.0213	\$75,516	\$160,991	\$85,475	2.13
Rate Impact Test (RIM)		\$403,284	\$160,991	-\$242,292	0.40
Participant Cost Test (PCT)		\$64,062	\$366,159	\$302,097	5.72
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000015792
Discounted Participant Payback (years)					1.07

**Table 11 - 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	\$0.0394	\$1,439,420	\$1,703,124	\$263,704	1.18
Total Resource Cost Test (TRC) No Adder	\$0.0394	\$1,439,420	\$1,548,295	\$108,875	1.08
Utility Cost Test (UCT)	\$0.0280	\$1,022,116	\$1,548,295	\$526,178	1.51
Rate Impact Test (RIM)		\$3,564,861	\$1,548,295	-\$2,016,566	0.43
Participant Cost Test (PCT)		\$989,326	\$3,256,729	\$2,267,403	3.29
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000140619
Discounted Participant Payback (years)					2.17

**Table 12 - Wattsmart Business Motors 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	\$0.0350	\$3,799,591	\$5,210,263	\$1,410,672	1.37
Total Resource Cost Test (TRC) No Adder	\$0.0350	\$3,799,591	\$4,736,602	\$937,012	1.25
Utility Cost Test (UCT)	\$0.0227	\$2,464,519	\$4,736,602	\$2,272,084	1.92
Rate Impact Test (RIM)		\$9,813,472	\$4,736,602	-\$5,076,870	0.48
Participant Cost Test (PCT)		\$3,443,289	\$9,874,094	\$6,430,805	2.87
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000330895
Discounted Participant Payback (years)					2.61

**Table 13 - 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	\$0.0635	\$1,115,423	\$627,155	-\$488,269	0.56
Total Resource Cost Test (TRC) No Adder	\$0.0635	\$1,115,423	\$570,141	-\$545,283	0.51
Utility Cost Test (UCT)	\$0.0467	\$820,485	\$570,141	-\$250,344	0.69
Rate Impact Test (RIM)		\$1,996,837	\$570,141	-\$1,426,696	0.29
Participant Cost Test (PCT)		\$488,355	\$1,369,768	\$881,414	2.80
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000196693
Discounted Participant Payback (years)					1.58

**Table 14 - Wattsmart Business Refrigeration Cost-Effectiveness Results  
 (Load Shape – WY\_Grocery\_Refrigeration)**

<b>Cost-Effectiveness Test</b>	<b>Levelized \$/kWh</b>	<b>Costs</b>	<b>Benefits</b>	<b>Net Benefits</b>	<b>Benefit/Cost Ratio</b>
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0352	\$4,764	\$5,855	\$1,090	1.23
Total Resource Cost Test (TRC) No Adder	\$0.0352	\$4,764	\$5,322	\$558	1.12
Utility Cost Test (UCT)	\$0.0216	\$2,925	\$5,322	\$2,398	1.82
Rate Impact Test (RIM)		\$12,009	\$5,322	-\$6,687	0.44
Participant Cost Test (PCT)		\$4,895	\$12,481	\$7,586	2.55
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000501
Discounted Participant Payback (years)					2.39

## Appendix 2

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*wattsmart Homes* Retailers



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Table 1: 2018 Participating Midstream/Upstream Retailers

Retailer	City	State	LEDs	Fixtures
Ace Hardware - Baileys	Casper	WY	X	
Ace Hardware - Cazin's	Evanston	WY	X	
Ace Hardware #10776	Kemmerer	WY	X	
Ace Hardware #11263	Green River	WY	X	
Ace Hardware #8349	Rock Springs	WY	X	
Best Buy #1527	Casper	WY	X	
Dollar Tree #2891	Rock Springs	WY	X	
Dollar Tree #3288	Casper	WY	X	
Dollar Tree #3851	Casper	WY	X	
Dollar Tree #4544	Evanston	WY	X	
Dollar Tree #5266	Rawlins	WY	X	
Home Depot #6001	Casper	WY	X	
Menards #3243	Casper	WY	X	
Ridley's #1132	Casper	WY	X	
Ridley's #1133	Casper	WY	X	
Ridley's #1163	Kemmerer	WY	X	
Ridley's #14758	Pinedale	WY	X	
Sam's Club #6425	Casper	WY	X	
Smith's #182	Rock Springs	WY	X	
Smith's #185	Casper	WY	X	
Smith's #187	Green River	WY	X	
Smith's #86	Evanston	WY	X	
Target #T0164	Casper	WY	X	
Walmart #1456	Evanston	WY	X	
Walmart #1461	Rock Springs	WY	X	
Walmart #1617	Casper	WY	X	
Walmart #3778	Casper	WY	X	
Walmart #4471	Rawlins	WY	X	

Table 2: 2018 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	Windows
Home Depot #6001	Casper	WY	X		X	
Home Depot #6003	Rock Springs	WY	X	x		
Home Depot #6004	Sheridan	WY	X			
Rasmusson Furniture	Rawlins	WY	X			
Rocky Mountain Window Distributors	Evansville	WY				x
Sears #1867	Laramie	WY	X			

Table 3: 2018 Non-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	Windows
Sears.com		UT	x			

Table 4: 2018 Participating Wyoming HVAC Trade Allies

Trade Ally Name (Trade ally may be located outside of the territory)	City	State	Duct Sealing - Manufactured Homes	Duct Sealing w/Crossover - Manufactured Homes	ECM Retrofit, Gas Furnace	Efficient Gas Furnace with ECM	Electric System to Heat Pump Conversion	Heat Pump, Ductless
Air Innovations	Casper	WY			X	X	X	X
Big Horn Heating & Cooling, Inc.	Worland	WY						X
CK Mechanical Plumbing & Heating Inc.	Casper	WY					X	
Synergy Efficiency LLC	Chubbuck	ID	X	X				
Tim Force Tin Shop Inc.	Casper	WY						X

Table 5: 2018 Participating Wyoming Weatherization Trade Allies

Trade Ally Name	City	State	Insulation-Attic	Windows
Air Innovations	Casper	WY	x	
F&R Insulation, Inc.	Cody	WY	x	
Rocky Mountain Window Distributors	Evansville	WY		x
Synergy Efficiency LLC	Chubbuck	ID	x	
Wyoming Insulation LLC	Casper	WY	x	

Table 6: 2018 Participating Wyoming Manufactured Homes Trade Allies

Trade Ally Name (Trade ally may be located outside of the territory)	City	State	Manufactured Homes Duct Sealing	No redemptions in 2018
Home Energy Experts	Centerville	UT	x	
Synergy Efficiency LLC	Chubbuck	ID	x	

## Appendix 3

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# Wyoming Measure Installation Verifications

# Wyoming Measure Installation Verifications

## Low Income Weatherization

All projects

- All measures are qualified through US Department of Energy approved audit tool or priority list.
- 100 percent inspection by agency inspector of all homes treated, reconciling work completed and quality prior to invoicing Company.
- State inspectors randomly inspect 5-10 percent of completed homes.

## Wattsmart Homes

Site inspections by Program Administrator staff for the following retrofit measures. Inspections are performed on  $\geq 5$  percent of single family homes,  $\geq 5$  percent of manufactured homes, and 100 percent of multifamily projects.

- Central air conditioner best practice installation
- Ductless heat pumps
- Duct sealing and insulation
- Heat pumps
- Heat pump water heaters
- Insulation
- Windows

Site inspections are not conducted for the following measures. However, all post-purchase incented measures undergo a quality assurance review prior to the issuance of the customer/dealer incentive and recording of savings (e.g. proof of purchase receipt review) and eligible equipment review. Additionally, customer account and customer address are checked to ensure the Company does not double pay for the same measure or double count measure savings.

- Air conditioners
- Clothes washers
- Evaporative coolers
- Freezers
- Light fixtures
- Refrigerators

#### Other measures

- LED bulbs are delivered via an upstream, manufacturer buy-down model. Promotion agreement contracts are signed with manufacturers and retailers to set incentive levels, final product prices, and limits to the total number of units that can be purchased per customer. Program Administrator verifies measures for product eligibility and correct pricing. Pricing is also verified by Program Administrator field visits to retail locations.

Customer eligibility for *wattsmart* Starter Kits is verified using the customer's account number and last name, and cross-verifying with the current PacifiCorp customer database.

#### ***wattsmart* Business**

##### For projects delivered by third part program administrator

##### Lighting projects

- Retrofits - 100 percent pre- and post-installation site inspections by third party consultant of all projects with incentives over a specified dollar amount. Project cost documentation reviewed for all projects.
- New construction - 100 percent post-installation site inspections by third party consultant of all projects with incentives over a specified dollar amount.
- A percent of post-installation site inspections by program administrator of projects with incentives under a specified dollar amount.

##### Non-lighting projects (typical upgrades/listed measures, custom measures)

- 100 percent of applications with an incentive that exceeds a specified dollar amount will be inspected (via site inspection) by program administrator.
- A minimum of a specified percent of remaining non-lighting applications will be inspected, either in person or via telephone interview, by program administrator.

##### For Company in-house project manager delivered projects

##### Lighting and non-lighting

- 100 percent pre/post-installation site inspections by third party consulting engineering firms, invoice reconciled to inspection results.
- No pre-inspection for new construction

#### **All Programs**

As part of the third-party program evaluations (two-year cycle) process, the Company is implementing 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 will serve as a further check verifying customer participation and measures installed.

Additional record reviews and site inspections (including metering/data logging) is conducted as part of the process and impact evaluations, a final verification of measure installations.





## Appendix 4

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### *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: 42 record(s) found

About Us	Service Areas	Company Name	Contact Information	Specialty	Business Type	Projects Completed	Distance (miles)
Premium Vendor	Idaho, Utah, Wyoming	<b>Codale - Salt Lake City</b> 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	35	
Premium Vendor	Idaho, Utah, Wyoming	<b>CED- Logan</b> Address: 636 N. 600 W. Logan, UT 84321 Website: <a href="http://cedlogan.shopce d.com">http://cedlogan.shopce d.com</a>	Phone: 435-752-8905 Name: Devin Migliori Email: devinm@cedlogan.co m	Farm and dairy, Irrigation, Lighting, Lighting instant incentives	Distributor	2	

## wattsmart® Business Vendor Network



Idaho, Utah, Wyoming	<b>Elite Energy Solutions</b> Address: 162 S 1900 W Suite 100 Lindon, UT 84042 Website: <a href="http://www.eliteenergy.com">http://www.eliteenergy.com</a>	Phone: 801-640-9779 Name: Chet Stevens Email: <a href="mailto:cstevens@elitees.net">cstevens@elitees.net</a>	Building envelope	Contractor	42
Idaho, Utah, Wyoming	<b>Automated Mechanical</b> Address: 1574 West 2650 South Ogden, UT 84010 Website: <a href="http://www.automatedmechanical.com">http://www.automatedmechanical.com</a>	Phone: 801-525-9500 Name: Thomas Mudge Email: <a href="mailto:tmudge@automatedmechanical.com">tmudge@automatedmechanical.com</a>	Controls – HVAC, HVAC - evaporative, HVAC - unitary, HVAC check-up, Motors and VFDs	Contractor	39
Idaho, Utah, Wyoming	<b>Energy Management Collaborative llc</b> Address: 2890 Vicksburg Lane N Plymouth, MN 55447 Website: <a href="http://www.emcllc.com">http://www.emcllc.com</a>	Phone: 952-542-7968 Name: Jolene Fenn-Jansen Email: <a href="mailto:jfenn-jansen@emcllc.com">jfenn-jansen@emcllc.com</a>	Lighting	Other	26
Wyoming	<b>Virile Electric</b> Address: 410 Lawson Ave Worland, WY 82401 Website:	Phone: 307-347-4787 Name: Jonathon Williams Email: <a href="mailto:jw@virileinc.com">jw@virileinc.com</a>	Controls – Lighting, Lighting, Motors and VFDs	Contractor	17
Wyoming	<b>Modern Electric Co</b> Address: PO Box 2107 Casper, WY 82602 Website: <a href="http://www.modern-electric.com">http://www.modern-electric.com</a>	Phone: 307-266-1711 Name: Wyatt Johnson Email: <a href="mailto:wjohnson@modern-electric.com">wjohnson@modern-electric.com</a>	Lighting	Contractor	16
Idaho, Utah, Wyoming	<b>Optica Lighting</b> Address: 1772 Ross Dr Ogden, UT 84403 Website: <a href="http://www.opticalighting.com">http://www.opticalighting.com</a>	Phone: 801-510-6314 Name: Mike Walsh Email: <a href="mailto:mike@opticalighting.com">mike@opticalighting.com</a>	Lighting	Contractor, Distributor	9

## wattsmart® Business Vendor Network



Idaho, Utah, Wyoming	<b>Engie Services U.S. Inc</b> Address: 136 Longwater Drive, Suite 103 Norwell, MA 02061 Website: <a href="http://www.engieservices.us">http://www.engieservices.us</a>	Phone: 781-563-4376 Name: Jamie Cragnoline Email: <a href="mailto:jamie.cragnoline@engie.com">jamie.cragnoline@engie.com</a>	Controls – Lighting, HVAC - unitary, Lighting, Motors and VFDs	Contractor, Engineering_Firm	9
Idaho, Utah, Wyoming	<b>BidEnergy Inc.</b> Address: 1628 JFK Blvd, Suite 2100 Philadelphia, PA 19103 Website: <a href="http://bidenergy.com/">http://bidenergy.com/</a>	Phone: 215-732-4480 Name: Tim Mayo Email: <a href="mailto:tim.mayo@bidenergy.com">tim.mayo@bidenergy.com</a>	Appliances, Building envelope, Controls – Lighting, Food service, HVAC - evaporative, HVAC - unitary, Lighting, Motors and VFDs, Office equipment	Other	9
Wyoming	<b>Codale Electric Supply, Inc - Rock Springs</b> Address: 1718 Decora Dr Rock Springs, WY 82901 Website: <a href="http://www.codale.com">http://www.codale.com</a>	Phone: 307-922-5000 Name: Linden Olson Email: <a href="mailto:lindeno@codale.com">lindeno@codale.com</a>	HVAC - unitary, Lighting, Lighting instant incentives, Motors and VFDs	Distributor	8
Wyoming	<b>WESCO Distribution, Inc</b> Address: 500 Mainline Ave Green River, WY 82935 Website: <a href="http://www.wesco.com">HTTP://www.wesco.com</a>	Phone: 307-875-4910 Name: Heather Frolic Email: <a href="mailto:hfrolic@wesco.com">hfrolic@wesco.com</a>	Lighting	Distributor	8
Wyoming	<b>Wyatt Electric</b> Address: 2320 Jade Dr. Casper, WY 82604 Website:	Phone: 307-262-1251 Name: David Wyatt Email: <a href="mailto:dwyatt@wyatt-electric.com">dwyatt@wyatt-electric.com</a>	Lighting	Contractor	7
Wyoming	<b>Casper Electric Inc</b> Address: 3150 E Yellowstone Hwy Casper, WY 82609 Website: <a href="http://www.casperelectric.biz">http://www.casperelectric.biz</a>	Phone: 307-237-3003 Name: Ben Hansuld Email: <a href="mailto:ben@casperelectric.biz">ben@casperelectric.biz</a>	Lighting	Contractor, Engineering_Firm	7

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Wyoming	<b>Crum Electric Supply - Rock Springs</b> Address: 800 Elk St. Rock Springs Rock Springs, WY 82901 Website: <a href="http://www.crum.com">http://www.crum.com</a>	Phone: 307-362-4415 Name: Scott Behunin Email: sbehunin@crum.com	Lighting, Lighting instant incentives	Distributor	6
Wyoming	<b>WIRED ELECTRIC</b> 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	6
Idaho, Utah, Wyoming	<b>Harris Lighting Products</b> Address: 1405 west 800 north Preston, ID 83263 Website: <a href="http://www.haleymhamblin.wixsite.com/harrislp">http://www.haleymhamblin.wixsite.com/harrislp</a>	Phone: 208-852-2890 Name: Chase Harris Email: chase@harrislightingproducts.com	Controls – Lighting, Lighting	Distributor, Manufacturer_Rep, Other	6
Idaho, Utah, Wyoming	<b>Trane</b> Address: 2817 South 1030 West Salt Lake City , UT 84119 Website: <a href="http://www.trane.com">http://www.trane.com</a>	Phone: 801-415-2032 Name: Mario Maestas Email: mmaestas@trane.com	Building envelope, Compressed air, Controls – HVAC, HVAC - evaporative, HVAC - unitary, HVAC check-up, Motors and VFDs, Other Specialty	Contractor, Distributor, Manufacturer_Rep, Other	5
Wyoming	<b>Electrical Connections, Inc</b> Address: 2214 Upland Ste A Rock Springs, WY 82901 Website: <a href="http://www.electricalconnections.wy.com">www.electricalconnections.wy.com</a>	Phone: 307-382-0647 Name: Leon WolfwalkerOakes Email: leon@eciwy.com	Controls – Lighting, Lighting, Motors and VFDs	Contractor	5
Wyoming	<b>Alliance Electric LLC</b> Address: 610 Warehouse Rd casper, WY 82601 Website: <a href="http://www.Allianceelectricllc.com">http://www.Allianceelectricllc.com</a>	Phone: 307-315-6055 Name: Jon Trujillo Email: info@allianceelectricllc.com	Lighting	Contractor	5

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Idaho, Wyoming	<b>D&amp;S Electrical</b> Address: 455 South Eastern Avenue Idaho Falls, ID 83402 Website: <a href="http://www.d-s.com/index.html">http://www.d-s.com/index.html</a>	Phone: 208-731-3701 Name: Dave Bennett Email: <a href="mailto:davebennett@d-s.com">davebennett@d-s.com</a>	Lighting, Motors and VFDs	Distributor	4
Wyoming	<b>Bar-T Electric, Inc.</b> Address: 488 West North St Powell, WY 82435 Website:	Phone: 307-754-8480 Name: Jonathon Robbins Email: <a href="mailto:jcr-bar-t@tctwest.net">jcr-bar-t@tctwest.net</a>	Controls – Lighting, Farm and dairy, Irrigation, Lighting, Motors and VFDs	Contractor	3
Utah, Wyoming	<b>Light Energy Development</b> Address: 41 N Rio Grande, Suite 101 Salt Lake City, UT 84101 Website: <a href="http://www.ledllc.net">http://www.ledllc.net</a>	Phone: 801-456-3910 Name: Adam Oakley Email: <a href="mailto:adamo@ledllc.net">adamo@ledllc.net</a>	Building envelope, Controls – Lighting, HVAC - evaporative, HVAC - unitary, Lighting, Motors and VFDs	Distributor, Other	3
Wyoming	<b>Envision Electric, Inc.</b> Address: 1831 E. 2nd St. Casper, WY 82601 Website: <a href="http://envisionelectriccasper.com/">http://envisionelectriccasper.com/</a>	Phone: 307-262-9990 Name: Matthew Reed Email: <a href="mailto:envisionelectric@yahoo.com">envisionelectric@yahoo.com</a>	Lighting	Contractor	3
Idaho, Utah, Wyoming	<b>Brilliant Lighting Center</b> Address: 1964 N 400 E North Ogden, UT 84414 Website: <a href="http://www.brilliantlightingcenter.com">http://www.brilliantlightingcenter.com</a>	Phone: 435-327-1020 Name: Mark Miller Email: <a href="mailto:mcm605@gmail.com">mcm605@gmail.com</a>	Lighting, Lighting instant incentives	Distributor	2
Wyoming	<b>AC Electrical Service</b> Address: P.O.. Box 777 Alcova, WY 82620 Website:	Phone: 307-277-7347 Name: Brian Rhoades Email: <a href="mailto:berhoades@yahoo.com">berhoades@yahoo.com</a>	Lighting	Contractor	2
Wyoming	<b>CED - Casper</b> Address: 3330 E YELLOWSTONE HWY CASPER, WY 82609 Website: <a href="http://www.cedcasper.shopced.com/">http://www.cedcasper.shopced.com/</a>	Phone: 307-232-8300 Name: JUSTIN MAXWELL Email: <a href="mailto:jmaxwell@cedcasper.com">jmaxwell@cedcasper.com</a>	Controls – Lighting, Lighting, Lighting instant incentives, Motors and VFDs	Distributor	2

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Wyoming	<b>Castle Rock Electric</b> 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
Wyoming	<b>Big Horn Heating &amp; Cooling, Inc</b> Address: 401 Grace Ave Worland, WY 82401 Website: <a href="http://www.bighornheatingandcooling.com">http://www.bighornheatingandcooling.com</a>	Phone: 307-347-3438 Name: Morgan Amos Email: bighornheating@rtconnect.net	HVAC - unitary	Contractor	1
Wyoming	<b>Crum Electric Supply -Casper</b> Address: 1165 English Ave. Casper, WY 82601 Website: <a href="http://www.crum.com">http://www.crum.com</a>	Phone: 307-233-6302 Name: David Crum Email: dmcrum@crum.com	Lighting, Lighting instant incentives	Distributor	1
Idaho, Utah, Wyoming	<b>Relevant Solutions</b> Address: 3186 Washington Street Salt Lake City, UT 84115 Website: <a href="http://www.relevantsolutions.com">http://www.relevantsolutions.com</a>	Phone: 801-214-3317 Name: Alan Sweatfield Email: alan.sweatfield@relevantsolutions.com	Controls – HVAC, Motors and VFDs	Distributor	1
Wyoming	<b>Perfect Power Electric Inc.</b> Address: P.O. Box 201 Lander, WY 82520 Website:	Phone: 307-332-7184 Name: Darin Hubble Email: dhubble@wyoming.com	Lighting	Contractor	1
Wyoming	<b>ProTech Electric Inc.</b> Address: P.O. Box 2883 Casper, WY 82604 Website: <a href="http://www.protechelectric.net">http://www.protechelectric.net</a>	Phone: 307-265-8045 Name: Ron Slack Email: ronslack@protechelectric.net	Lighting	Contractor	1
Idaho, Utah, Wyoming	<b>Long Building Technologies</b> Address: 4689 S. Cherry St. Murray, UT 84123 Website: <a href="http://www.long.com/">http://www.long.com/</a>	Phone: 801-290-6506 Name: Paul Christiansen Email: pchristiansen@long.com	HVAC - evaporative, HVAC instant incentives, Motors and VFDs	Distributor, Manufacturer_Rep	1

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Idaho, Utah, Wyoming	<b>BriteSwitch, LLC</b> Address: 195 Nassau St, Ste 13 Princeton, NJ 08542 Website: <a href="http://www.briteswitch.com">http://www.briteswitch.com</a>	Phone: 609-945-5349 Name: Laura Oliver Email: <a href="mailto:laura.oliver@briteswitch.com">laura.oliver@briteswitch.com</a>	Controls – Lighting, Lighting	Other	1
Idaho, Utah, Wyoming	<b>ACES Companies</b> Address: 33 N Main St. Suite 207 Logan, UT 84321 Website: <a href="https://www.acescompanies.com/">https://www.acescompanies.com/</a>	Phone: 435-232-2821 Name: TY Haguewood Email: <a href="mailto:ty@acescompanies.com">ty@acescompanies.com</a>	Lighting, Other Specialty	Contractor	1
Idaho, Utah, Wyoming	<b>Clark's Quality Roofing, Inc.</b> Address: 334 West Anderson Avenue Murray, UT 84107 Website: <a href="http://www.clarkroof.com">http://www.clarkroof.com</a>	Phone: 801-266-3575 Name: Hilary Clark Email: <a href="mailto:hilaryc@clarkroof.com">hilaryc@clarkroof.com</a>	Building envelope	Contractor	1
Idaho, Utah, Wyoming	<b>Comfort Solutions</b> Address: 1470 Wall Ave Ogden, UT 84404 Website: <a href="http://www.comfortsolutionsutah.com">http://www.comfortsolutionsutah.com</a>	Phone: 801-393-2206 Name: Adam Yearsley Email: <a href="mailto:adam@comfordsolutionutah.com">adam@comfordsolutionutah.com</a>	HVAC - unitary, HVAC instant incentives	Contractor	1
Wyoming	<b>Boyle Electric Inc</b> Address: 707 Garfield ST Lander, WY 82520 Website: <a href="http://www.boyleelectricinc.com">http://www.boyleelectricinc.com</a>	Phone: 307-332-8139 Name: David Hess Email: <a href="mailto:dave@boyleelectric.net">dave@boyleelectric.net</a>	Lighting, Motors and VFDs	Contractor	1
Utah, Wyoming	<b>Encentiv Energy, LLC</b> Address: 1501 Ardmore Blvd. Pittsburgh, PA 15221 Website: <a href="http://www.encentivenenergy.com">http://www.encentivenenergy.com</a>	Phone: 412-723-1516 Name: Steve Bolibruck Email: <a href="mailto:sbolibruck@encentivenenergy.com">sbolibruck@encentivenenergy.com</a>	Building envelope, Controls – Lighting, HVAC - evaporative, HVAC - unitary, Lighting, Motors and VFDs	Other	1



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Wyoming	<b>Anchor Electric, Inc.</b> Address: P.O. Box 40046 Casper, WY 82604 Website: <a href="http://www.anchorselectricinc.com">http://www.anchorselectricinc.com</a>	Phone: 307-234-8799 Name: Clint Reeder Email: <a href="mailto:anchor@bresnan.net">anchor@bresnan.net</a>	Controls – Lighting, Lighting	Contractor	1
Wyoming	<b>Border States</b> Address: 206 S. Plainview St. Billings, MT 59101 Website: <a href="http://www.borderstates.com">www.borderstates.com</a>	Phone: 406-238-1327 Name: Joe Bryan Email: <a href="mailto:jbryan@borderstates.com">jbryan@borderstates.com</a>	Controls – Lighting, Lighting, Motors and VFDs	Distributor	

## Appendix 5

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# Wyoming Program Evaluations

## Wyoming 2018 Evaluations

### Program Evaluation Recommendations and Company Responses

Evaluation reports provide detailed information on the process and impact evaluations performed on each program, summarizing the methodology used to calculate the evaluated savings as well as providing recommendations for the Company to consider for improving the process or impact of the program, as well as customer satisfaction.

Outlined below is a list of the programs, the years that were evaluated during 2018 and the third party evaluator who completed the evaluation. Program evaluations are available for review at [www.pacificorp.com/es/dsm/wyoming.html](http://www.pacificorp.com/es/dsm/wyoming.html)

Program	Years Evaluated	Evaluator	Status
wattsmart Business	2016 - 2017	The Cadmus Group	Completed

Company responses to the program recommendations contained in the evaluations are provided in the tables below.

**Table 1 – wattsmart Business Evaluation Recommendations**

<b>wattsmart Business Evaluation Recommendations</b>	<b>Rocky Mountain Power Action Plan</b>
Water Shutoff - reporting energy savings as the measured reduction in demand (before and after the project is implemented) multiplied by the annual hours of use. While it is expected that well production (barrels of oil extracted) may increase or decrease with varying success from these projects, an increase in oil production is considered an ancillary benefit and does not impact first year energy savings reported by RMP.	The Company is working with its Oil and Gas engineers on these methodology recommendations. The Company will evaluate and test case scenarios in the coming 1-2 years to ensure the most prudent practices and accurate methodology.
Electrically Submersible Pumps - 1) Collect performance metrics for both the new high efficiency ESP and an equivalent standard efficiency ESP.	The Company is working with its Oil and Gas engineers on these methodology recommendations. The Company will evaluate and test case scenarios in the coming 1-2 years to ensure the most prudent practices and accurate methodology.
Prescriptive VFDs - Increase the deemed savings amount for prescriptive HVAC VFD fan and pump motor projects to match Cadmus 2014 Variable Speed Drive Loadshape Project report created for NEEP.	The Program is evaluating this recommendation. The evaluator was provided documentation sources regarding appropriate savings amounts for RMP territory climate zones and expected building applications that differ slightly from the NEEP report.

<b>wattsmart Business Evaluation Recommendations</b>	<b>Rocky Mountain Power Action Plan</b>
Prescriptive VFDs - Implement a minimum hours of use requirement for prescriptive VFD projects. Requesting expected use data minimizes the chance that prescriptive VFDs will be installed on HVAC equipment with minimal use.	The program will consider this recommendation while evaluating the recommendation to increase reported savings. RMP will consider that adding additional requirements to exclude specific scenarios often results in lower participation rates among all scenarios.
Increase consistency with direct calls to action at the end of all collateral pieces.	The Company includes a direct call to action in all our collateral materials and brochures. In most cases customers are given the option to go to wattsmart.com, call or email for more information.
Consider adding graphs, charts, images, and even video to convey information and reduce the need for reading copy-heavy communications materials.	The program will take this recommendation under consideration. The Company is developing a new website and, in the process, will be streamlining content, reducing copy and including more video.
The URL “wattsmart.com” is frequently used to complete a sentence in the ad copy. Some consumers will not realize that the “.” at the end of the URL in the copy is a period for the sentence end, not technically part of the URL. Consider purchasing the domain “wattsmart.com.” and redirect to “wattsmart.com”	wattsmart.com is already a redirect, so it's unlikely RMP will purchase an additional domain to include a period at the end. A better solution will be to leave the period off the end of the sentence at wattsmart.com
For the Museum of the Mountain Man radio spot, Cadmus recommends saying the URL at least twice in a 60-second spot.	The Company will take this recommendation into consideration.
For the Museum of the Mountain Man digital/social ads, consider adding the time period applicable to the savings shown.	The digital ads are space challenged. RMP will consider this suggestion if space allows and the answer is simple to explain.
For the MAVERIK mobile ad, consider incorporating a savings message to inspire further action by the consumer.	The mobile ads are space challenged. RMP will consider adding the savings if space allows.
Consider running additional TV spots during colder months (TV watching increases during cooler months with less daylight).	The Company’s budget for television is limited and placed within the year based on the messaging. RMP aims to also use social channels for our video/TV creative.
Include SBDI measure data in the program database for each SBDI installation, or, at a minimum, in the data provided to the evaluation team.	The Company has added this data to its database reports.
Review Willdan’s customer satisfaction feedback throughout 2019 to ensure the customer satisfaction continues until both Willdan and RMP are satisfied the quality of program delivery has stabilized and meets RMP’s and Willdan’s expectations.	The Company has begun providing mandatory customer service training to all outsourced delivery contractors and is randomly calling program participants to gauge their experience with Willdan.

<b>wattsmart Business Evaluation Recommendations</b>	<b>Rocky Mountain Power Action Plan</b>
<p>Review the marketing strategy and consider increasing marketing outreach to nonparticipants, both through RMP branding efforts and sector outreach by program administrators. Consider increasing any existing customer segmentation efforts to help trade allies target eligible customers. Target the two largest nonparticipant business sectors (Retail, and Accommodation) with case studies highlighting actual energy cost savings achieved by other small businesses in those sectors. Continue growing the program approved trade ally network.</p>	<p>The Company continually aims to reach non-participants in our marketing efforts. A couple years ago, materials were developed for specific industry segments (retail, hospitality, and convenience/gas) via email. RMP will look at reprising this content. Case studies are a proven way to help with awareness and we are seeking resources to complete more of them in 2019. The Company offers trade allies co-branding opportunities on marketing materials as well as annual training on the programs.</p>