



Wyoming Annual Demand-Side Management Report

January 1, 2017 – December 31, 2017

Issued June 25, 2018



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List of Abbreviations and Acronyms

CCS	Council of Community Services
CFL	Compact Fluorescent Lighting
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 140,000 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 2017.

The report provides details on program results, activities, expenditures, and Customer Efficiency Service Charge (“Schedule 191”) revenue from January 1, 2017 through December 31, 2017. The Company, on behalf of its customers, invested \$9.0 million in energy efficiency resource acquisition in 2017. The investment yielded approximately 43.9 gigawatt-hours (“GWh”) in first year energy savings¹ and approximately 5.6 megawatts (at generation) of energy efficiency savings related to capacity reductions.² Net benefits based on the projected value of the energy savings³ over the life of the individual measures are estimated at \$7.7 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. Appendix 1 provides 2017 cost effectiveness performance in greater detail.

¹ Reported savings at generation.

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

³ See Table 1 – Utility Cost Net Benefits.

Table 1 - Cost Effectiveness for the Energy Efficiency Portfolio

Benefit/Cost Test	Benefit/Cost Ratio	Net Benefits
Total Resource Cost ("PTRC") Test plus 10 percent ⁴	1.47	\$5,893,997
Total Resource Cost Test ("TRC") ⁵	1.34	\$4,221,517
Utility Cost Test ("UCT") ⁶	1.85	\$7,664,382
Participant Cost Test ("PCT") ⁷	2.80	\$20,826,469
Ratepayer Impact Cost Test ("RIM") ⁸	0.58	(\$12,023,686)

⁴ 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.

⁵ 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.

⁶ 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.

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

⁸ 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 2017 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 31, 2017, 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, 2016 – December 31, 2016.
- On January 31, 2017, 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 April 7, 2017, the Company posted a 45-day notice on its website to make modifications to the *wattsmart* Homes program through the “up to” incentive process established in Docket No. 20000-500-ET-16. Key modifications included retiring incentive for Compact Fluorescent Lamps due to Light Emitting Diode technology becoming the predominant lighting technology in energy efficiency projects. Notice of these changes was also sent to the DSM Advisory Group April 7, 2017. These modifications went into effect May 22, 2017.
- On April 26, 2017, in Docket No. 20000-264-EA-06, the Company filed a notice with a web link to where the 2014-2015 *wattsmart* Business Program Evaluation was posted on the Company’s website.
- On May 2, 2017, 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, 2017 – March 31, 2017.
- On May 2, 2017, 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 July 13, 2017, in Docket No. 20000-264-EA-06, the Wyoming 2016 Annual DSM Report and was filed.
- On August 1, 2017, 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, 2017 – June 30, 2017.
- On August 1, 2017, 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 August 25, 2017, in Docket No. 20000-264-EA-06, the Company filed a notice with a web link to where the 2015-2016 *Home Energy Report* Program Evaluation was posted on the Company’s website.
- On September 28, 2017, in Docket No. 20000-526-EA-17, the Company filed for approval of a 3-year DSM plan and to adjust the Schedule 191 surcharge rates.
- On November 1, 2017, 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, 2017 – September 30, 2017.

- November 1, 2017, 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 1, 2017, in Docket No. 20000-264-EA-06, the Company filed a notice with a web link to where the 2014-2015 Low Income Weatherization Program Evaluation was posted on the Company's website.

Stakeholder Meetings

The Company held formal presentations as part of the collaborative process agreed to in the Stipulation from Docket No. 20000-502-EA-16 on the following dates:

May 11, 2017

- Discussed the purpose and principles of the collaborative process;
- Provided an overview of the 2017 Integrated Resource Plan and DSM Program;
- Reviewed regulatory filings and the current processes for program modifications;
- Reviewed DSM reports and program evaluations; and
- Discussed stakeholder priorities.

June 8, 2017

- Reviewed notes and outcomes from the May 11, 2017 collaborative meeting;
- Discussed 2017 IRP assumptions and 2020-2021 impacts;
- Reviewed the DSM Plan, tariffs, and other concepts;
- Reviewed the Schedule 191 surcharge analysis;
- Discussed the concept of capitalization; and
- Open discussion allowing stakeholder suggestions for the DSM Plan.

Additional informal meetings and discussions were held as part of the collaborative process through September 2017, as outlined in the direct testimony of William J. Comeau in Docket No. 20000-526-EA-17.

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, 2017.

Table 2
Schedule 191 Balance - Category 1 (Residential)

Month	Monthly Program Costs	Accrued Costs	Rate Recovery	Carrying Charge	Cash Basis Accumulated Balance	Accrual Basis Accumulated Balance
Dec-16					\$ (769,424)	\$ (708,281)
Jan-17	\$ 20,968	\$ 46,230	\$ (200,670)	\$ (1,446)	\$ (950,573)	\$ (843,200)
Feb-17	\$ 24,195	\$ 45,000	\$ (164,228)	\$ (1,718)	\$ (1,092,325)	\$ (939,952)
Mar-17	\$ 82,234	\$ 20,065	\$ (139,990)	\$ (1,887)	\$ (1,151,968)	\$ (979,531)
Apr-17	\$ 104,139	\$ (10,304)	\$ (114,853)	\$ (1,948)	\$ (1,164,630)	\$ (1,002,496)
May-17	\$ 121,970	\$ (60,889)	\$ (109,016)	\$ (1,950)	\$ (1,153,626)	\$ (1,052,381)
Jun-17	\$ 83,155	\$ 10,925	\$ (107,244)	\$ (1,962)	\$ (1,179,677)	\$ (1,067,508)
Jul-17	\$ 87,674	\$ (8,037)	\$ (122,852)	\$ (2,015)	\$ (1,216,871)	\$ (1,112,739)
Aug-17	\$ 81,790	\$ 5,734	\$ (128,429)	\$ (2,088)	\$ (1,265,598)	\$ (1,155,732)
Sep-17	\$ 47,984	\$ 28,608	\$ (115,128)	\$ (2,187)	\$ (1,334,929)	\$ (1,196,455)
Oct-17	\$ 125,522	\$ (6,826)	\$ (104,592)	\$ (2,230)	\$ (1,316,229)	\$ (1,184,582)
Nov-17	\$ 67,019	\$ 16,798	\$ (121,578)	\$ (2,262)	\$ (1,373,050)	\$ (1,224,604)
Dec-17	\$ 111,284	\$ (44,170)	\$ (151,494)	\$ (2,345)	\$ (1,415,605)	\$ (1,311,329)
2017 Total:	\$ 957,933	\$ 43,133	\$ (1,580,075)	\$ (24,038)		
Dec. 2017 Total Accrual		\$ 104,276				

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 Basis Accumulated Balance
Dec-16					\$ 1,562,047	\$ 1,796,003
Jan-17	\$ 190,615	\$ (91,090)	\$ (144,931)	\$ 2,668	\$ 1,610,399	\$ 1,753,265
Feb-17	\$ 203,964	\$ 61,907	\$ (131,790)	\$ 2,772	\$ 1,685,345	\$ 1,890,119
Mar-17	\$ 245,953	\$ (33,856)	\$ (129,489)	\$ 2,935	\$ 1,804,744	\$ 1,975,662
Apr-17	\$ 248,300	\$ 56	\$ (192,310)	\$ 3,085	\$ 1,863,819	\$ 2,034,793
May-17	\$ 148,021	\$ 10,826	\$ (283,811)	\$ 3,023	\$ 1,731,052	\$ 1,912,851
Jun-17	\$ 349,527	\$ (8,715)	\$ (294,875)	\$ 2,960	\$ 1,788,664	\$ 1,961,749
Jul-17	\$ 266,453	\$ 49,360	\$ (301,793)	\$ 2,981	\$ 1,756,304	\$ 1,978,749
Aug-17	\$ 328,634	\$ (139,187)	\$ (320,290)	\$ 2,963	\$ 1,767,611	\$ 1,850,868
Sep-17	\$ 100,904	\$ 151,726	\$ (302,027)	\$ 2,806	\$ 1,569,295	\$ 1,804,278
Oct-17	\$ 337,899	\$ (131,010)	\$ (281,746)	\$ 2,689	\$ 1,628,137	\$ 1,732,110
Nov-17	\$ 283,032	\$ 256,476	\$ (289,332)	\$ 2,735	\$ 1,624,572	\$ 1,985,020
Dec-17	\$ 510,380	\$ (258,497)	\$ (309,131)	\$ 2,904	\$ 1,828,725	\$ 1,930,677
2017 Total:	\$ 3,213,682	\$ (132,005)	\$ (2,981,525)	\$ 34,521		

Dec. 2017 Total Accrual \$ 101,952

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 Basis Accumulated Balance
Dec-16					\$ 2,324,887	\$ 2,634,972
Jan-17	\$ 250,368	\$ (64,792)	\$ (164,429)	\$ 3,986	\$ 2,414,813	\$ 2,660,105
Feb-17	\$ 370,512	\$ 36,992	\$ (131,185)	\$ 4,266	\$ 2,658,406	\$ 2,940,690
Mar-17	\$ 195,872	\$ 91,142	\$ (133,282)	\$ 4,528	\$ 2,725,524	\$ 3,098,951
Apr-17	\$ 476,072	\$ (54,513)	\$ (206,785)	\$ 4,815	\$ 2,999,626	\$ 3,318,539
May-17	\$ 760,448	\$ (53,735)	\$ (242,039)	\$ 5,486	\$ 3,523,520	\$ 3,788,699
Jun-17	\$ 384,563	\$ 79,404	\$ (291,813)	\$ 6,009	\$ 3,622,279	\$ 3,966,862
Jul-17	\$ 200,632	\$ (37,940)	\$ (310,462)	\$ 6,005	\$ 3,518,454	\$ 3,825,096
Aug-17	\$ 503,510	\$ (87,833)	\$ (263,575)	\$ 6,125	\$ 3,764,515	\$ 3,983,324
Sep-17	\$ 697,510	\$ 104,167	\$ (297,805)	\$ 6,673	\$ 4,170,894	\$ 4,493,870
Oct-17	\$ 379,330	\$ 41,785	\$ (271,044)	\$ 7,112	\$ 4,286,292	\$ 4,651,053
Nov-17	\$ 381,815	\$ 86,502	\$ (298,232)	\$ 7,286	\$ 4,377,161	\$ 4,828,424
Dec-17	\$ 338,697	\$ (4,510)	\$ (282,480)	\$ 7,416	\$ 4,440,794	\$ 4,887,547
2017 Total:	\$ 4,939,330	\$ 136,668	\$ (2,893,130)	\$ 69,707		

Dec. 2017 Total Accrual \$ 446,753

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.⁹ 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** – After a customer agrees 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 seeks 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 be low and savings are less predictable, making Class 3 DSM resources less suitable to

⁹ Information on the Company’s integrated resource planning process can be found at the following address: <http://www.pacificorp.com/es/irp.html>

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 education. These efforts seek 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. Similar to Class 3 DSM resources, the impacts of Class 4 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 campaigns.

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 (“Potential Assessment”).¹⁰ 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 against competing supply-side resource options reducing the number of discrete resource options the IRP must consider to a more manageable number.

¹⁰ PacifiCorp’s Demand-side Resource Potential Assessments can be found at <http://www.pacificorp.com/es/dsm.html>.

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 2017 are provided in Table 5.

Table 5
Wyoming Results January 1, 2017 – December 31, 2017¹¹

Category and Program	kWh/Yr Savings (@ site)	kWh/Yr Savings (@ generator)	Program Expenditures
Category 1 - Residential			
Low Income Weatherization	8,744	9,576	\$ 4,418
Home Energy Reporting	4,122,300	4,514,372	\$ 138,671
wattsmart Homes	4,008,817	4,390,096	\$ 626,191
Total Category 1	8,139,861	8,914,043	\$ 769,280
Category 2 - Commercial, Industrial & Irrigation			
wattsmart Business Commercial	8,708,483	9,483,625	\$ 2,936,720
wattsmart Business Industrial	327,294	345,659	\$ 132,884
wattsmart Business Irrigation	97,621	106,676	\$ 24,870
Total Category 2	9,133,398	9,935,960	\$ 3,094,474
Category 3 - Commercial & Industrial			
wattsmart Business Commercial	4,530,192	4,933,424	932,718
wattsmart Business Industrial	19,064,588	20,134,302	3,717,672
Total Category 3	23,594,780	25,067,726	\$ 4,650,389
Total Energy Efficiency (Categories 1, 2 and 3)	40,868,039	43,917,730	\$ 8,514,144
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 1			\$ 198,424
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 2			\$ 69,797
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 3			\$ 125,169
Outreach & Communication - Cat 1			\$ 77,415
Outreach & Communication - Cat 2			\$ 39,412
Outreach & Communication - Cat 3			\$ 36,052
Total Wyoming 2017 Expenditures			\$ 9,060,414

¹¹ The values at generation include line losses between the customer site and the generation source. The Company's line losses by sector for 2017 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 5.56 MW (at generation) for energy efficiency programs during 2017 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 2015 IRP is used to translate 2017 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 2015 IRP. Use of this factor in determining the MW contribution of energy efficiency programs is detailed in Table 6 below.

Table 6
Estimated Peak Contribution

Description	Value
First year energy efficiency program MWh savings acquired during 2017	43,918
Conversion factor: Coincident MW/MWh	0.00013
Estimated coincident peak MW contribution of 2017 Wyoming energy efficiency acquisitions	5.56

RESIDENTIAL PROGRAMS

The residential energy efficiency portfolio was comprised of three programs including *Low Income Weatherization*, *Home Energy Reports* and *wattsmart Homes*. While residential cost effectiveness improved from 2016 performance, the TRC was not cost effective when portfolio costs were included in the analysis. However, the residential portfolio was cost effective when excluding residential portfolio level costs. 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	1.04	\$57,080	1.31	\$332,919
TRC	0.95	(\$71,252)	1.19	\$204,587
UCT	1.23	\$238,199	1.67	\$514,038
PCT	3.74	\$3,217,917	3.74	\$3,217,917
RIM	0.37	(\$2,226,150)	0.40	(\$1,950,311)

Residential savings increased approximately 20 percent from 2016. The increase was driven by participation in the wattsmart Homes program. Individual program performance, program management, program infrastructure and cost effectiveness is provided on the following pages.

HOME ENERGY REPORTS

Home Energy Reports is a behavioral program designed to decrease participant energy usage by providing comparative, and competitive, 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.

In 2017, the program achieved total savings of 4,122,300 kWh (at site). Program cost effectiveness is provided in Table 8. See Appendix 1 for details on cost effectiveness.

Table 8
Cost Effectiveness for Home Energy Reports

Benefit/Cost Test	Benefit/Cost Ratio	Net Benefits
PTRC	1.44	\$61,342
TRC	1.31	\$43,159
UCT	1.31	\$43,159
PCT ¹²	N/A	N/A
RIM	0.33	(\$365,053)

Reports were initially provided to approximately 17,800 customers in January 2015; however this number decreases over time due to customer attrition related to general customer churn (customer move-outs) and customers requesting to be removed from the program. Since inception of the program, only a cumulative of 1.6% of customers have requested to be removed from the program. As of December 2017, the number of active participants was 13,007.

All participating customers may request an electronic version delivered via email and have access to a web portal containing the same information about their usage provided in the report. Approximately 7,900 customers currently receive email reports. In addition, all Wyoming customers (including non-participants) have access to the web portal which contains other benefits such as a home energy audit tool, the ability for customers to update their home profile (for more accurate comparisons), and suggestions on more ways to save energy in their home.

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* in Idaho and Utah and the *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

¹² Participants in *Home Energy Reports* do not incur costs.

performance and compliance, and recommending changes in the terms and conditions set in each state's compliance requirements.

Program Administration

The *Home Energy Reports* program was administered by Oracle. Oracle's software creates individualized energy reports for utility customers that analyze their energy usage and offers recommendations on how to save energy and money by making small changes to their energy consumption. The Company contracted with Oracle to provide energy savings, software services, and printing and delivery of energy reports to customers.

Oracle was responsible for the following:

- Selecting Qualifying Customers – Oracle conducted an analysis to identify qualifying customers that are then randomly selected into the program's treatment (those who will receive reports) and control groups (for measurement and verification).
- Customer Comparison Analysis – Oracle conducted statistical analysis to perform pattern recognition in order to derive actionable insights to selected customers. Oracle uses information about customers' homes (e.g., size, heat type, home type) to find similar homes for comparison.
- Energy Report Delivery – By mail or email.
- Web Portal Design and Support – Oracle operated and maintained a customer Web portal that participants may visit for additional information about their energy usage and saving opportunities.

The *Home Energy Reports* program administration contract expired on December 31, 2017. As a result, the Company initiated a Request for Proposals on June 19, 2017. Negotiations with a new program administrator were underway during the end of the year, with the contract being fully executed January 2, 2018.

Evaluation

A process and impact evaluation for program years 2015 - 2016 was published in 2017. Key findings include:

- The program was cost effectiveness over the report period with a calculated TRC of 1.67.
- Overall percent savings were 1.63 percent
- Survey respondents reported high satisfaction with Rocky Mountain Power overall.
- Most participants indicated they were satisfied with the reports (61 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>

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 2017, the program achieved savings of 8,744 kWh at site and served 4 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	2.08	\$4,779
TRC	1.89	\$3,942
UCT	1.89	\$3,942
PCT ¹³	N/A	N/A
RIM	0.41	(\$11,858)

Total homes treated under the program in 2017, 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	4
Number of Homes Receiving Specific Measures	
Ceiling Insulation	2
CFLs	3
LEDs	1
Duct Sealing	1
Air Sealing/Infiltration	1
Water Pipe Insulation and Sealing	4
Weather-stripping	3

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,

¹³ Participants in *Low Income Weatherization* do not incur costs.

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 on page 9 of the LIEAP Application at <https://sites.google.com/a/wyo.gov/dfsweb/economic-assistance/lieap>.
- 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

A process and impact evaluation for program years 2014 - 2015 was published in 2017. Key findings include:

- Overall realization rate of 114 percent.
- The program was cost effective over the study period with a calculated TRC of 2.60.
- Approximately 70 percent of the ex-post savings came from duct sealing and insulation measures.

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>

WATTSMART HOMES

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

Program cost effectiveness is provided in Table 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	1.29	\$266,799
TRC	1.17	\$157,486
UCT	1.75	\$466,937
PCT	3.38	\$2,793,104
RIM	0.41	(\$1,573,399)

Program participation by measure category is provided in Table 12.

Table 12
Eligible Program Measures (Units)¹⁴

Measure Category	Total kWh (at Site)	Total Incentive	Total Quantity
Appliances	7,150	\$ 3,420	73
Building Shell	36,293	\$ 8,757	26,086 (sq ft)
Energy Kits	524,133	\$ 13,681	1,384
HVAC	169,493	\$ 57,000	121
Lighting	3,262,779	\$ 198,321	155,976
Water Heating	8,970	\$ 1,600	5
Grand Total	4,008,818	\$ 282,780	

Program savings increased 90 percent from 2016 and was driven by the lighting market, particularly a dramatic adoption of LEDs in Wyoming.

¹⁴ Units are dependent on the type of measure (i.e. insulation is in square feet, appliances by unit count, CFLs are total bulbs count, etc.).

Program Management

The program manager who is responsible for the program in Wyoming is also responsible for the *wattsmart Homes* program in Idaho and Utah. For each program and in each state the program manager is responsible for the cost effectiveness of the program, identifying and contracting with the program administrator through a competitive bid process, establishing and monitoring program performance and compliance, and recommending changes in the terms and conditions set out in the tariff.

Program Administration

The *wattsmart Homes* program is administered by CLEAResult, 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

No significant program changes occurred in 2017. A full review of the program began in 2017 and anticipated changes are planned to be effective in 2018.

Evaluations

A process and impact evaluation for program years 2015 - 2016 was completed and published in 2017. Key findings include:

- The program was not cost effective overall with a TRC of 0.73.
- Overall realization rate of 81 percent and a net-to-gross of 61 percent.
- Satisfaction with the program increased amongst all participants from the previous evaluations (78 percent from 65 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>

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 1.42. Program performance results for 2017 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	1.52	\$5,836,917	1.56	\$6,107,347
TRC	1.39	\$4,292,769	1.42	\$4,563,199
UCT	1.93	\$7,426,183	1.99	\$7,696,614
PCT	2.69	\$17,608,552	2.69	\$17,608,552
RIM	0.61	(\$9,797,536)	0.62	(\$9,527,105)

Total incentives, savings and completed projects are provided in Table 14 by customer category and sector.

Table 14
Savings by Sector

Sector	Total kWh (at Site)	Total Incentive	Total Projects
Category 2	9,133,397	\$ 1,589,990	695
Commercial	8,708,483	\$ 1,525,091	659
Industrial	327,294	\$ 53,623.35	27
Irrigation	97,621	\$ 11,275.50	9
Category 3	23,594,780	\$ 2,752,442	265
Commercial	4,530,192	\$ 515,499	176
Industrial	19,064,588	\$ 2,236,943	89
Total WSB	32,728,177	\$ 4,342,432	960

Table 15 shows results by customer category and measure category.

Table 15
Savings by Category and Measure Category

Measure Category	Total kWh (at Site)	Total Incentive	Total Projects
Category 2	9,133,397	\$ 1,589,990	695
Appliances	149	\$ 50	1
Building Shell	43,761	\$ 28,126	6
Compressed Air	346,366	\$ 22,192	3
Direct Install	2,637,433	\$ 843,855	299
Food Service Equipment	251,470	\$ 15,875	10
HVAC	328,731	\$ 41,961	12
Irrigation	97,621	\$ 11,276	9
Lighting	5,295,576	\$ 617,539	334
Motors	90,243	\$ 6,788	20
Refrigeration	42,048	\$ 2,329	1
Category 3	23,594,780	\$ 2,752,442	265
Building Shell	129,453	\$ 66,894	8
Compressed Air	83,529	\$ 3,339	1
Energy Management	402,965	\$ 8,059	3
Energy Project Mgr		\$ 140,171	4
Food Service Equipment	72,383	\$ 2,625	3
HVAC	992,257	\$ 89,772	38
Lighting	4,346,182	\$ 477,622	126
Motors	10,588,537	\$ 1,277,030	55
Oil & Gas	6,749,893	\$ 651,092	24
Refrigeration	229,581	\$ 35,837	3
Total WSB	32,728,177	\$ 4,342,432	960

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 2017 all trade allies were asked to re-apply under new program guidelines put in place to encourage good market behavior. 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

The Company also created a tiered network with associated incentives for top performing trade allies to be designated as “premium”, thus differentiating them from their peers. This offer was launched in late 2017 and, being in its infancy, has yet to produce reportable data.

Contracted DSM Delivery – Small Business Direct Installation Offer

Program year 2017 was the first full operational year of the small business direct installation offer, branded as “*wattsmart* Small Business Direct”. The offering targets the small business customers with an expedited lighting incentive and targets specific geographical locations with marketing and outreach. In 2017, the offer resulted in:

- 2,637,432 kWh installed directly at customer sites;
- 12 cities served: Atlantic City, Casper, Evanston, Glenrock, Green River, Lander, Marbleton, Mills, Pinedale, Riverton, Rock Springs;
- 107 installed customer projects;
- Average kWh per installed project: 8,820;
- Average customer copay: \$940;
- Average customer incentive: \$2,822.

In the first year of operating this program, it was discovered that there is a greater demand in rural markets than originally expected, presenting an opportunity to extend the amount of time spent in each location and limit the number of locations. Rural communities also produced higher eligible customer participation rates (16%) than urban communities (7%).

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 is one customer in Idaho who consistently participates in this offer due to their large size. 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"> Customer selects an Energy Project Manager. Company & Customer work together on comprehensive plan for electric energy savings. Customer signs the Energy Project Manager Offer.
2 - Final payment	\$0.025 per kWh of energy savings achieved, to a maximum 100 percent of approved Energy Project Manager Salary and less the initial payment	<ol style="list-style-type: none"> At the end of performance period as defined in the Energy Project Manager Offer.

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

There were no program changes of note in 2017 for the non-residential program.

Evaluation

The *wattsmart* Business program evaluation for program years 2014-2015 was performed in 2016 and published in early 2017. Key findings include:

- Overall realization rate of 109 percent and an overall net-to-gross of 70 percent.
- The program was cost effective from all perspectives except the RIM. The TRC was 1.56.
- A high percentage of participants (from 82 percent to 100 percent) in the three program delivery channels (SBL, Typical Upgrades and Custom Analysis) reported being very satisfied with the work provided by their contractors, vendors, energy engineers, or contacts with RMP staff.

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 across all customer classes promote energy efficiency initiatives and case studies Inserts and outer envelopes are also used consistently to feature energy efficiency messages and programs.

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

Table 19
Communication Source and Frequency

Communication Source	Frequency of Message
Web: rockymountainpower.net/wattsmart and promotional URL wattsmart.com link directly to the energy efficiency landing page. Once there customers can self-select their state for specific programs and incentives.	Messages rotate each month based on the season.
Twitter	Weekly tweets
Facebook	Information and tips posted 2-3 times per week. Promoted posts and mobile ads are also used where appropriate.
<i>Voices</i> residential newsletter	Newsletters are sent via bill insert and email 5-6 times per year with energy efficiency information.
<i>wattsmart</i> Starter Kit program inserts	1-2 per year
<i>Energy Insights</i> - newsletter to businesses and communities	1-2 times per year

Paid Media/ *wattsmart* Campaign

In 2017, the Company developed 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. 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 to include, 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.	301,110 impressions
Radio	Given the cost relative to television, radio builds on communications delivered via television while providing for increased frequency of messages.	192,000 impressions

Communication Channel	Value to Communication Portfolio	Impressions to date
Newspaper	Supports broadcast messages and guarantees coverage in areas harder to reach with broadcast.	258,772 impressions
Magazine	Supports broadcast messages and reaches business audiences	11,000 impressions
Digital Display	Online advertising – banner ads	1,286,895 impressions
Internet Search (i.e. Google)	Supports broadcast messages for business customers	7,692 impressions
Twitter (@RMP_Wyoming)	Awareness regarding energy efficiency tips; Tweets posted on a weekly basis.	1,141 followers
Facebook www.facebook.com/rockymountainpower.wattsmart	Awareness regarding energy efficiency tips and a location to share information.	23,124 total fans. Facebook advertising - 599,091 impressions.
Sponsorship	University of Wyoming	855,246 impressions

The total number impressions (plus page views) for the *wattsmart* campaign was 3,511,806.

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.

In October, the Company promoted free *wattsmart* Starter Kits through a direct mail piece to targeted Wyoming residents.

To help customers prepare for winter, the Company also distributed an email in November that provided energy-saving tips and a link to insulation incentives.

A summary of program outreach is displayed in Table 21. These estimates do not reflect all of the customer, retailer and trade ally touchpoints.

Any home can be a
wattsmart home.



All you have to do is order a free **wattsmart** Starter Kit.

Table 21
Communication Channels

Communications Channel	2017
Direct mail pieces	850
Emails	40,213
Total	41,063

Home Energy Reports

Since 2015, the Company has provided *Home Energy Reports* to Wyoming residential customers. The reports provide information about the household's energy use compared to other similar households, and offers personalized energy-saving tips. Customers can also login to the program website to access tools including a progress tracker, bill comparison, home energy assessment and more.

wattsmart Business

During 2017, communications reminded customers to inquire about incentives for lighting, HVAC, compressed air, irrigation and other energy efficiency measures. Radio and print ads featured case study examples from program participants. Eblasts and digital display and search ads directed viewers to the Company's website¹⁵. Targeted direct mail was sent to irrigation customers to encourage irrigation retrofits. This was in addition to customer direct contact by Company project managers and regional business managers, trade ally partners, articles in the Company newsletters, and content on the Company website and on Facebook.

Emails were sent to let customers know about available incentives, including one targeted to reach grocery/convenience stores. Customers were invited via email to a free webinar regarding a new optional finance tool available for energy efficiency projects. One Wyoming customer was recognized as a *wattsmart Business Partner* of the year and presented with a trophy. The customer's accomplishment was shared in a Company press release and on social media.

A breakdown of impressions by media type is shown in Table 22.

Table 22
Impressions by Media Type

Communications Channel	2017
Radio	291,200
Newspaper	540,585
Eblasts	3,654
Digital Display	1,139,175
Social	371,876
Digital Search	6,874
Irrigation Direct Mail	1,014

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.

¹⁵ 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 2017 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

Program	Years Evaluated	Evaluator	Status
Low Income Weatherization	2014 - 2015	Opinion Dynamics	Completed
Home Energy Reports	2015-2016	Navigant	Completed
Home Energy Savings	2015-2016	The Cadmus Group	Completed
<i>wattsmart</i> Business	2014-2015	The Cadmus Group	Completed



Appendix 1

Wyoming Cost Effectiveness

PORTFOLIO COST EFFECTIVENESS

Navigant estimated the cost-effectiveness for the overall energy efficiency portfolio and component sectors, based on 2017 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall energy efficiency portfolio and the two sector components.

The portfolio passes the cost-effectiveness for all the tests except the RIM test. The memo consists of the following tables.

Table 1 - Utility Inputs

Table 2 – Portfolio Level Costs 2017

Table 3 – Benefit/Cost Ratios by Portfolio Type

Table 4 – 2017 Total Energy Efficiency Portfolio Cost-Effectiveness Results

Table 5 - 2017 C&I Energy Efficiency Portfolio Cost-Effectiveness Results

Table 6 - 2016 Residential Energy Efficiency Portfolio Results (with Portfolio Costs)

Table 7 - 2016 Residential Energy Efficiency Portfolio Results (without Portfolio Costs)

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.66%
Residential Line Loss	9.51%
Commercial Line Loss	8.90%
Industrial Line Loss	5.61%
Irrigation Line Loss	9.28%
Residential Energy Rate (\$/kWh) ¹	\$0.1117
Commercial Energy Rate (\$/kWh) ¹	\$0.0890
Industrial Energy Rate (\$/kWh) ¹	\$0.0643
Irrigation Energy Rate (\$/kWh) ¹	\$0.0875
Inflation Rate	1.90%

¹ Future rates determined using a 1.9% annual escalator.

Table 2 – Portfolio Level Costs 2017

Cost	Value
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 1	\$198,424
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 2	\$69,797
Portfolio EM&V, DSM Central, Measure Library and Potential Study - Cat 3	\$125,169
Outreach & Communication - Cat 1	\$77,415
Outreach & Communication - Cat 2	\$39,412
Outreach & Communication - Cat 3	\$36,052
Total Costs	\$546,270

Table 3 – Benefit/Cost Ratios by Portfolio Type

Scenario	PTRC	TRC	UCT	RIM	PCT
Total Portfolio	1.47	1.34	1.85	0.58	2.80
C&I Programs	1.52	1.39	1.93	0.61	2.69
Residential Programs (with Portfolio Costs)	1.04	0.95	1.23	0.37	3.74
Residential Programs (without Portfolio Costs)	1.31	1.19	1.67	0.40	3.74

Table 4 – 2017 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	\$0.0528	\$12,503,279	\$18,397,276	\$5,893,997	1.47
Total Resource Cost Test (TRC) No Adder	\$0.0528	\$12,503,279	\$16,724,796	\$4,221,517	1.34
Utility Cost Test (UCT)	\$0.0383	\$9,060,414	\$16,724,796	\$7,664,382	1.85
Rate Impact Test (RIM)		\$28,748,482	\$16,724,796	-\$12,023,686	0.58
Participant Cost Test (PCT)		\$11,581,348	\$32,407,817	\$20,826,469	2.80
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000030234
Discounted Participant Payback (years)					3.00

Table 5 - 2017 C&I Energy Efficiency Portfolio Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0516	\$11,148,708	\$16,985,625	\$5,836,917	1.52
Total Resource Cost Test (TRC) No Adder	\$0.0516	\$11,148,708	\$15,441,477	\$4,292,769	1.39
Utility Cost Test (UCT)	\$0.0371	\$8,015,294	\$15,441,477	\$7,426,183	1.93
Rate Impact Test (RIM)		\$25,239,013	\$15,441,477	-\$9,797,536	0.61
Participant Cost Test (PCT)		\$10,406,345	\$28,014,897	\$17,608,552	2.69
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000038598
Discounted Participant Payback (years)					3.57

Table 6 – 2017 Residential Energy Efficiency Portfolio Cost-Effectiveness Results (with Portfolio Costs)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0658	\$1,354,571	\$1,411,651	\$57,080	1.04
Total Resource Cost Test (TRC) No Adder	\$0.0658	\$1,354,571	\$1,283,319	-\$71,252	0.95
Utility Cost Test (UCT)	\$0.0508	\$1,045,120	\$1,283,319	\$238,199	1.23
Rate Impact Test (RIM)		\$3,509,469	\$1,283,319	-\$2,226,150	0.37
Participant Cost Test (PCT)		\$1,175,003	\$4,392,920	\$3,217,917	3.74
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000015475
Discounted Participant Payback (years)					1.45

Table 7 – 2017 Residential Energy Efficiency Portfolio Cost-Effectiveness Results (without Portfolio Costs)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0524	\$1,078,732	\$1,411,651	\$332,919	1.31
Total Resource Cost Test (TRC) No Adder	\$0.0524	\$1,078,732	\$1,283,319	\$204,587	1.19
Utility Cost Test (UCT)	\$0.0374	\$769,280	\$1,283,319	\$514,038	1.67
Rate Impact Test (RIM)		\$3,233,629	\$1,283,319	-\$1,950,311	0.40
Participant Cost Test (PCT)		\$1,175,003	\$4,392,920	\$3,217,917	3.74
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000013557
Discounted Participant Payback (years)					1.45



Memorandum

HOME ENERGY REPORTS

Navigant estimated the cost-effectiveness results for the Wyoming Home Energy Reporting Program, based on 2017 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program.

Cost-effectiveness was tested using the 2015 IRP east residential whole house 31% load factor 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	6.66%
Residential Line Loss	9.51%
Residential Energy Rate (\$/kWh) ¹	\$0.1117
Inflation Rate	1.90%

¹ Future rates determined using a 1.9% 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	\$10,818	\$127,314	\$539	\$0	\$138,671	\$0
Total	\$0	\$10,818	\$127,314	\$539	\$0	\$138,671	\$0

Table 3 – Home Energy Reporting Savings by Measure Category

Measure Group	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Home Energy Reports	4,122,300	87%	3,586,401	100%	3,586,401	1
Total	4,122,300	87%	3,586,401	100%	3,586,401	1

**Table 4 - Home Energy Reporting Program Level Cost-Effectiveness Results
 (Decrement - East Res. Whole House - 31%, Load Shape – WY_Single_Family_Heat_Pump)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0405	\$138,671	\$200,013	\$61,342	1.44
Total Resource Cost Test (TRC) No Adder	\$0.0405	\$138,671	\$181,830	\$43,159	1.31
Utility Cost Test (UCT)	\$0.0405	\$138,671	\$181,830	\$43,159	1.31
Rate Impact Test (RIM)		\$546,884	\$181,830	-\$365,053	0.33
Participant Cost Test (PCT)		\$0	\$408,212	\$408,212	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000355031
Discounted Participant Payback (years)					n/a



Memorandum

LOW INCOME WEATHERIZATION

Navigant estimated the cost-effectiveness results for the Wyoming Low Income Weatherization Program, based on 2017 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program.

Cost-effectiveness was tested using the 2015 IRP east residential whole house 31% load factor 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	6.66%
Residential Line Loss	9.51%
Residential Energy Rate (\$/kWh) ¹	\$0.1117
Inflation Rate	1.90%

¹ Future rates determined using a 1.90% annual escalator.

Table 2 - Low Income Weatherization Annual Program Costs

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Development	Incentives	Total Utility Costs	Gross Customer Costs
Low Income Weatherization	\$0	\$3,467	\$80	\$72	\$800	\$4,418	\$0
Total	\$0	\$3,467	\$80	\$72	\$800	\$4,418	\$0

Table 3 - Low Income Weatherization Savings by Measure Category

Measure Group	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Low Income Weatherization	8,744	100%	8,744	100%	8,744	27
Total	8,744	100%	8,744	100%	8,744	27

**Table 4 - Low Income Weatherization Program Level
 (Decrement - East Res. Whole House - 31%, Load Shape – WY_Single_Family_Heat_Pump)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0336	\$4,418	\$9,197	\$4,779	2.08
Total Resource Cost Test (TRC) No Adder	\$0.0336	\$4,418	\$8,361	\$3,942	1.89
Utility Cost Test (UCT)	\$0.0336	\$4,418	\$8,361	\$3,942	1.89
Rate Impact Test (RIM)		\$20,219	\$8,361	-\$11,858	0.41
Participant Cost Test (PCT)		\$0	\$16,600	\$16,600	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.000000439
Discounted Participant Payback (years)					n/a



Memorandum

WATTSMART HOMES (HOME ENERGY SAVINGS)

Navigant estimated the cost-effectiveness results for the Wyoming Home Energy Savings Program, based on 2017 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program and for the 7 measure categories.

Cost-effectiveness was tested using the 2015 IRP east residential whole house 31%, east residential lighting 47%, and east water heating – 53% decrements. The program passes cost-effectiveness from all perspectives except the RIM test. The memo consists of the following tables.

Table 1 - Home Energy Savings Inputs

Table 2 – Home Energy Savings Annual Program Costs

Table 3 – Home Energy Savings – Savings by Measure Category

Table 4 - Benefit/Cost Ratios by Measure Category

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

Table 6 - Home Energy Savings Appliances Cost-Effectiveness Results

Table 7 - Home Energy Savings Building Shell Cost-Effectiveness Results

Table 8 - Home Energy Savings Energy Kits – DHW Cost-Effectiveness Results

Table 9 - Home Energy Savings Energy Kits – Lighting Cost-Effectiveness Results

Table 10 - Home Energy Savings HVAC Cost-Effectiveness Results

Table 11 - Home Energy Savings Lighting Cost-Effectiveness Results

Table 12 - Home Energy Savings Water Heating Cost-Effectiveness Results

Table 1 - Home Energy Savings Inputs

Parameter	Value
Discount Rate	6.66%
Residential Line Loss	9.51%
Residential Energy Rate (\$/kWh) ¹	\$0.1117
Inflation Rate	1.90%

¹ Future rates determined using a 1.9% 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	\$40	\$3,258	\$14	\$3,420	\$6,732	\$4,533
Building Shell	\$0	\$201	\$16,538	\$72	\$8,757	\$25,567	\$13,223
Energy Kits - DHW	\$0	\$2,573	\$56,511	\$923	\$9,475	\$69,481	\$9,045
Energy Kits - Lighting	\$0	\$327	\$7,189	\$117	\$4,206	\$11,840	\$4,054
HVAC	\$0	\$938	\$77,233	\$336	\$57,000	\$135,507	\$54,471
Lighting	\$0	\$18,051	\$148,463	\$6,474	\$198,321	\$371,309	\$1,082,832
Water Heating	\$0	\$50	\$4,087	\$18	\$1,600	\$5,755	\$6,845
Total	\$0	\$22,179	\$313,278	\$7,954	\$282,780	\$626,191	\$1,175,003

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	7,150	100%	7,150	65%	4,648	16
Building Shell	36,293	100%	36,293	64%	23,227	30
Energy Kits - DHW	464,982	100%	464,982	87%	404,534	10
Energy Kits - Lighting	59,151	100%	59,151	87%	51,462	12
HVAC	169,493	71%	120,340	81%	97,475	20
Lighting	3,262,779	83%	2,708,106	48%	1,299,891	12
Water Heating	8,970	100%	8,970	81%	7,266	15
Total	4,008,818	85%	3,404,993	55%	1,888,503	12

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Group	PTRC	TRC	UCT	RIM	PCT
Appliances	0.56	0.51	0.47	0.25	2.84
Building Shell	0.98	0.89	0.88	0.32	5.88
Energy Kits - DHW	2.99	2.72	2.65	0.41	49.10
Energy Kits - Lighting	3.02	2.74	2.59	0.46	16.73
HVAC	0.66	0.60	0.55	0.26	4.42
Lighting	1.23	1.12	2.08	0.44	2.87
Water Heating	0.54	0.49	0.82	0.32	1.89
Total	1.29	1.17	1.75	0.41	3.38

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	\$0.0549	\$935,642	\$1,202,440	\$266,799	1.29
Total Resource Cost Test (TRC) No Adder	\$0.0549	\$935,642	\$1,093,128	\$157,486	1.17
Utility Cost Test (UCT)	\$0.0368	\$626,191	\$1,093,128	\$466,937	1.75
Rate Impact Test (RIM)		\$2,666,527	\$1,093,128	-\$1,573,399	0.41
Participant Cost Test (PCT)		\$1,175,003	\$3,968,107	\$2,793,104	3.38
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000013582
Discounted Participant Payback (years)					4.50

Table 6 through Table 12 provides cost-effectiveness results for all 7 measures.

Table 6 - Home Energy Savings Appliances Cost-Effectiveness Results (Decrement - East Water Heating – 53%, Load Shape – Residential_ERWH_7P)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1221	\$6,258	\$3,515	-\$2,743	0.56
Total Resource Cost Test (TRC) No Adder	\$0.1221	\$6,258	\$3,196	-\$3,063	0.51
Utility Cost Test (UCT)	\$0.1314	\$6,732	\$3,196	-\$3,536	0.47
Rate Impact Test (RIM)		\$12,876	\$3,196	-\$9,680	0.25
Participant Cost Test (PCT)		\$4,533	\$12,872	\$8,339	2.84
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000600
Discounted Participant Payback (years)					2.16

**Table 7 - Home Energy Savings Building Shell Cost-Effectiveness Results
(Decrement - East Residential Whole House - 31%, Load Shape – WY_Single_Family_Heating)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0689	\$25,273	\$24,746	-\$527	0.98
Total Resource Cost Test (TRC) No Adder	\$0.0689	\$25,273	\$22,496	-\$2,777	0.89
Utility Cost Test (UCT)	\$0.0697	\$25,567	\$22,496	-\$3,071	0.88
Rate Impact Test (RIM)		\$69,749	\$22,496	-\$47,253	0.32
Participant Cost Test (PCT)		\$13,223	\$77,791	\$64,568	5.88
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001578
Discounted Participant Payback (years)					1.72

**Table 8 - Home Energy Savings Energy Kits – DHW Cost-Effectiveness Results
(Decrement - East Water Heating - 53%, Load Shape – Residential_ERWH_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0215	\$67,875	\$202,874	\$134,999	2.99
Total Resource Cost Test (TRC) No Adder	\$0.0215	\$67,875	\$184,431	\$116,556	2.72
Utility Cost Test (UCT)	\$0.0220	\$69,481	\$184,431	\$114,950	2.65
Rate Impact Test (RIM)		\$447,650	\$184,431	-\$263,219	0.41
Participant Cost Test (PCT)		\$9,045	\$444,153	\$435,107	49.10
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000025861
Discounted Participant Payback (years)					n/a

**Table 9 - Home Energy Savings Energy Kits – Lighting Cost-Effectiveness Results
(Decrement - East Residential Lighting - 47%, Load Shape – Residential_Lighting_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0241	\$11,161	\$33,689	\$22,528	3.02
Total Resource Cost Test (TRC) No Adder	\$0.0241	\$11,161	\$30,626	\$19,465	2.74
Utility Cost Test (UCT)	\$0.0256	\$11,840	\$30,626	\$18,786	2.59
Rate Impact Test (RIM)		\$67,203	\$30,626	-\$36,577	0.46
Participant Cost Test (PCT)		\$4,054	\$67,843	\$63,788	16.73
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000003004
Discounted Participant Payback (years)					n/a

**Table 10 - Home Energy Savings HVAC Cost-Effectiveness Results
(Decrement - East Residential Whole House - 31%, Load Shape – WY_Single_Family_Heating)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0989	\$122,629	\$81,471	-\$41,157	0.66
Total Resource Cost Test (TRC) No Adder	\$0.0989	\$122,629	\$74,065	-\$48,564	0.60
Utility Cost Test (UCT)	\$0.1093	\$135,507	\$74,065	-\$61,442	0.55
Rate Impact Test (RIM)		\$284,353	\$74,065	-\$210,289	0.26
Participant Cost Test (PCT)		\$54,471	\$240,761	\$186,290	4.42
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000010472
Discounted Participant Payback (years)					n/a

**Table 11 - Home Energy Savings Lighting Cost-Effectiveness Results
(Decrement - East Residential Lighting - 47%, Load Shape – Residential_Lighting_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0593	\$692,747	\$850,951	\$158,204	1.23
Total Resource Cost Test (TRC) No Adder	\$0.0593	\$692,747	\$773,592	\$80,845	1.12
Utility Cost Test (UCT)	\$0.0318	\$371,309	\$773,592	\$402,283	2.08
Rate Impact Test (RIM)		\$1,769,753	\$773,592	-\$996,161	0.44
Participant Cost Test (PCT)		\$1,082,832	\$3,111,745	\$2,028,913	2.87
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000081814
Discounted Participant Payback (years)					6.81

**Table 12 - Home Energy Savings Water Heating Cost-Effectiveness Results
(Decrement - East Water Heating - 53%, Load Shape – Residential_ERWH_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1265	\$9,699	\$5,194	-\$4,505	0.54
Total Resource Cost Test (TRC) No Adder	\$0.1265	\$9,699	\$4,722	-\$4,977	0.49
Utility Cost Test (UCT)	\$0.0751	\$5,755	\$4,722	-\$1,033	0.82
Rate Impact Test (RIM)		\$14,943	\$4,722	-\$10,221	0.32
Participant Cost Test (PCT)		\$6,845	\$12,943	\$6,098	1.89
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000675
Discounted Participant Payback (years)					7.30



Memorandum

WATTSMART BUSINESS CATEGORY 2 & 3

Navigant estimated the cost-effectiveness results for the Wyoming Wattsmart Business Program Category 2 and 3, based on 2017 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 2015 IRP east industrial 40%, east commercial lighting 53%, east commercial cooling 14%, east residential cooling 9%, and east water heating 53% load factor decrements. 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	6.66%
Commercial Line Loss	8.90%
Industrial Line Loss	5.61%
Irrigation Line Loss	9.28%
Commercial Energy Rate (\$/kWh) ¹	\$0.0890
Industrial Energy Rate (\$/kWh) ¹	\$0.0643
Irrigation Energy Rate (\$/kWh) ¹	\$0.0875
Inflation Rate	1.90%

¹ Future rates determined using a 1.9% 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	\$112,096	\$55,677	\$1,284,533	\$52,178	\$1,589,990	\$3,094,474	\$3,065,054
Category 3	\$164,194	\$62,357	\$1,611,909	\$59,487	\$2,752,442	\$4,650,389	\$7,341,291
Total	\$276,291	\$118,033	\$2,896,443	\$111,665	\$4,342,432	\$7,744,864	\$10,406,345

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	9,133,397	97%	8,840,068	75%	6,662,786	13
Category 3	23,594,780	100%	23,505,477	73%	17,213,446	12
Total	32,728,177	99%	32,345,545	74%	23,876,231	12

Table 4 - Benefit/Cost Ratios by Category

Measure Group	PTRC	TRC	UCT	RIM	PCT
Category 2	1.44	1.31	1.57	0.53	3.16
Category 3	1.62	1.48	2.28	0.67	2.50
Total	1.56	1.42	1.99	0.62	2.69

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	\$0.0503	\$10,878,278	\$16,985,625	\$6,107,347	1.56
Total Resource Cost Test (TRC) No Adder	\$0.0503	\$10,878,278	\$15,441,477	\$4,563,199	1.42
Utility Cost Test (UCT)	\$0.0358	\$7,744,864	\$15,441,477	\$7,696,614	1.99
Rate Impact Test (RIM)		\$24,968,583	\$15,441,477	-\$9,527,105	0.62
Participant Cost Test (PCT)		\$10,406,345	\$28,014,897	\$17,608,552	2.69
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000037533
Discounted Participant Payback (years)					3.57

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	\$0.0576	\$3,706,279	\$5,336,328	\$1,630,049	1.44
Total Resource Cost Test (TRC) No Adder	\$0.0576	\$3,706,279	\$4,851,208	\$1,144,928	1.31
Utility Cost Test (UCT)	\$0.0481	\$3,094,474	\$4,851,208	\$1,756,733	1.57
Rate Impact Test (RIM)		\$9,172,877	\$4,851,208	-\$4,321,669	0.53
Participant Cost Test (PCT)		\$3,065,054	\$9,696,420	\$6,631,366	3.16
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000030531
Discounted Participant Payback (years)					2.56

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	\$0.0472	\$7,171,998	\$11,649,297	\$4,477,298	1.62
Total Resource Cost Test (TRC) No Adder	\$0.0472	\$7,171,998	\$10,590,270	\$3,418,271	1.48
Utility Cost Test (UCT)	\$0.0306	\$4,650,389	\$10,590,270	\$5,939,880	2.28
Rate Impact Test (RIM)		\$15,795,706	\$10,590,270	-\$5,205,437	0.67
Participant Cost Test (PCT)		\$7,341,291	\$18,318,477	\$10,977,186	2.50
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000046360
Discounted Participant Payback (years)					4.08



Memorandum

WATTSMART BUSINESS CATEGORY 2

Navigant estimated the cost-effectiveness results for the Wyoming Wattsmart Business Program Category 2, based on 2017 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 2015 IRP east industrial 40%, east commercial lighting 53%, east commercial cooling 14%, east residential cooling 9%, and east water heating 53% load factor decrements. 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 Appliances 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 Lighting Cost-Effectiveness Results

Table 13 - Wattsmart Business Motors Cost-Effectiveness Results

Table 14 - Wattsmart Business Refrigeration Cost-Effectiveness Results

Table 15 - Wattsmart Business Irrigation Cost-Effectiveness Results

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.66%
Commercial Line Loss	8.90%
Industrial Line Loss	5.61%
Irrigation Line Loss	9.28%
Commercial Energy Rate (\$/kWh) ¹	\$0.0890
Industrial Energy Rate (\$/kWh) ¹	\$0.0643
Irrigation Energy Rate (\$/kWh) ¹	\$0.0875
Inflation Rate	1.90%

¹ Future rates determined using a 1.9% 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
Appliances	\$0	\$1	\$25	\$1	\$50	\$76	\$105
Building Shell	\$0	\$188	\$7,261	\$250	\$28,126	\$35,826	\$85,103
Compressed Air	\$0	\$1,490	\$12,438	\$1,979	\$22,192	\$38,099	\$35,648
Direct Install	\$0	\$14,723	\$213,267	\$15,067	\$843,855	\$1,086,912	\$281,285
Food Service Equip.	\$0	\$1,082	\$41,727	\$1,437	\$15,875	\$60,121	\$31,717
HVAC	\$0	\$1,414	\$54,548	\$1,878	\$41,961	\$99,800	\$372,203
Irrigation	\$0	\$294	\$0	\$558	\$11,276	\$12,128	\$34,715
Lighting	\$94,414	\$35,787	\$942,454	\$30,253	\$617,539	\$1,720,446	\$2,206,493
Motors	\$4,181	\$517	\$12,814	\$516	\$6,788	\$24,815	\$12,896
Refrigeration	\$13,502	\$181	\$0	\$240	\$2,329	\$16,252	\$4,890
Total	\$112,096	\$55,677	\$1,284,533	\$52,178	\$1,589,990	\$3,094,474	\$3,065,054

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
Appliances	149	100%	149	70%	104	14
Building Shell	43,761	100%	43,761	70%	30,633	18
Compressed Air	346,366	100%	346,366	70%	242,456	14
Direct Install	2,637,433	90%	2,373,689	90%	2,136,320	12
Food Service Equip.	251,470	100%	251,470	70%	176,029	10
HVAC	328,731	91%	299,145	70%	209,402	15
Irrigation	97,621	100%	97,621	70%	68,335	13
Lighting	5,295,576	100%	5,295,576	70%	3,706,903	14
Motors	90,243	100%	90,243	70%	63,170	15
Refrigeration	42,048	100%	42,048	70%	29,434	15
Total	9,133,397	97%	8,840,068	75%	6,662,786	13

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Category	PTRC	TRC	UCT	RIM	PCT
Appliances	0.75	0.68	0.89	0.38	1.84
Building Shell	0.98	0.89	1.67	0.84	0.92
Compressed Air	4.40	4.00	4.29	0.60	9.95
Direct Install	3.07	2.79	1.28	0.48	10.18
Food Service Equip.	1.60	1.45	1.61	0.51	6.41
HVAC	0.71	0.64	2.06	0.66	0.92
Irrigation	5.59	5.08	10.54	1.74	2.84
Lighting	1.14	1.04	1.60	0.53	2.55
Motors	1.47	1.34	1.46	0.48	6.07
Refrigeration	1.42	1.29	1.38	0.49	9.14
Total	1.44	1.31	1.57	0.53	3.16

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

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0576	\$3,706,279	\$5,336,328	\$1,630,049	1.44
Total Resource Cost Test (TRC) No Adder	\$0.0576	\$3,706,279	\$4,851,208	\$1,144,928	1.31
Utility Cost Test (UCT)	\$0.0481	\$3,094,474	\$4,851,208	\$1,756,733	1.57
Rate Impact Test (RIM)		\$9,172,877	\$4,851,208	-\$4,321,669	0.53
Participant Cost Test (PCT)		\$3,065,054	\$9,696,420	\$6,631,366	3.16
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000030531
Discounted Participant Payback (years)					2.56

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

**Table 6 - Wattsmart Business Appliances Cost-Effectiveness Results
(Decrement - East Water Heating - 53%, Load Shape – WY_Large_Office_Water_Heat)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0951	\$100	\$74	-\$25	0.75
Total Resource Cost Test (TRC) No Adder	\$0.0951	\$100	\$68	-\$32	0.68
Utility Cost Test (UCT)	\$0.0727	\$76	\$68	-\$9	0.89
Rate Impact Test (RIM)		\$176	\$68	-\$109	0.38
Participant Cost Test (PCT)		\$105	\$193	\$88	1.84
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000008
Discounted Participant Payback (years)					6.59

**Table 7 - Wattsmart Business Building Shell Cost-Effectiveness Results
(Decrement - East Commercial Cooling - 14%, Load Shape – WY_Misc_Space_Cool)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1844	\$67,271	\$65,628	-\$1,643	0.98
Total Resource Cost Test (TRC) No Adder	\$0.1844	\$67,271	\$59,662	-\$7,610	0.89
Utility Cost Test (UCT)	\$0.0982	\$35,826	\$59,662	\$23,836	1.67
Rate Impact Test (RIM)		\$70,708	\$59,662	-\$11,046	0.84
Participant Cost Test (PCT)		\$85,103	\$77,958	-\$7,144	0.92
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000610
Discounted Participant Payback (years)					n/a

**Table 8 - Wattsmart Business Compressed Air Cost-Effectiveness Results
(Decrement - East Industrial - 40%, 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	\$0.0168	\$40,860	\$179,924	\$139,063	4.40
Total Resource Cost Test (TRC) No Adder	\$0.0168	\$40,860	\$163,567	\$122,707	4.00
Utility Cost Test (UCT)	\$0.0156	\$38,099	\$163,567	\$125,468	4.29
Rate Impact Test (RIM)		\$270,788	\$163,567	-\$107,221	0.60
Participant Cost Test (PCT)		\$35,648	\$354,606	\$318,958	9.95
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000007572
Discounted Participant Payback (years)					0.61

**Table 9 - Wattsmart Business Direct Install Cost-Effectiveness Results
(Decrement - East Commercial Lighting - 53%, Load Shape – WY_Large_Office_Lighting)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0259	\$496,214	\$1,525,028	\$1,028,815	3.07
Total Resource Cost Test (TRC) No Adder	\$0.0259	\$496,214	\$1,386,389	\$890,176	2.79
Utility Cost Test (UCT)	\$0.0566	\$1,086,912	\$1,386,389	\$299,477	1.28
Rate Impact Test (RIM)		\$2,904,467	\$1,386,389	-\$1,518,078	0.48
Participant Cost Test (PCT)		\$281,285	\$2,863,361	\$2,582,076	10.18
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000124679
Discounted Participant Payback (years)					n/a

**Table 10 - Wattsmart Business Food Service Equipment Cost-Effectiveness Results
(Decrement - East Industrial - 40%, Load Shape – WY_Grocery_Refrigeration)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0483	\$66,448	\$106,232	\$39,785	1.60
Total Resource Cost Test (TRC) No Adder	\$0.0483	\$66,448	\$96,575	\$30,127	1.45
Utility Cost Test (UCT)	\$0.0437	\$60,121	\$96,575	\$36,454	1.61
Rate Impact Test (RIM)		\$191,236	\$96,575	-\$94,661	0.51
Participant Cost Test (PCT)		\$31,717	\$203,182	\$171,465	6.41
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000009300
Discounted Participant Payback (years)					0.99

**Table 11 - Wattsmart Business HVAC Cost-Effectiveness Results
(Decrement - East Industrial – 40%, Load Shape – WY_Large_Office_Space_Cool)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1441	\$318,382	\$225,776	-\$92,606	0.71
Total Resource Cost Test (TRC) No Adder	\$0.1441	\$318,382	\$205,251	-\$113,131	0.64
Utility Cost Test (UCT)	\$0.0452	\$99,800	\$205,251	\$105,451	2.06
Rate Impact Test (RIM)		\$310,789	\$205,251	-\$105,538	0.66
Participant Cost Test (PCT)		\$372,203	\$343,373	-\$28,830	0.92
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000006967
Discounted Participant Payback (years)					30.30

**Table 12 - Wattsmart Business Lighting Cost-Effectiveness Results
(Decrement - East Commercial Lighting - 53%, Load Shape – WY_Large_Office_Lighting)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0386	\$25,153	\$140,574	\$115,422	5.59
Total Resource Cost Test (TRC) No Adder	\$0.0386	\$25,153	\$127,795	\$102,642	5.08
Utility Cost Test (UCT)	\$0.0186	\$12,128	\$127,795	\$115,667	10.54
Rate Impact Test (RIM)		\$73,239	\$127,795	\$54,556	1.74
Participant Cost Test (PCT)		\$34,715	\$98,577	\$63,862	2.84
Lifecycle Revenue Impacts (\$/kWh)					-\$0.0000004143
Discounted Participant Payback (years)					4.13

**Table 13 - Wattsmart Business Motors Cost-Effectiveness Results
(Decrement - East Industrial - 40%, 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	\$0.0710	\$2,647,452	\$3,028,673	\$381,221	1.14
Total Resource Cost Test (TRC) No Adder	\$0.0710	\$2,647,452	\$2,753,339	\$105,887	1.04
Utility Cost Test (UCT)	\$0.0462	\$1,720,446	\$2,753,339	\$1,032,893	1.60
Rate Impact Test (RIM)		\$5,230,736	\$2,753,339	-\$2,477,397	0.53
Participant Cost Test (PCT)		\$2,206,493	\$5,632,240	\$3,425,747	2.55
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000174960
Discounted Participant Payback (years)					5.28

**Table 14 - Wattsmart Business Refrigeration Cost-Effectiveness Results
(Decrement - East Industrial - 40%, Load Shape – WY_Misc_Refrigeration)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0513	\$27,055	\$39,753	\$12,698	1.47
Total Resource Cost Test (TRC) No Adder	\$0.0513	\$27,055	\$36,139	\$9,084	1.34
Utility Cost Test (UCT)	\$0.0470	\$24,815	\$36,139	\$11,324	1.46
Rate Impact Test (RIM)		\$74,828	\$36,139	-\$38,689	0.48
Participant Cost Test (PCT)		\$12,896	\$78,234	\$65,338	6.07
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000002554
Discounted Participant Payback (years)					1.08

**Table 15 - Wattsmart Business Irrigation Cost-Effectiveness Results
(Decrement - East Residential Cooling - 9%, Load Shape – WY_Irrigation_General)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0559	\$17,346	\$24,666	\$7,320	1.42
Total Resource Cost Test (TRC) No Adder	\$0.0559	\$17,346	\$22,423	\$5,077	1.29
Utility Cost Test (UCT)	\$0.0523	\$16,252	\$22,423	\$6,171	1.38
Rate Impact Test (RIM)		\$45,909	\$22,423	-\$23,485	0.49
Participant Cost Test (PCT)		\$4,890	\$44,696	\$39,806	9.14
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001550
Discounted Participant Payback (years)					0.96



Memorandum

WATTSMART BUSINESS CATEGORY 3

Navigant estimated the cost-effectiveness results for the Wyoming Wattsmart Business Program Category 3, based on 2017 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall Category 3 program and for the 10 measure categories.

Cost-effectiveness was tested using the 2015 IRP east industrial 40%, east commercial lighting 53%, east commercial cooling 14%, east residential cooling 9%, and east water heating 53% load factor decrements. 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

Table 4 - Benefit/Cost Ratios by Measure Category

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

Table 6 - Wattsmart Business Building Shell Cost-Effectiveness Results

Table 7 - Wattsmart Business Compressed Air Cost-Effectiveness Results

Table 8 - Wattsmart Business Energy Management Cost-Effectiveness Results

Table 9 - Wattsmart Business Energy Project Mgr Co-Funding 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 Lighting Cost-Effectiveness Results

Table 13 - Wattsmart Business Motors Cost-Effectiveness Results

Table 14 - Wattsmart Business Oil & Gas Cost-Effectiveness Results

Table 15 - Wattsmart Business Refrigeration Cost-Effectiveness Results

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.66%
Commercial Line Loss	8.90%
Industrial Line Loss	5.61%
Irrigation Line Loss	9.28%
Commercial Energy Rate (\$/kWh) ¹	\$0.0890
Industrial Energy Rate (\$/kWh) ¹	\$0.0643
Irrigation Energy Rate (\$/kWh) ¹	\$0.0875
Inflation Rate	1.90%

¹ Future rates determined using a 1.9% 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
Building Shell	\$0	\$306	\$4,642	\$265	\$66,894	\$72,107	\$229,439
Compressed Air	\$0	\$226	\$1,029	\$171	\$3,339	\$4,765	\$560
Energy Management	\$10,474	\$997	\$0	\$11,937	\$8,059	\$31,467	\$9,571
Energy Project Mgr Co-Funding	\$0	\$0	\$0	\$0	\$140,171	\$140,171	\$0
Food Service Equipment	\$0	\$171	\$2,595	\$148	\$2,625	\$5,540	\$4,952
HVAC	\$6,373	\$2,349	\$27,560	\$2,034	\$89,772	\$128,088	\$855,857
Lighting	\$20,220	\$10,965	\$147,459	\$8,911	\$477,622	\$665,177	\$1,517,888
Motors	\$121,040	\$28,513	\$628,597	\$21,710	\$1,277,030	\$2,076,890	\$3,122,552
Oil & Gas	\$0	\$18,287	\$697,337	\$13,839	\$651,092	\$1,380,555	\$1,331,375
Refrigeration	\$6,087	\$543	\$102,691	\$471	\$35,837	\$145,629	\$269,097
Total	\$164,194	\$62,357	\$1,611,909	\$59,487	\$2,752,442	\$4,650,389	\$7,341,291

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
Building Shell	129,453	100%	129,453	70%	90,617	18
Compressed Air	83,529	100%	83,529	70%	58,470	14
Energy Management	402,965	100%	402,965	91%	366,698	3
Energy Project Mgr Co-Funding	-	n/a	-	n/a	-	n/a
Food Service Equipment	72,383	100%	72,383	70%	50,668	10
HVAC	992,257	91%	902,954	70%	632,068	15
Lighting	4,346,182	100%	4,346,182	70%	3,042,327	14
Motors	10,588,537	100%	10,588,537	70%	7,411,976	15
Oil & Gas	6,749,893	100%	6,749,893	80%	5,399,914	7
Refrigeration	229,581	100%	229,581	70%	160,707	15
Total	23,594,780	100%	23,505,477	73%	17,213,446	12

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Category	PTRC	TRC	UCT	RIM	PCT
Building Shell	1.17	1.06	2.45	1.01	0.93
Compressed Air	23.14	21.04	8.03	0.84	109.38
Energy Management	2.42	2.20	2.24	0.60	10.82
Energy Project Mgr Co-Funding	n/a	n/a	n/a	n/a	n/a
Food Service Equipment	4.79	4.36	5.02	0.64	11.42
HVAC	1.12	1.02	5.08	0.82	1.21
Lighting	1.97	1.79	3.37	0.70	2.71
Motors	1.96	1.78	2.56	0.70	2.91
Oil & Gas	1.20	1.09	1.42	0.55	2.53
Refrigeration	0.45	0.41	0.84	0.40	0.99
Total	1.62	1.48	2.28	0.67	2.50

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	\$0.0472	\$7,171,998	\$11,649,297	\$4,477,298	1.62
Total Resource Cost Test (TRC) No Adder	\$0.0472	\$7,171,998	\$10,590,270	\$3,418,271	1.48
Utility Cost Test (UCT)	\$0.0306	\$4,650,389	\$10,590,270	\$5,939,880	2.28
Rate Impact Test (RIM)		\$15,795,706	\$10,590,270	-\$5,205,437	0.67
Participant Cost Test (PCT)		\$7,341,291	\$18,318,477	\$10,977,186	2.50
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000046360
Discounted Participant Payback (years)					4.08

Table 6 - Table 15 provide cost-effectiveness results for all 10 measure categories in Category 3.

**Table 6 - Wattsmart Business Building Shell Cost-Effectiveness Results
 (Decrement - East Commercial Cooling - 14%, Load Shape – WY_Misc_Space_Cool)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1536	\$165,820	\$194,140	\$28,320	1.17
Total Resource Cost Test (TRC) No Adder	\$0.1536	\$165,820	\$176,491	\$10,671	1.06
Utility Cost Test (UCT)	\$0.0668	\$72,107	\$176,491	\$104,384	2.45
Rate Impact Test (RIM)		\$175,295	\$176,491	\$1,196	1.01
Participant Cost Test (PCT)		\$229,439	\$214,305	-\$15,133	0.93
Lifecycle Revenue Impacts (\$/kWh)					-\$0.0000000066
Discounted Participant Payback (years)					n/a

**Table 7 - Wattsmart Business Compressed Air Cost-Effectiveness Results
 (Decrement - East Industrial - 40%, 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	\$0.0031	\$1,818	\$42,079	\$40,261	23.14
Total Resource Cost Test (TRC) No Adder	\$0.0031	\$1,818	\$38,254	\$36,435	21.04
Utility Cost Test (UCT)	\$0.0081	\$4,765	\$38,254	\$33,488	8.03
Rate Impact Test (RIM)		\$45,307	\$38,254	-\$7,053	0.84
Participant Cost Test (PCT)		\$560	\$61,255	\$60,695	109.38
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000498
Discounted Participant Payback (years)					n/a

**Table 8 - Wattsmart Business Energy Management Cost-Effectiveness Results
(Decrement - East Industrial - 40%, Load Shape – WY_Miscellaneous_HVAC_Aux)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0320	\$32,118	\$77,698	\$45,580	2.42
Total Resource Cost Test (TRC) No Adder	\$0.0320	\$32,118	\$70,634	\$38,517	2.20
Utility Cost Test (UCT)	\$0.0314	\$31,467	\$70,634	\$39,167	2.24
Rate Impact Test (RIM)		\$118,385	\$70,634	-\$47,751	0.60
Participant Cost Test (PCT)		\$9,571	\$103,573	\$94,002	10.82
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000015502
Discounted Participant Payback (years)					0.05

**Table 9 - Wattsmart Business Energy Project Mgr Co-Funding Cost-Effectiveness Results
(Decrement – None, Load Shape – None)**

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	\$140,171	\$0	-\$140,171	n/a
Rate Impact Test (RIM)		\$0	\$0	\$0	n/a
Participant Cost Test (PCT)		\$0	\$0	\$0	n/a
Lifecycle Revenue Impacts (\$/kWh)					n/a
Discounted Participant Payback (years)					n/a

**Table 10 - Wattsmart Business Food Service Equipment Cost-Effectiveness Results
(Decrement - East Industrial - 40%, Load Shape – WY_Grocery_Refrigeration)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0161	\$6,381	\$30,578	\$24,197	4.79
Total Resource Cost Test (TRC) No Adder	\$0.0161	\$6,381	\$27,798	\$21,417	4.36
Utility Cost Test (UCT)	\$0.0140	\$5,540	\$27,798	\$22,258	5.02
Rate Impact Test (RIM)		\$43,280	\$27,798	-\$15,482	0.64
Participant Cost Test (PCT)		\$4,952	\$56,539	\$51,587	11.42
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001521
Discounted Participant Payback (years)					0.51

**Table 11 - Wattsmart Business HVAC Cost-Effectiveness Results
(Decrement - East Industrial – 40%, Load Shape – WY_Large_Office_Space_Cool)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0915	\$637,416	\$715,539	\$78,123	1.12
Total Resource Cost Test (TRC) No Adder	\$0.0915	\$637,416	\$650,490	\$13,074	1.02
Utility Cost Test (UCT)	\$0.0184	\$128,088	\$650,490	\$522,401	5.08
Rate Impact Test (RIM)		\$791,658	\$650,490	-\$141,168	0.82
Participant Cost Test (PCT)		\$855,857	\$1,037,729	\$181,872	1.21
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000009320
Discounted Participant Payback (years)					20.00

**Table 12 - Wattsmart Business Lighting Cost-Effectiveness Results
(Decrement - East Commercial Lighting - 53%, Load Shape – WY_Large_Office_Lighting)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0409	\$1,250,076	\$2,463,556	\$1,213,480	1.97
Total Resource Cost Test (TRC) No Adder	\$0.0409	\$1,250,076	\$2,239,596	\$989,520	1.79
Utility Cost Test (UCT)	\$0.0218	\$665,177	\$2,239,596	\$1,574,419	3.37
Rate Impact Test (RIM)		\$3,211,285	\$2,239,596	-\$971,688	0.70
Participant Cost Test (PCT)		\$1,517,888	\$4,114,919	\$2,597,031	2.71
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000068623
Discounted Participant Payback (years)					4.71

**Table 13 - Wattsmart Business Motors Cost-Effectiveness Results
(Decrement - East Industrial - 40%, 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	\$0.0383	\$2,985,646	\$5,838,060	\$2,852,414	1.96
Total Resource Cost Test (TRC) No Adder	\$0.0383	\$2,985,646	\$5,307,328	\$2,321,681	1.78
Utility Cost Test (UCT)	\$0.0266	\$2,076,890	\$5,307,328	\$3,230,438	2.56
Rate Impact Test (RIM)		\$7,553,702	\$5,307,328	-\$2,246,374	0.70
Participant Cost Test (PCT)		\$3,122,552	\$9,101,048	\$5,978,495	2.91
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000148302
Discounted Participant Payback (years)					4.00

**Table 14 - Wattsmart Business Oil & Gas Cost-Effectiveness Results
(Decrement - East Industrial - 40%, 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	\$0.0569	\$1,794,563	\$2,152,972	\$358,409	1.20
Total Resource Cost Test (TRC) No Adder	\$0.0569	\$1,794,563	\$1,957,248	\$162,684	1.09
Utility Cost Test (UCT)	\$0.0438	\$1,380,555	\$1,957,248	\$576,693	1.42
Rate Impact Test (RIM)		\$3,549,241	\$1,957,248	-\$1,591,994	0.55
Participant Cost Test (PCT)		\$1,331,375	\$3,361,950	\$2,030,574	2.53
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000222451
Discounted Participant Payback (years)					1.97

**Table 15 - Wattsmart Business Refrigeration Cost-Effectiveness Results
(Decrement - East Industrial - 40%, Load Shape – WY_Misc_Refrigeration)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1759	\$298,159	\$134,675	-\$163,485	0.45
Total Resource Cost Test (TRC) No Adder	\$0.1759	\$298,159	\$122,432	-\$175,728	0.41
Utility Cost Test (UCT)	\$0.0859	\$145,629	\$122,432	-\$23,197	0.84
Rate Impact Test (RIM)		\$307,553	\$122,432	-\$185,122	0.40
Participant Cost Test (PCT)		\$269,097	\$267,158	-\$1,939	0.99
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000012221
Discounted Participant Payback (years)					27.15

Appendix 2

WATTSMART HOMES Retailers

Table 1: 2017 Participating Midstream/Upstream Retailers

Retailer	City	State	LEDs
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
Dollar Tree #2891	Rock Springs	WY	x
Dollar Tree #3288	Casper	WY	x
Dollar Tree #3851	Casper	WY	x
Dollar Tree #5266	Rawlins	WY	x
Home Depot #6001	Casper	WY	x
Home Depot #6003	Rock Springs	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
Sutherlands #2219	Casper	WY	x
Target #T0164	Casper	WY	x
True Value Hardware #7425	Rawlins	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 2a: 2017 Participating Downstream Retailers

Participating Retailer (Retailers who are actively enrolled in the program)	City*	State	Clothes Washer	Refrigerator	Freezer	Evaporative Cooler - Tier 1	Evaporative Cooler - Tier 2, self-installed	Heat Pump Water Heater, Self-installed	Insulation-Attic	Insulation-Floor	Insulation-Wall	Windows	No Redemptions in 2017
Ace Hardware – Cazin’s	Evanston	WY	x										
Ace Hardware - Riverton	Riverton	WY											x
Ace Hardware #11263	Green River	WY											x
Ace Hardware #11299	Laramie	WY											x
Ace Hardware #8349	Rock Springs	WY											x
Best Buy #1527	Casper	WY											x
Best Buy #521	Murray	UT		x									
Bloedorn Lumber - Casper	Casper	WY							x				
Brown’s Western Appliance	Worland	WY	x		x								
Cost Plus	Casper	WY	x										
Gizmo’s/Cost Plus Appliance	Cody	WY											x
Denning’s Showkase	Idaho Falls	ID	x										
Home Depot #1802	Idaho Falls	ID	x									x	
Home Depot #4415	Park City	UT	x										
Home Depot #6001	Casper	WY	x	x	x	x	x	x					
Home Depot #6002	Cheyenne	WY					x						
Home Depot #6003	Rock Springs	WY	x	x	x		x		x		x		
John Paras Furniture & Appliance	Rock Springs	WY											x
Kmart #4736	Casper	WY											x
Kmart #4837	Riverton	WY											x
Kmart #7107	Rock Springs	WY											x
Kmart #9792	Laramie	WY											x
Kusel’s Home Furnishings	Riverton	WY											x
Letz’s TV and Appliance	Casper	WY	x										
Lowe’s #1080	Riverdale	UT			x								
Lowe’s #1501	Logan	UT			x								
Lowe’s Cheyenne	Cheyenne	WY	x										
Menards #3243	Casper	WY			x				x	x			
Menard’s of Cheyenne	Cheyenne	WY							x		x		
Meyer’s Gambles	Lander	WY											x
Neilson’s Furniture and Appliance	Kemmerer	WY											x
Radio Shack	Riverton	WY											x

Participating Retailer (Retailers who are actively enrolled in the program)	City*	State	Clothes Washer	Refrigerator	Freezer	Evaporative Cooler - Tier 1	Evaporative Cooler - Tier 2, self-installed	Heat Pump Water Heater, Self-installed	Insulation-Attic	Insulation-Floor	Insulation-Wall	Windows	No Redemptions in 2017
Rasmusson Furniture	Rawlins	WY	x										
RC Willey – Orem Mall	Orem	UT	x		x								
RC Willey Home Furnishings	Salt Lake City	UT	x										
Rushmore Furniture Company	Rock Springs	WY											x
Sam’s Club #6425	Casper	WY			x								
Schofield’s Appliance	Evanston	WY			x								
Sears #1867	Laramie	WY	x		x								
Sears #2341	Casper	WY	x		x								
Sears #2371	Cheyenne	WY											x
Sears #3018	Riverton	WY			x								
Sears #3359	Cody	WY											x
Sears #3410	Sheridan	WY											x
Sears #3578	Rock Springs	WY											x
Sears #3911	Jackson	WY											x
Sutherlands #2219	Casper	WY											x
Target #T0164	Casper	WY											x
True Value of Laramie	Laramie	WY											x
Wal-Mart – Supercenter #1412	Laramie	WY											x
Wal-Mart – Supercenter #1457	Riverton	WY											x
Wal-Mart – Supercenter #1778	Cody	WY											x
Walmart #1456	Evanston	WY											x
Walmart #1461	Rock Springs	WY											x
Walmart #1617	Casper	WY											x
Walmart #3778	Casper	WY											x
Walmart of Cheyenne	Cheyenne	WY											x
Walmart Supercenter #1508	Sheridan	WY											x

*Retailer’s may be located in Utah or ID but participated in the program

Table 2b: Non-Participating Retailers

Redemptions from Non-Participating Retailer's (Retailer may not be located in the service territory)	City	State	Clothes Washer	Refrigerator	Freezer	Evaporative Cooler - Tier 2	Heat Pump Water Heater, Self-installed	Windows
BestBuy.com	Online	N/A		x	x			
Home Depot	Baton Rouge	LA						x
Home Depot #6603	East Palo Alto	CA				x		
JCPenny.com	Plano	TX	x					
Lowe's #2608	Bozeman	MT					x	
Lowe's of Billings	Billings	MT	x		x		x	
Lowe's of Wilkesboro	Wilkesboro	NC	x					
Lowe's.com	Online	N/A	x					
Sears.com	Online	N/A	x		x		x	
Whirlpool Corporation	Benton Harbor	MI	x					

Table 3: 2017 Participating Wyoming HVAC Trade Allies

Trade Ally Name (Trade ally may be located outside of the territory)	City	State	Duct Sealing & Insulation	ECM Retrofit, Gas Furnace	Efficient Gas Furnace with ECM	Electric System to Heat Pump Conversion	Heat Pump to Heat Pump Upgrade -	Heat Pump, Ductless	Heat Pump Water Heater	No Redemptions in 2017
Advanced Comfort Solutions	Cheyenne	WY						x		
Air Comfort Complete	Casper	WY			x	x				
Air Innovations	Casper	WY		x	x			x		
All Service Plumbing	Glenrock	WY							x	
Arrowhead Inc.	Casper	WY			x	x				
Baker Heating & Air Conditioning	Lander	WY						x		
Big Horn Heating & Cooling	Worland	WY						x		
Building & Comfort Specialists	Cody	WY					x			
CK Mechanical Plumbing & Heating	Casper	WY								x
Home Energy Solutions	Centerville	UT	x							
Sheet Metal Specialties	Casper	WY						x		
Superior Air Solutions LLC	Casper	WY								x
Sweetwater Aire LLC	Lander	WY								x
Tim Force Tin Shop Inc.	Casper	WY								x

Table 4: 2017 Participating Wyoming Weatherization Trade Allies

Trade Ally Name	City	State	Insulation-Attic	Insulation-Floor	Insulation-Wall	Windows	No Redemptions in 2017
Air Innovations	Casper	WY	x				
Building & Comfort Specialists	Cody	WY					x
Insulation Inc.	Rock Springs	WY	x				
Ram Insulation	Casper	WY	x		x		
Ward Insulation, Inc	Cheyenne	WY					x
Wyoming Insulation LLC	Casper	WY					x

Appendix 3

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 ≥ 5 percent of single family homes, ≥ 5 percent of manufactured homes, and 100 percent of multifamily projects.

- Central air conditioner / heat pump tune-ups
- Central air conditioner best practice installation
- Central air conditioner proper sizing
- Ductless heat pumps
- Duct sealing and insulation
- Heat pumps
- Heat pump best practice installation and sizing
- 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
- Dishwasher
- Electric water heaters
- 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

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, 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: 56 record(s) found

Company name	Contact information	Specialty	Projects completed	Distance (miles)
All American LED Address: 3234 E 4650 N Liberty, UT 84310 Website: http://www.All-AmericanLED.com	Phone: 801-920-7276 Name: Brett Laysen Email: B.Laysen@All-AmericanLED.com	Lighting	1	
BriteSwitch, LLC Address: 195 Nassau St, Ste 13 Princeton, NJ 08542 Website: http://www.briteswitch.com	Phone: 609-945-5349 Name: Laura Oliver Email: laura.oliver@briteswitch.com	Controls, Lighting	2	
Anchor Electric, Inc. Address: P.O. Box 40046 Casper, WY 82604 Website: http://www.anchorelectricinc.com	Phone: 307-234-8799 Name: Clint Reeder Email: anchor@bresnan.net	Controls, Lighting	1	
Crum Electric Supply - Cheyenne Address: 1010 Dunn Ave South Cheyenne, WY 82001 Website: http://www.crum.com	Phone: 307-778-8442 Name: Dan Sheehan Email: dsheehan@crum.com	Lighting, Lighting instant incentives		

wattsmart® Business Vendor Network



Boyle Electric Inc Address: 707 Garfield ST Lander, WY 82520 Website: http://www.boyleelectricinc.com	Phone: 307-332-8139 Name: David Hess Email: dave@boyleelectric.net	Lighting, Motors and VFDs	5
Fremont Electric Inc. Address: 910 S Adams Laramie, WY 82070 Website: http://fremontelectricincwy.com/	Phone: 307-721-4176 Name: Justin Mazurie Email: fremontelectric@aol.com	Lighting	1
Elite Energy Solutions Address: 162 S 1900 W Suite 100 Lindon, UT 84042 Website: http://www.eliteenergysolutions.com	Phone: 801-640-9779 Name: Chet Stevens Email: cstevens@elitees.net	Building envelope	42
Trane Address: 2817 South 1030 West Salt Lake City , UT 84119 Website: http://www.trane.com	Phone: 801-415-2032 Name: Mario Maestas Email: mmaestas@trane.com	Building envelope, Compressed air, Controls, HVAC - evaporative, HVAC - unitary, Motors and VFDs, Other Specialty	
CED - Casper Address: 3330 E YELLOWSTONE HWY CASPER, WY 82609 Website: http://www.cedcasper.shopced.com/	Phone: 307-232-8300 Name: JUSTIN MAXWELL Email: jmaxwell@cedcasper.com	Controls, Lighting, Lighting instant incentives, Motors and VFDs	1
Crum Electric Supply - Cody Address: 3307 Big Horn Ave Cody Cody, WY 82414 Website: http://www.crum.com	Phone: 307-527-5252 Name: Kent Nelson Email: knelson@crum.com	Lighting, Lighting instant incentives	
Casper Electric Inc Address: 3150 E Yellowstone Hwy Casper, WY 82609 Website: http://www.casperelectric.biz	Phone: 307-237-3003 Name: Ben Hansuld Email: ben@casperelectric.biz	Lighting	7
Envision Electric, Inc. Address: 1831 E. 2nd St. Casper, WY 82601 Website: http://envisionelectriccasper.com/	Phone: 307-262-9990 Name: Matthew Reed Email: envisionelectric@yahoo.com	Lighting	1
Encentiv Energy, LLC Address: 1501 Ardmore Blvd. Pittsburgh, PA 15221 Website: http://www.encentivenergy.com	Phone: 412-723-1516 Name: Steve Bolibruck Email: sbolibruck@encentivenergy.com	Building envelope, Controls, HVAC - evaporative, HVAC - unitary, Lighting, Motors and VFDs	1

wattsmart® Business Vendor Network



Platt Electric Supply - Rock Springs Address: 2050 Sunset Dr. Rock Springs, WY 82901 Website:	Phone: 801-952-5398 Name: Matt Peterson Email: Mathew.peterson@platt.com	Lighting, Lighting instant incentives	1
Modern Electric Co Address: PO Box 2107 Casper, WY 82602 Website: http://www.modern-electric.com	Phone: 307-266-1711 Name: Wyatt Johnson Email: wjohnson@modern-electric.com	Lighting	20
Relevant Solutions Address: 3186 Washington Street Salt Lake City, UT 84115 Website: http://www.relevantsolutions.com	Phone: 801-214-3317 Name: Alan Sweatfield Email: alan.sweatfield@relevantsolutions.com	Controls, Motors and VFDs	
Castle Rock Electric Address: 501 W Flaming Gorge Way Green River, WY 82935 Website:	Phone: 307-875-3012 Name: Bob Woodward Email: cre@wyoming.com	Lighting	
Comfort Solutions Address: 1470 Wall Ave Ogden, UT 84404 Website: http://www.comfortsolutionsutah.com	Phone: 801-393-2206 Name: Adam Yearsley Email: adam@comfortsolutionsutah.com	HVAC - unitary, HVAC instant incentives	
Codale Electric Supply, Inc - Rock Springs Address: 1718 Decora Dr Rock Springs, WY 82901 Website: http://www.codale.com	Phone: 307-922-5000 Name: Linden Olson Email: lindeno@codale.com	HVAC - unitary, Lighting, Lighting instant incentives, Motors and VFDs	4
VBFA Address: 330 South 300 E Salt Lake City, UT 84111 Website: HTTP://www.vbfa.com	Phone: Name: Ryan Van Voast Email: rvanvoast@vbfa.com	Controls, HVAC - unitary, Lighting, Other Specialty	
Crum Electric Supply -Casper Address: 1165 English Ave. Casper, WY 82601 Website: http://www.crum.com	Phone: 307-233-6302 Name: David Crum Email: dmcum@crum.com	Lighting, Lighting instant incentives	1
Codale Electric Supply, Inc - Cedar City Address: 477 North 100 West Cedar City, UT 84720 Website: http://www.codale.com	Phone: 435-586-7681 Name: Cody Ille Email: codyi@codale.com	HVAC - unitary, Lighting, Lighting instant incentives, Motors and VFDs	6

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Alliance Electric LLC Address: 610 Warehouse Rd casper, WY 82601 Website: http://www.Allianceelectricllc.com	Phone: 307-315-6055 Name: Jon Trujillo Email: info@allianceelectricllc.com	Lighting	3
Light Energy Development Address: 41 N Rio Grande, Suite 101 Salt Lake City, UT 84101 Website: http://www.ledllc.net	Phone: 801-456-3910 Name: Adam Oakley Email: adamo@ledllc.net	Building envelope, Controls, HVAC - evaporative, HVAC - unitary, Lighting, Motors and VFDs	9
AC Electrical Service Address: P.O. Box 777 Alcova, WY 82620 Website:	Phone: 307-277-7347 Name: Brian Rhoades Email: berhoades@yahoo.com	Lighting	
Northwestern Electric Address: P.O. box 2781 casper, WY 82604 Website:	Phone: 307-266-4206 Name: Ioran workman Email: loranworkman@aol.com	Farm and dairy, Lighting, Motors and VFDs	1
D&S Electrical Address: 455 South Eastern Avenue Idaho Falls, ID 83402 Website: http://www.d-s.com/index.html	Phone: 208-731-3701 Name: Dave Bennett Email: davebennett@d-s.com	Lighting, Motors and VFDs	8
CED- Logan Address: 636 N. 600 W. Logan, UT 84321 Website: http://cedlogan.shopced.com	Phone: 435-752-8905 Name: Devin Migliori Email: devinm@cedlogan.com	Farm and dairy, Irrigation, Lighting, Lighting instant incentives	20
Brilliant Lighting Center Address: 1964 N 400 E North Ogden, UT 84414 Website: http://www.brilliantlightingcenter.com	Phone: 435-327-1020 Name: Mark Miller Email: mcm605@gmail.com	Lighting, Lighting instant incentives	4
307 Electric Address: 2159 SW Wyoming Blvd Casper, WY 82604 Website: http://www.307electric.com	Phone: 307-259-9343 Name: Alex Dickinson Email: alex@307electric.com	Lighting, Motors and VFDs	
WIRED ELECTRIC Address: 3741 ASPEN P[L CASPER, WY 82604 Website:	Phone: 307-262-9523 Name: JONAH WOODALL Email: WIREDELECTRICLLC@GMAIL.COM	Lighting, Motors and VFDs	6
Engineering Design Associates Address: 1607 CY Avenue Casper, WY 82604 Website: http://www.EDAengineering.com	Phone: 307-266-5033 Name: Kevin Schilling Email: kschilling@EDAengineering.com	Lighting	1

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Optica Lighting Address: 1772 Ross Dr Ogden, UT 84403 Website: http://www.opticalighting.com	Phone: 801-510-6314 Name: Mike Walsh Email: mike@opticalighting.com	Lighting	8
Atlantic Electric, Inc Address: PO Box 51163 Casper, WY 82605 Website: http://www.atlantic307.com	Phone: 307-265-8658 Name: Robert Shade Email: atlanticelectricinc@yahoo.com	Lighting	5
Osram Address: 200 Ballardvale Street Wilmington, MA 01887 Website: http://www.osram.us/ls	Phone: 858-386-2849 Name: Nancy Burgin Email: nancy.burgin@osram.com	Controls, HVAC - evaporative, HVAC - unitary, Lighting, Motors and VFDs	
Bar-T Electric, Inc. Address: 488 West North St Powell, WY 82435 Website:	Phone: 307-754-8480 Name: Jonathon Robbins Email: jcr-bar-t@tctwest.net	Controls, Farm and dairy, Irrigation, Lighting, Motors and VFDs	7
Perfect Power Electric Inc. Address: P.O. Box 201 Lander, WY 82520 Website:	Phone: 307-332-7184 Name: Darin Hubble Email: dhubble@wyoming.com	Lighting	2
HC Design Address: 614 Ferguson Avenue, Ste. 1 Bozeman, MT 59718 Website: http://www.h-cdesign.com	Phone: 406-522-7700 Name: Michael Miles Email: michael@h-cdesign.com	Food service	
Harris Lighting Products Address: 1405 west 800 north Preston, ID 83263 Website: http://www.haleymhamblin.wixsite.com/harrislp	Phone: 208-852-2890 Name: Chase Harris Email: chase@harrislightingproducts.com	Controls, Lighting	
Rexel Inc - Casper Address: 2013 Salt Creek Hwy Casper, WY 82601 Website: http://www.rexelusa.com	Phone: 405-394-1307 Name: Sara Kruid Email: sara.kruid@rexelusa.com	Lighting, Lighting instant incentives, Motors and VFDs	
Trident Electric, LLC Address: 4384 N. 3rd Street Laramie, WY 82072 Website: http://www.tridentelectricllc.com	Phone: 307-742-9282 Name: Caleb Goodspeed Email: tridentelectricllc@yahoo.com	Lighting	
ProTech Electric Inc. Address: P.O. Box 2883 Casper, WY 82604 Website: http://www.protechelectric.net	Phone: 307-265-8045 Name: Ron Slack Email: ronslack@protechelectric.net	Lighting	

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Automated Mechanical Address: 1574 West 2650 South Ogden, UT 84010 Website: http://www.automatedmechanical.com	Phone: 801-525-9500 Name: Thomas Mudge Email: tmudge@automatedmechanical.com	Controls, HVAC - evaporative, HVAC - unitary, HVAC check-up, Motors and VFDs	10
Electrical Connections, Inc Address: 2214 Upland Ste A Rock Springs, WY 82901 Website:	Phone: 307-382-0647 Name: Leon Wolfwalker Email: leon@eciwy.com	Controls, Lighting, Motors and VFDs	
Rexel Inc - Cheyenne Address: 2004 E Allison Rd Cheyenne, WY 82007 Website: http://www.rexelusa.com	Phone: 405-394-1307 Name: Sara Kruid Email: sara.kruid@rexelusa.com	Lighting, Lighting instant incentives	
JADECO INC Address: 523 Richards St. Thermopolis, WY 82443 Website: HTTP://WWW.JADECOELECTRIC.COM	Phone: 307-388-0417 Name: Jordan Tolman Email: jordan@jadecoelectric.com	Lighting	2
Wyatt Electric Address: 2320 Jade Dr. Casper, WY 82604 Website:	Phone: 307-262-1251 Name: David Wyatt Email: dwyatt@wyatt-electric.com	Lighting	13
307 Power and Control, LLC Address: 147 Mazet Road Riverton, WY 82501 Website:	Phone: 307-850-7606 Name: Randy Schrinar Email: powerandcontrol307@yahoo.com	Controls, Farm and dairy, Irrigation, Lighting, Motors and VFDs	
Codale Electric Supply - Casper Address: 3131 Wood Court Casper, WY 82601 Website: https://www.codale.com/	Phone: 307-261-8900 Name: Nick Fullerton Email: nickf@codale.com	Lighting, Lighting instant incentives	
Crum Electric Supply - Gillette Address: 901 Edwards St Gillette, WY 82718 Website: http://www.crum.com	Phone: 307-682-7203 Name: Cheryl Yarkosky Email: cyarkosky@crum.com	Lighting, Lighting instant incentives	
Summit Electric LLC Address: 490 Foster Rd Casper, WY 82601 Website:	Phone: 307-577-1131 Name: Jesse Glasgow Email: summitelectric05@yahoo.com	Lighting	
Clark's Quality Roofing, Inc. Address: 334 West Anderson Avenue Murray, UT 84107 Website: http://www.clarkroof.com	Phone: 801-266-3575 Name: Hilary Clark Email: hilaryc@clarkroof.com	Building envelope	3

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ESL Vision Address: 1136 south 3600 West Salt Lake City, UT 84104 Website: http://www.eslvision.com	Phone: 801-866-3095 Name: Karen Young Email: karen.young@eslvision.com	Lighting	1
WESCO Distribution, Inc Address: 500 Mainline Ave Green River, WY 82935 Website: HTTP://www.wesco.com	Phone: 307-875-4910 Name: Heather Frolic Email: hfrolic@wesco.com	Lighting	7
Crum Electric Supply - Rock Springs Address: 800 Elk St. Rock Springs Rock Springs, WY 82901 Website: http://www.crum.com	Phone: 307-362-4415 Name: Scott Behunin Email: sbehunin@crum.com	Lighting, Lighting instant incentives	1
Amp Electric Address: 737 E Sunset Riverton, WY 82501 Website:	Phone: 307-463-7345 Name: Jimmy Supino Email: ampelectric@wyoming.com	Lighting	

Appendix 5

Wyoming Program Evaluations

Wyoming 2017 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 2017 and the third party evaluator who completed the evaluation. Program evaluations are available for review at www.pacificorp.com/es/dsm/wyoming.html

Program	Years Evaluated	Evaluator	Status
Home Energy Reports	2015-2016	Navigant	Completed
Home Energy Savings (wattsmart Homes)	2015-2016	The Cadmus Group	Completed
Low Income Weatherization	2014 - 2015	Opinion Dynamics	Completed
wattsmart Business	2014-2015	The Cadmus Group	Completed

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

Table 1 – Home Energy Reports Evaluation Recommendations

Home Energy Reports Evaluation Recommendations	Rocky Mountain Power Action Plan
Future refill waves should target the highest usage customers not already in the program. Prior to adding future refill waves, the program should verify that the allocation of households across the treatment and control groups is consistent with a RCT.	Future program refills will include customers who meet eligibility requirements in accordance with best practices for behavioral energy efficiency programs. The program manager add refill customers once a new administrative contract is in place.

Table 2
Home Energy Savings Program Evaluation Recommendations

Home Energy Savings Evaluation Recommendations	Rocky Mountain Power Action Plan
Require the wattsmart kit program administrators to collect kit participant phone numbers and e-mail addresses for kit program survey data collection.	Customer e-mail addresses and phone numbers are now mandatory online field entries for customers applying for kits.
For Upstream lighting point-of-sale merchandizing data, track dates and locations for the program’s merchandising and product placements. Providing model numbers, store locations, dates, and display types (e.g., end caps, pallet displays) allows more precise estimates of program-generated sales lift.	Improved tracking activities for product placement are in place for the program year 2018 and beyond.
To encourage more engaged trade ally participation and outreach to customers, the program administrator should consider ways to increase the frequency of face-to-face contacts with trade allies, renew exhausted supplies of program materials, improve trade ally training, support trade allies in the field, and respond quickly to their questions.	New processes are in place for in-person field visits to maximize the value and improve program participation and communication.

Table 3 – Low Income Weatherization Recommendations

Low Income Evaluation Recommendations	Rocky Mountain Power Action Plan
Update UES values for individual measures for this program based on the deemed values provided in Appendix A.	Energy savings were updated as of 1/1/18.
The ex-post impact evaluation relied on many high-level engineering assumptions to estimate impacts because participant- or program-specific data were not collected. For example, information on results of refrigerator testing; capacity of equipment serviced by furnace fan, programmable thermostat, and insulation measures; and type of heating and cooling equipment in participant homes were not available so we relied on state-wide averages and other sources to make estimates for these and other parameters. We understand that this is a relatively small program with a desire to minimize burden on agencies in collecting these data, but collecting and providing this type of information for the measures that contribute the most to the overall program savings can greatly improve the accuracy of UES estimates. We recommend collecting and providing these data to the evaluator moving forward to improve the accuracy of UES savings estimates.	Rocky Mountain Power has issues with this recommendation. Collecting data specifics from our partnering agencies on this small program would be over burdensome.

Low Income Evaluation Recommendations	Rocky Mountain Power Action Plan
Rocky Mountain Power should continue to use the same Program implementer moving forward.	The contract/partnership will remain in place with Wyoming Weatherization Services and Council of Community Services.
While Rocky Mountain Power relies on WWS to provide weatherization services, the backlog of customers on its waitlist tends to be long. Rocky Mountain Power should consider increasing funding towards the Program	Agencies may bill much more to Rocky Mountain Power for these services annually than they have historically. The tariff allows for annual billings up to \$225,000.
Though not a formal part of the Program, informal education may lead customers to save energy beyond the savings from the installed weatherization measures and should continue.	Rocky Mountain Power intends to preserve energy education funding in the program tariff.
To ensure accurate contact information, we recommend the agency confirm customer addresses and phone numbers with Rocky Mountain Power when staff has difficulty contacting customers to arrange for weatherization services.	Program manager will inform agency staff that they can contact Rocky Mountain Power to confirm addresses and phone numbers.
If it is a priority for Rocky Mountain Power to make sure they are recognized for their sponsorship of the Program, Rocky Mountain Power might also consider branding the agency staff who conduct the audits and installation services by wearing shirts that note the Program's affiliation with Rocky Mountain Power.	Rocky Mountain Power's program manager will discuss this recommendation with internal legal staff and agency staff.

Table 4 – wattsmart Business Evaluation Recommendations

wattsmart Business Evaluation Recommendations	Rocky Mountain Power Action Plan
Savings Considerations: Review measure descriptions and deemed savings factors for irrigation hardware measures to ensure consistency, and will likely result in an overall savings increase.	The Company will evaluate this recommendation should additional program growth be desired.
Savings Considerations: Consider adding an HVAC interactive effect factor to indoor lighting savings, based on a weighted average of the heating and cooling systems within RMP's commercial and industrial customers.	The Company will evaluate this recommendation, the sources sited, and the cost effectiveness ramifications of making a change to this measure within the wattsmart program.
Savings Considerations: Increase the deemed savings amount for prescriptive HVAC VFD fan and pump motor projects.	The Company will evaluate this recommendation, the sources sited, and the cost effectiveness ramifications of making a change to this measure within the wattsmart program.

wattsmart Business Evaluation Recommendations	Rocky Mountain Power Action Plan
Savings Considerations: Provide additional training to participating motor service centers regarding the need for more accurate estimates for when the motor will be installed (rather than always entering six months from time of service).	The Company will address this through discussions with participating motor vendors and begin a tracking mechanism to continually evaluate installation dates. If average re-installation dates are found to occur beyond a year the Company will reevaluate the claimed measure savings.
Overall Program Management: Program implementers should reinforce, through contacts with the trade allies, the need to provide detailed and accurate costs, savings, and clear participant expectations for all projects.	The Company holds trainings for contractors specifically addressing these data points several times a year. The Company will re-emphasize this training and put continued emphasis on one-on-one interaction with trade allies, contractors, vendors and distributors to ensure they are receiving the level of training they need to provide the most accurate data possible.
Overall Program Management: Add a search function to the website that allows customers to enter equipment they wish to install and directs them to delivery channels, qualified measures, and incentive application documents. Include information on whether or not specific measures require prequalification. Also consider adding chat or instant messaging feature on the website.	The RMP website is scheduled for a complete overhaul and redesign in 2018-19. This feedback will be put forth for evaluation in design.
Overall Program Management: Continue enhancing the existing customer-facing vendor search tool.	In 2017 the Company created and launched a new tiered rating system for wattsmart Business Vendors. This new system rewards good market behavior with a premium designation and vendors have to requalify for it annually in an effort to obtain persistent quality of work.
Program Data Interface: Assess the size of exchange inconsistencies between RMP's data and the implementers' data (along with associated impacts), and identify the most appropriate solution for resolving these.	The Company maintains strict controls for the accuracy of reporting project savings and payment of incentives. The Company will continue to assess potential data inaccuracies and will make adjustments, while maintaining proper controls over accurate data exchanges.
SBL & Typical Upgrades: Increase direct customer contact.	The Company has changed the Small Business Lighting program model to a new Small Business Direct program model with much higher touch for customers and increased engagement. A chat or instant message feature is not part of this model and will be evaluated based upon need.
Nonparticipants: Perform a marketing effectiveness assessment to evaluate the impact of existing marketing and outreach activities, and to investigate methods for better reaching and motivating these customers.	The Company will evaluate this recommendation should additional program growth be desired.

wattsmart Business Evaluation Recommendations	Rocky Mountain Power Action Plan
Using nonparticipant attitudes about energy efficient improvements, develop messaging specifically addressing those attitudes by highlighting program benefits which can alleviate barriers inherent in those attitudes.	The Company will evaluate this recommendation should additional program growth be desired.