









Idaho Energy Efficiency and Peak Reduction Annual Report

January 1, 2018 – December 31, 2018

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LIST OF ABBREVIATIONS AND ACRONYMS

CAPAI	Community Action Partnership Association of Idaho			
DSM	Demand-Side Management			
EICAP	Eastern Idaho Community Action Plan			
GWh	Gigawatt-hour			
HVAC	Heating, Ventilation and Air Conditioning			
IDHW	Idaho Department of Health and Welfare			
IRP	Integrated Resource Plan			
kWh	Kilowatt hour			
LED	Light-emitting Diode			
LIHEAP	Low Income Home Energy Assistance			
MW	Megawatt			
РСТ	Participant Cost Test			
PTRC	PacifiCorp Total Resource Cost Test with 10 percent adder			
RIM	Ratepayer Impact Measure Test			
SEICAA	South Eastern Idaho Community Action Agency			
TRC	Total Resource Cost Test			
UCT	Utility Cost Test			
VFD	Variable Frequency Drive			

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 82,000 customers in southeastern Idaho.

The Company, working in partnership with its retail customers and with the approval of the Idaho Public Utilities Commission ("Commission"), acquires energy efficiency and peak reduction resources as cost effective alternatives to the acquisition of supply-side resources. These resources assist the Company in efficiently addressing load growth and contribute to the Company's ability to meet system peak requirements. Company energy efficiency and peak reduction programs provide participating Idaho customers with tools that enable them to reduce or assist in the management of their energy usage while reducing the overall costs to the Company's customers. These resources are relied upon in resource planning as a least cost alternative to supply-side resources.

This report provides details on program results, activities, expenditures, and the status of the demand-side management ("DSM") Tariff Rider, Customer Efficiency Service Charge - Schedule 191 ("Schedule 191") as of the reporting period from January 1, 2018 through December 31, 2018. The Company, on behalf of its customers, invested \$4.8 million in energy efficiency resource acquisitions during the reporting period. The investment yielded approximately 19.6 gigawatt-hours ("GWh") of first year savings¹ and approximately 4.0 megawatts ("MW") of capacity reduction from energy efficiency.² Net benefits based on the projected value of the energy efficiency program savings over the life of the individual measures are estimated at a negative \$274 thousand.³

Pursuant to Commission Order No. 32196, the costs for the Idaho Irrigation Load Control Program are allocated across PacifiCorp's six-state system. Therefore, these costs are not recovered through Schedule 191. However, additional information on the Irrigation Load Control Program is provided later in this report.

The energy efficiency portfolio was cost effective only for the participant cost test for the reporting period. The marginal cost effectiveness of the program is largely due to the reduction in decrement values calculated for the 2017 Integrated Resource Plan. *Home Energy Reports* and *Low Income Weatherization* programs were not cost effective in 2018 which decreased the portfolio level cost effectiveness results. Further information is in the program sections below.

Under direction of Case No. GNR-E-12-01, *Low Income Weatherization* program uses the 10 percent energy conservation adder to the total resource cost test. As a result, Table 1 provides the cost effectiveness of the energy efficiency portfolio including and excluding *Low Income Weatherization*.

¹ Reported savings at the generator. For line losses, see footnote 15.

² See Energy Efficiency Section for explanation about the calculation of capacity contribution savings.

³ See Table 1 – Utility Cost Test Net Benefits including Low Income Weatherization.

	Includes L	ow Income	Excludes Low Income		
Benefit/Cost Test	Benefit/Cost Ratio	Net Benefits	Benefit/Cost Ratio	Net Benefits	
PacifiCorp Total Resource Cost Test plus 10 percent ("PTRC") ⁴	0.93	(\$398,741)	0.92	(\$474,123)	
Total Resource Cost Test ("TRC") ⁵	0.86	(\$847,965)	0.84	(\$915,023)	
Utility Cost Test ("UCT") ⁶	0.94	(\$274,220)	0.98	(\$76,689)	
Participant Cost Test ("PCT") ⁷	3.58	\$9,997,588	3.48	\$9,633,621	
Ratepayer Impact Test ("RIM") ⁸	0.31	(\$9,883,950)	0.32	(\$9,551,589)	

		Table 1		
Cost effectiveness I	Energy Ef	fficiency Portfolio	(includes non-energy	benefits)

Portfolio-level cost effectiveness includes portfolio costs, such as the Potential Assessment and DSM system database. Sector-level cost effectiveness, reported in the Residential and Non-Residential sections of this report, includes sector-specific evaluation, measurement and verification ("EM&V") expenditures. The Company includes quantifiable non-energy benefits at the portfolio and residential level, as well as the Home Energy Savings and Low Income Weatherization program level. Appendix 1 provides 2018 cost effectiveness performance.

⁴ The PTRC plus 10 percent includes a benefit adder to account for non-quantified environmental and nonenergy benefits of conservation resources over supply-side alternatives.

⁵ The TRC compares the total cost of a supply-side resource to the total cost of energy efficiency resources, including costs paid by the customer in excess of the program incentives. The test is used to determine if an energy efficiency program is cost effective from a total cost perspective.

⁶ The UCT compares the total cost incurred by the utility to the benefits associated with displacing or deferring supply-side resources.

⁷ The PCT compares the resource paid directly by participants to the savings realized by the participants.

⁸ The RIM examines the impact of energy efficiency on utility rates. Unlike supply-side investments, energy efficiency programs reduce energy sales. Reduced energy sales lowers revenues putting upward pressure on rates as the remaining fixed costs are spread over fewer kilowatt-hours.

REGULATORY ACTIVITIES

During the 2018 reporting period the Company filed a number of compliance and/or informational reports, updates, notices, and requests with the Commission in support of Company DSM programs. The following is a list of those activities:

- On January 10, 2018, the Company circulated its 2018 communications plan with Commission Staff.
- On January 31, 2018, the Company circulated the DSM balancing account report for the fourth quarter of 2017.
- On April 9, 2018, consistent with the 45-day notice process for maximum "up to" incentives, a notice of changes to the wattsmart Business program was posted on the program website,⁹ 45 days prior to going into effect May 24, 2018. Program changes were designed to increase lighting system retrofit and mid-market incentives to increase participation.
- On April 24, 2018, pursuant to Order No. 29976, the Company submitted its 2016 Idaho Energy Efficiency and Peak Reduction Annual Report.
- On April 25, 2018, the Company circulated the DSM balancing account report for the first quarter of 2018.
- On July 20, 2018, consistent with the flexible tariff process for the Home Energy Savings Schedule 118 and approved in Order No. 29976, a notice of changes to the program was posted on the program website,¹⁰ 45 days prior to going into effect September 3, 2018. Program changes were designed to streamline incentive tables by maintaining specific qualifications for measures on the program website and removing them from the flexible tariff tables.
- On July 20, 2018, the Company circulated the DSM balancing account report for the second quarter of 2018.
- On August 10, 2018, the Company filed an application in Case No. PAC-E-18-07 requesting an order designating the Company's DSM expenses for program years 2016 and 2017 were prudently incurred. The Commission approved the Company's 2016 and 2017 expenditures as prudently incurred in Order No. 34224, issued December 26, 2018.
- On November 1, 2018, the Company circulated the DSM balancing account report for the third quarter of 2018.

⁹ <u>https://www.rockymountainpower.net/bus/se/idaho.html</u>

¹⁰ <u>https://www.rockymountainpower.net/res/sem/idaho.html</u>

- On November 9, 2018, the Company filed an application in Case No. PAC-E-18-12 to adjust the Electric Service Schedule 191 rate from 2.7 percent to 2.25 percent. The Commission approved the application in Order No. 34255 issued February 27, 2019, with an effective date of March 1, 2019.
- On November 27, 2018, the Company circulated its 2019 communications plan with Commission Staff.

Meetings with Idaho Public Utilities Commission Staff ("Idaho Staff")

The Company consulted with Idaho Staff throughout 2018, with formal presentations on the following matters:

October 23, 2018

- Discussed the Company's 2017 Idaho Energy Efficiency and Peak Reduction Annual Report;
- Discussed the Company's 2016-2017 Prudency Determination;
- Reviewed results from the 2015-2016 Home Energy Savings program evaluation;
- Discussed the 2019 Idaho Strategic Plan; and
- Discussed the Schedule 191 rate analysis and proposed adjustment recommendation.

DSM Expenditures

In Case PAC-E-05-10, approved in Order No. 29976, the Commission authorized recovery of all DSM program costs through Schedule 191, with exception of the expenses associated with the Irrigation Load Control Program.¹¹ Schedule 191 appears as a line item on customer bills. The Company posts eligible DSM program costs as incurred to the balancing account.

Schedule 191 balancing account activity for 2018 is outlined in Table 2.

Schedule 191 Datatening Account Activity										
Month	Pro Fi	Monthly ogram Costs - ixed Assets	Mo Acc	onthly Net crued Costs	R	ate Recovery	(Carrying Charge	Cash Basis Accumulated Balance	Accrual Basis Accumulated Balance
Dec-17									\$ (1,326,350)	\$(1,127,251)
Jan-18	\$	201,220	\$	14,765	\$	(346 <i>,</i> 807)	\$	(1,166)	\$ (1,473,103)	\$(1,259,239)
Feb-18	\$	204,305	\$	80,568	\$	(313,521)	\$	(1,273)	\$ (1,583,592)	\$(1,289,160)
Mar-18	\$	490,717	\$	(56 <i>,</i> 695)	\$	(309,063)	\$	(1,244)	\$ (1,403,182)	\$(1,165,446)
Apr-18	\$	252,658	\$	(19 <i>,</i> 354)	\$	(274,598)	\$	(1,178)	\$ (1,426,301)	\$(1,207,918)
May-18	\$	225,696	\$	138,621	\$	(307,626)	\$	(1,223)	\$ (1,509,454)	\$(1,152,450)
Jun-18	\$	419,862	\$	(85 <i>,</i> 770)	\$	(508 <i>,</i> 443)	\$	(1,295)	\$ (1,599,330)	\$(1,328,097)
Jul-18	\$	319,289	\$	106,754	\$	(782,161)	\$	(1,526)	\$ (2,063,728)	\$(1,685,740)
Aug-18	\$	537,997	\$	(64,187)	\$	(689 <i>,</i> 852)	\$	(1,783)	\$ (2,217,366)	\$(1,903,566)
Sep-18	\$	327,674	\$	5,193	\$	(552,374)	\$	(1,941)	\$ (2,444,007)	\$(2,125,013)
Oct-18	\$	389,982	\$	(69 <i>,</i> 955)	\$	(384,812)	\$	(2 <i>,</i> 035)	\$ (2,440,873)	\$(2,191,835)
Nov-18	\$	385,488	\$	317,057	\$	(317,304)	\$	(2 <i>,</i> 006)	\$ (2,374,695)	\$(1,808,600)
Dec-18	\$	874,126	\$	(248,947)	\$	(355,881)	\$	(1,763)	\$ (1,858,213)	\$(1,541,064)
2018 Totals	\$	4,629,012	\$	118,050	\$	(5,142,442)	\$	(18,433)		

Table 2Schedule 191 Balancing Account Activity

Column Explanations:

<u>Monthly Program Costs</u>: Monthly expenditures for all energy efficiency program activities. <u>Monthly Net Accrued Costs</u>: Monthly net change of program costs incurred during the period not yet posted.

Rate Recovery: Revenue collected through Schedule 191.

<u>Carrying Charge</u>: Monthly interest charge based on Cash Basis Accumulated Balance of the account. The interest rate applied to the Accumulated Balance during the reporting period was 1 percent per year.

<u>Cash Basis Accumulated Balance</u>: A running total of account activities. A negative accumulative balance means cumulative revenue exceeds cumulative expenditures; positive accumulative balance means cumulative expenditures exceed cumulative revenue.

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

¹¹ Commission Order No. 32196 in Case No. PAC-E-10-07 ruled that costs associated with the Idaho Irrigation Load Control Program should be system allocated and not situs assigned to Idaho customers. The Commission recommended the Company treat the benefits of the program as a system resource for cost recovery purposes.

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.¹² The plan presents a framework of future actions to ensure the Company continues to provide reliable, reasonably priced service to customers. Energy efficiency and peak management opportunities are incorporated into the IRP based on their availability, characteristics and costs.

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

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

¹² Information on the Company's integrated resource planning process can be found at the following address: <u>http://www.pacificorp.com/es/irp.html</u>

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

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

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

As technical support for the IRP, the Company engages a third-party consultant to conduct a DSM Potential Assessment.¹³ 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

¹³ PacifiCorp's Demand-side Resource Potential Assessments can be found at <u>http://www.pacificorp.com/es/dsm.html</u>.

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.

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.

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: *Home Energy Savings* – Schedule 118, *Low Income Weatherization* – Schedule 21, *Home Energy Reports, and wattsmart Business* – Schedule 140. Program savings and cost results for 2018 are provided in Table 3 below.¹⁴

Program	kWh/Yr Savings (at site)	kWh/Yr Savings (at generator)	Program Expenditures
Low Income Weatherization	82,868	92,370	\$255,771
Home Energy Reporting	2,802,000	3,123,277	\$160,594
Home Energy Savings	3,771,635	4,204,091	\$846,746
Total Residential	6,656,503	7,419,738	\$1,263,110
wattsmart Business	11,006,088	12,175,246	\$3,039,594
Total Energy Efficiency	17,662,591	19,594,984	\$4,302,705
Со	\$154,668		
	\$25,575		
Low I	\$25,000		
	\$179,853		
	\$66,379		
	\$11,917		
Total System	\$4,766,097		

Table 3	
Idaho Program Results for January 1, 2018 – December 31, 2018 ¹¹	5

¹⁴Active Idaho energy efficiency measures are reported in Appendix 6. For a breakdown of program expenditures by category, see Appendix 2.

¹⁵ The values at generation include line losses between the customer site and the generation source. The Company's line losses by sector for 2018 are 11.47 percent for residential, 10.75 percent for commercial, 7.52 percent for industrial and 11.45 percent for irrigation.

Estimated Peak Contributions from Energy Efficiency Programs

The Company estimates its capacity reduction during PacifiCorp's system peak period from the 2018 energy efficiency portfolio. An energy-to-capacity conversion factor, developed from Class 2 DSM selections in the 2017 IRP, is used to translate 2018 energy savings to estimated demand reduction during the system peak. The use of this factor in the MW calculation assumes that the energy efficiency resources acquired through the Company's programs have the same average load profile as those energy efficiency resources selected in the 2017 IRP. Use of this factor in determining the MW contribution of energy efficiency programs is detailed in Table 4.

Table 4 Estimated Peak Contribution

Description	Value
First year energy efficiency program MWh savings acquired during 2018	19,595
Conversion factor: Coincident MW/MWh	0.0002022
Estimated coincident peak MW contribution of 2018 Idaho energy efficiency acquisitions	3.96

RIM

0.30

Residential Programs

The residential energy efficiency portfolio is comprised of three programs: *Home Energy Savings, Home Energy Report,* and *Low Income Weatherization.* As shown in Table 5, the residential portfolio was cost effective based on three of the five standard cost effectiveness tests for the 2018 reporting period. The UCT for the residential portfolio was below 1.0 and was mainly driven by the cost effectiveness results of *Low Income Weatherization* and *Home Energy Report* programs. Further information is in the program sections below.

Table 5

Cost effectiveness for Residential Portfolio (includes non-energy benefits)							
Benefit/Cost	Includes Evalu	uation Costs	Costs Excludes Evaluation Costs				
Test	Benefit/Cost Ratio	Net Benefits	Benefit/Cost Ratio	Net Benefits			
PTRC	1.25	\$401,913	1.27	\$427,488			
TRC	1.17	\$284,419	1.19	\$309,994			
UCT	0.89	(\$138,749)	0.91	(\$113,174)			
PCT	3.94	\$3.120.102	3.94	\$3.120.102			

Due to the difficulty in operating the Low Income Weatherization program cost effectively, Table 6 is included to show the residential portfolio cost effectiveness without Low Income Weatherization.

(\$2,696,822)

0.31

(\$2,671,247)

Table 6Cost effectiveness for Residential Portfolio excluding Low Income Weatherization

Bonofit/Cost	Includes Evalu	uation Costs	Excludes Evaluation Costs		
Test	Benefit/Cost Ratio	Net Benefits	Benefit/Cost Ratio	Net Benefits	
PTRC	1.24	\$326,531	1.27	\$352,106	
TRC	1.16	\$217,361	1.18	\$242,937	
UCT	1.06	\$58,782	1.08	\$84,357	
РСТ	3.59	\$2,756,135	3.59	\$2,756,135	
RIM	0.32	(\$2,364,461)	0.32	(\$2,338,886)	

Total gross residential savings increased by 25% when compared to 2017 performance, with the increased savings being derived from the *Home Energy Savings* program.

Information related to individual program performance, program management and program infrastructure is provided on the following pages.

HOME ENERGY SAVINGS PROGRAM

The *Home Energy Savings* program provides 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 1 or 36. Landlords who own property where the tenant is billed under Electric Service Schedules 1 or 36 also qualify for the program. Program participation by measure category is provided in Table 7.

Measure Category	kWh/Yr Savings (@ Site)	Total Incentive	Total Quantity
Appliances	6,791	\$3,050	61
Building Shell	18,796	\$19,010	32,891 (sq.ft.)
Electronics	676,512	\$100,224	3,132
Energy Kits	655,953	\$22,034	2,313
HVAC	1,200,873	\$162,150	429
Lighting	1,174,740	\$88,465	66,930
Water Heating	7,125	\$2,350	4
Whole Home	30,845	\$13,000	7
Grand Total	3,771,635	\$410,283	

Table 7Eligible Program Measures (Units)

The program passed all cost effective tests except the RIM as shown in Table 8.

Table 8Cost effectiveness for Home Energy Savings Program (includes non-energy benefits)

Benefit/Cost Test	Benefit/Cost Ratio	Net Benefits
PTRC	1.32	\$368,453
TRC	1.24	\$272,397
UCT	1.13	\$113,817
РСТ	3.32	\$2,468,052
RIM	0.32	(\$2,021,343)

Program savings increased in 2018 compared to 2017 and was primarily due to a significant increase in electronics, energy kits and HVAC participation.

Program Management

The program manager who is responsible for the *Home Energy Savings* program in Idaho is also responsible for the program in Utah and Wyoming. For each program and in each state the program manager is responsible for the cost effectiveness of the program, identifying and contracting with

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

Program Administration

The *Home Energy Savings* program is administered by CLEAResult and they are responsible for the following:

- 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.
- 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.
- Managing savings acquisition to targets within budget.
- Continual improvement of program operations and customer satisfaction.
- Incentive processing and call-center operations CLEAResult receives all requests for incentives, determines whether the applications are complete, 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 of this report.

Infrastructure

The total number of retailers and trade allies participating in the program is currently 64. Detail of participating retailers by delivery channel and measure type is available in Appendix 4.

Program Changes

The *Home Energy Savings* program made changes to existing measures in its flexible tariff filing. The updated changes were made to better align with current market practices and expand customer eligibility for products offered in the program, specifically smart thermostats.

The existing contract with CLEAResult will expire on March 31, 2019. In an effort to be prepared for the termination of the contract and to have the ability to improve program performance quickly, a Request for Proposal for a Master Service Agreement ("MSA") was issued and awarded to six different firms who qualify to manage either all aspects of the program or specific pieces, such as marketing and engineering services.

In the fourth quarter, a Request for Proposal was issued to the qualified bidders of the MSA to implement the Company's residential program broken down by service categories. Six proposals were received. Two bidders, Evergreen Incorporated and CLEAResult won the bids and are positioned to begin program implementation on or before March 31, 2019.

Evaluation

In 2018, work began in collecting data to support a process and impact evaluation for program years 2017-2018. Company anticipates the report to be published by end of 2019.

HOME ENERGY REPORTS PROGRAM

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

The program achieved 2,802,000 kWh of savings at site in 2018. This is a decrease of approximately eight percent when compared to 2017 performance and is explained below. Program cost effectiveness is provided in Table 9.

Benefit/Cost Test	Benefit/Cost Ratio*	Net Benefits
PTRC	0.90	(\$16,347)
TRC	0.82	(\$29,460)
UCT	0.82	(\$29,460)
РСТ	N/A	N/A
RIM	0.29	(\$317,543)

Table 9Cost effectiveness for Home Energy Reports Program

*See Program Changes below for further information on the cost effectiveness.

Reports were initially provided to approximately 12,937 customers in 2018. The number of participant's decreases over time due to customer attrition related to general customer churn (customer move-outs) and customers requesting to be removed from the program. In 2018, only 0.45% of customers have requested to be removed from the program. As of December 2018, there were 12,669 customers were active recipients of Home Energy Reports. In 2018, 58 total customers opted out of the program.

Participants have access to a web portal containing the same information about their usage that was provided in the reports. In addition, all Idaho residential customers (including non-participants) have access to the web portal which contains other benefits such as the ability for customers to update their home profile (for more accurate comparisons) and suggestions on ways to save energy.

Program Management

The program manager who is responsible for the *Home Energy Reports* program in Idaho is also responsible for the program in Utah and Wyoming as well as *Irrigation Load Control* program in Idaho and Utah and *Cool Keeper* program in Utah. For each program and in each state the program manager is responsible for the cost effectiveness of the program, identifying and contracting with the program administrator through a competitive bid process, establishing and monitoring program performance and compliance, and continually improving the program.

Program Administration

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

Bidgely is responsible for the following:

- Design and distribution of paper and electronic reports.
- Maximizing email treatment for customers receiving electronic reports.
- Deploying and maintaining a web portal Bidgely operated and maintained a customer web portal which users can visit for additional information about their energy usage and saving opportunities. Customers can access the web portal from the Company's website¹⁶.

Program Changes

In January 2018, the Company signed a contract with Bidgely to administer the *Home Energy Reports* program. As a result of Bidgely becoming the new program administrator, 2018 incurred additional cost for initial startup fees as the Company transitioned from Opower to Bidgely.

Program cost effectiveness without the initial startup fees for the transition year is provided in Table 10.

Table 10

Benefit/Cost	Benefit/Cost	Net
Test	Ratio	Benefits
PTRC	2.04	\$73,653
TRC	1.86	\$60,540
UCT	1.86	\$60,540
РСТ	N/A	N/A
RIM	0.37	(\$227,543)

Other items pertaining to the transition are:

- The distribution of the revised iteration of reports started in May.
- All participating customers either receive paper reports or an email report. Reports are available to customers based upon their preferences.

Evaluation

No evaluation activities occurred in 2018.

¹⁶ https://www.rockymountainpower.net/res/sem/home-energy-report-faq.html

LOW INCOME WEATHERIZATION PROGRAM

The *Low Income Weatherization* program provides energy efficiency services through a partnership between the Company and local non-profit agencies to residential customers who meet income-eligible guidelines. Services are at no cost to the program participants.

In 2018, the program achieved 82,868 kWh of savings at site and treated 64 homes. Total homes treated as well as the type and frequency of specific energy efficiency measures installed in each home is provided in Table 11.

Participation – Total # of Completed/Treated Homes	64
Number of Homes Receiving Specific Measures	
Attic Ventilation	14
Ceiling Insulation	50
LED Light Bulbs	64
Duct Insulation	14
Floor Insulation	41
Furnace Repair	16
Furnace Replacements	7
Health & Safety Measures	63
Infiltration	61
Refrigerators	39
Replacement Windows	52
Thermal Doors	14
Wall Insulation	5
Water Heater Repair	19
Water Heater Replacement	2
Water Pipe Insulation	62

Table 11Homes Receiving Specific Measures

The *Low Income Weatherization* program was cost effective from the PTRC and TRC, but failed the UCT and RIM.¹⁷ Table 12 shows 2018 program cost effectiveness.

¹⁷ The Low Income Energy Conservation Education funding of \$25,000 was excluded from the program cost effectiveness, but is included in the residential sector and portfolio cost effectiveness.

	Table 12	
Cost effectiveness for Low	Income Weatherization (in	cludes non-energy benefits)

Benefit/Cost	Benefit/Cost	Net
Test	Ratio	Benefits
PTRC	1.39	\$100,382
TRC	1.36	\$92,058
UCT	0.33	(\$172,531)
РСТ	N/A	N/A
RIM	0.21	(\$307,361)

Program Management

The program manager who is responsible for the *Low Income Weatherization* program in Idaho is also responsible for the program in California, Utah, Washington and Wyoming; energy assistance programs in Idaho, California, Oregon, Utah, Washington and Wyoming; and bill discount programs in California, Utah and Washington. The program manager is responsible for the cost effectiveness of the weatherization program in each state, 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 agency contracts and state specific tariffs.

Program Administration

The Company contracts with Eastern Idaho Community Action Partnership ("EICAP") and South Eastern Idaho Community Action Agency ("SEICAA") to provide services. The two agencies receive federal funds allocated to the Idaho Department of Health and Welfare ("IDHW") and administered by the Community Action Partnership Association of Idaho ("CAPAI"). Energy efficiency measures are installed in the homes of income eligible households throughout the Company's service territory by EICAP and SEICAA. The Company is required to fund 85 percent of the cost of approved measures, pursuant to Commission Order No. 32151. Agencies cover remaining costs with the funding received by IDHW.

EICAP and SEICAA are responsible for the following:

- Income Verification Agencies determine participant income eligibility based on CAPAI guidelines. Household's interested in obtaining weatherization services apply through the agencies. The current income guidelines can be viewed at CAPAI's website http://www.capai.org/wx
- Energy Audit Agencies use a United States Department of Energy approved audit tool 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 the energy efficiency measures.
- Post Inspections Agencies inspect 100 percent of completed homes. CAPAI also inspects a random sample of homes. See Appendix 3 for the verification summary.

• Billing Notification – Agencies are required to submit a billing to Company within 120 days after job completion. The agencies include a form indicating the measures installed and associated cost on each completed home along with their invoice.

Low Income Energy Conservation Education

Commission Order No. 32788 authorized the Company to fund the *Low Income Energy Conservation Education* with \$25,000 annually. These education services are provided by EICAP and SEICAA and target participants who receive Low Income Home Energy Assistance Program ("LIHEAP") funds. EICAP, SEICAA and the Company discussed the allocation of the annual funding amount with the agencies determining the efficiency measures to distribute. EICAP received \$16,000 and SEICAA \$9,000 for a total of \$25,000 prior to the beginning of their 2018/2019 LIHEAP program year. While the conservation education activities do result in energy savings, the savings are not considered when calculating the performance results of the Low Income Weatherization program, other energy efficiency programs or portfolios results.¹⁸

The agencies provided a conservation education curriculum to households and reported the following activities and program specifics for 2018 in Table 13.

	EICAP	SEICCA
Annual Funds	\$16,000	\$9,000
Expenditures	\$14,205	\$1,822
Balance as of 12/31/18	\$31,833	\$9,000
Households served	371	334

Table 132018 Conservation Education Activities

Distribution

EICAP purchased 500 kits in 2018 totaling \$14,205, and reported on the distribution of 371 of these kits. The new kits include 3 LED bulbs, 1 LED night light, a window insulation kit, a smoke detector with alkaline battery, a wall plate thermometer, a showerhead and a hot water gauge.

EICAP's program objective was to educate Rocky Mountain Power customers on how to conserve energy through useful tips and tools to help them save year-round. They served Rocky Mountain Power households that received energy assistance and/or requested energy conservation education.

As of December 31, 2018, EICAP has 194 kits purchased in 2017 and 500 kits purchased in 2018 in their inventory.

SEICAA did not purchase kits in 2018. They are depleting their current inventory of kits previously purchased and anticipate ordering additional kits with the 2018 funding for delivery no later than September 1, 2019.

¹⁸ Order No. 32788

SEICAA distributed 154 conservation related measures to 20 households and 158 households obtained a kit.

Table 14 provides information regarding the education offered by the agencies.

	EICAP	SEICAA
Program Design	Educate Rocky Mountain Power customers about how to conserve energy.	Reduce electricity usage and monthly bills for participants of the LIHEAP program.
Target Audience	Rocky Mountain Power customers who receive energy assistance and request energy conservation education.	LIHEAP recipients who have not received weatherization program services are a priority. Households can also be identified through SEICAA's other programs.
How Company Funds Were Used	Energy efficiency kits purchased.	No funding spent in 2018.
Program Benefits to Participants	Households receive useful tips and tools to help them save energy year around but especially during the winter months.	Households are educated on how they can reduce kWh usage through behavioral changes in addition to the energy savings benefits of installing energy conservation measures they receive during LIHEAP intake. All conservation items are easy-to-install measures.

Table 14Additional Information on Education by Agencies

Evaluation

No evaluation activities occurred in 2018.

NON-RESIDENTIAL ENERGY EFFICIENCY

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

The *watt*smart 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 include any measures which, when implemented in an eligible facility, result in verifiable electric energy efficient improvements.

Total non-residential program gross savings increased by approximately five percent when compared to 2017 program performance and was driven by a small increase in the commercial sector and a large increase in the irrigation sector.

Total incentives, savings and completed projects are provided in Table 15 by customer sector.

Sector	Total kWh/Yr Savings	Total Incentive	Total Projects
Commercial	7,429,269	\$1,051,200	324
Industrial	990,532	\$96,181	26
Irrigation	2,586,286	\$219,739	94
Grand Total	11,006,088	\$1,367,120	444

Table 15 Savings by Sector

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.
- 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.
- 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.

Total incentives and savings by measure category is provided in Table 16.

Measure Category	kWh/Yr Savings	Total	Total
	(@ Site)	incentive	Projects
Additional Measures	11,840	\$1,776	3
Appliances	32	\$100	1
Building Shell	82,123	\$25,214	4
Compressed Air	95,856	\$12,007	3
Custom	189,389	\$23,855	5
Direct Install	2,029,112	\$588,443	169
Energy Management	828,535	\$16,571	3
Farm & Dairy	77,545	\$11,122	4
Food Service Equipment	17,018	\$1,850	4
HVAC	310,814	\$45,171	11
Irrigation	2,395,330	\$195,665	87
Lighting	4,576,320	\$420,600	145
Motors	378,158	\$24,064	4
Refrigeration	14,016	\$684	1
Grand Total	11,006,088	\$1,367,120	444

Table 16Savings by Measure Category

The Non-Residential Portfolio was cost effective from all perspectives except the RIM. Program performance results for 2018 are provided in Table 17 below.

Table 17Cost effectiveness for Non-Residential Portfolio

Benefit/Cost	Includes Portfolio Costs		Excludes Po	ortfolio Costs
Test	Benefit/Cost	Net Benefits	Benefit/Cost	Net Benefits
	Ratio		Ratio	
PTRC	0.87	(\$542,505)	0.90	(\$387,837)
TRC	0.79	(\$874,235)	0.82	(\$719,567)
UCT	1.04	\$122,679	1.09	\$277,347
РСТ	3.44	\$6,877,487	3.44	\$6,877,487
RIM	0.32	(\$6,928,979)	0.33	(\$6,774,311)

Program Management

The program manager overseeing the business energy efficiency program activity in Idaho is also responsible for the programs in Utah and Wyoming. 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.

Nexant and Cascade are responsible for the following:

- Trade ally and Midstream/LED instant incentive engagement includes identification, recruiting, training, supporting and assisting trade allies and distributors to increase sales and installation of energy efficient equipment at qualifying business customer facilities.
- Incentive processing and administrative support includes handling incoming inquiries as assigned, processing incentive applications, developing and maintaining standardized analysis tools, providing program design services, and evaluation and regulatory support upon request.
- Custom analysis and 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:

- Direct customer outreach, energy assessment, product supply, installation and inspection.
- 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 20 below.)
- 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 & Midstream Distributor Networks

To help increase and improve the supplier and installation contractor infrastructure for energyefficient 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 5 to this report. In most cases, customers are not required to select a vendor from these lists to receive an incentive.¹⁹

In 2018 the Company launched the midstream lighting distributor network to provide an instant, point-of-purchase discount for replacement lamps and retrofit kits sold through qualifying local distributors. This offer complements the existing prescriptive and small business direct offer to deliver new savings from the lamp replacement/maintenance market and accelerate adoption of LED technologies.

Through this new program channel, the Company is able to capture non-residential customers who purchase and self-install low-cost, matching replacement lamps at their facilities despite the availability of more efficient alternatives. The Company can also serve customers seeking lamps for maintenance replacement that are not served by the existing wattsmart Business offerings.

¹⁹ Customers receiving Small Business Lighting incentives do need to use an approved contractor that has been selected from a competitive request for bid process.

Contracted DSM Delivery – Small Business Direct Installation Offer

Program year 2018 was a more challenging year for "*wattsmart Small Business Direct*". Increased savings targets combined with deeper market penetration and increased product costs due to Chinese tariff regulations resulted in a much more challenging effort to serve the small business community. In 2018, the offer resulted in:

- 2,029,112 kWh installed directly at customer sites;
- 15 cities served: Ammon, Ashton, Georgetown, Hamer, Idaho Falls, Paris, Parker, Rexburg, Rigby, Ririe, Saint Anthony, Shelly, Terreton, Teton, Ucon
- 169 installed customer projects;
- Average kWh per installed project: 12,007;
- Average customer copay: \$1,161;
- Average customer incentive: \$3,482.

Internal DSM Delivery

Given the diversity of the non-residential customers served by the Company, a pre-approved, precontracted 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 Idaho.

Table 18 lists the engineering firms under contract with the Company to provide energy efficiency analysis for internal project managers.

Table 18 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.

In 2018, the Company put significant effort into engaging with water and wastewater customer through the Strategic Energy Management program model. Partnerships were leveraged with BPA and Idaho Power to bring together like groups of customers in an effort to achieve the most cost effective savings as possible. These efforts, while not resulting in significant energy savings in calendar year 2018, will yield savings in future years.

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 19 illustrates how Energy Project Manager's may be incented.

Payment Structure	Payment Amount	Milestone
1 - Initial payment (optional)	1/3 of funding amount* (not to exceed \$25,000)	 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	 At the end of performance period as defined in the Energy Project Manager Offer.

Table 19Energy Project Manager Incentive Structure

To summarize the *watt*smart Business internal structure, Table 20 shows the delivery channel, its targeted customer segment, provider(s), and the type of services.

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 Businesses	Willdan	Typical
(Small Business Direct Install, Trade Ally)	Commercial & Industrial	Nexant/Trade Allies	Typical

Table 20wattsmart Business Structure

Program Changes

In January 2018, the Company posted changes to the wattsmart Business Program. These changes included:

- Restructuring of lighting retrofit incentive offering;
- Addition of prescriptive irrigation incentives;
- Simplification of HVAC incentive table;
- Addition of advanced rooftop control unit measures;
- Adjustments to cool roof measures;
- Addition of midmarket lighting incentive program; and
- Adjustment to the Small Business Direct Install offering.

Restructuring Lighting Retrofit Offering

Customers now have access to a broad selection of lighting upgrade options ranging from basic lamp replacements to full system redesign with new fixtures and advanced controls. Lighting incentives were restructured in an effort to fit the needs of customers while making sure that the program was incentivizing the proper behavior needed to move the lighting market further toward adoption of efficient technologies. Some of the items eligible for incentives in this restructuring include full fixture replacement, fixture retrofit kits, street lighting, basic controls and advanced controls.

Addition of Irrigation Incentive Tables

The Company added prescriptive measure incentives in three groups: equipment for wheel line, hand line, or other portable systems (i.e. not solid set). These incentives are retrofit only for equipment for pivots and linear move systems. Pump VFD incentives are for retrofit or New

Construction. The intent was is to make the wattsmart prescriptive offerings consistent with the Regional Technical Forum methodology.

Simplify HVAC Incentive Table

To allow the program to more quickly and readily adjust to changes to energy codes, federal efficiency standards and CEE high efficiency equipment specifications. To simplify the HVAC incentive tables, they were adjusted to list the equipment type, category, minimum efficiency requirements or standards, and the maximum incentive. Specific customer incentives were further defined by equipment size and efficiency categories. These specific customer incentives are posted on the company website and program documents.

Addition of Advanced Rooftop Control Unit Measures

The Company added this measure as significant energy savings can be achieved by retrofitting existing rooftop units with motor and economizer controls. Savings are based on site specific information including annual building operation hours and measure costs.

Adjustments to Cool Roof Measures

Recent evaluations and measure reviews have shown the incremental costs and reported savings for cool roofs needed to be adjusted. New research has determined that the savings and incremental cost are now lower. In alignment with the lower savings and incremental costs, the offered incentive rate was adjusted to \$0.05 per square foot for both retrofit and new construction cool roof measures.

Addition of Mid-Market Incentives

As summarized above in the program infrastructure section, the addition of mid-market incentives provided an instant, point-of-purchase discount for replacement lamps and retrofit kits sold through qualifying local distributors. This offer complements the existing prescriptive and small business direct offer to deliver new savings from the lamp replacement/maintenance market and accelerate adoption of LED technologies.

Adjustments to Small Business Direct Installation Program

The Company increased the maximum "up to" incentive amount from \$5,000 to \$7,500 per facility and increased the maximum "up to" customer co-pay from 25% to 50%. The flexibility in these higher amounts enabled additional kWh savings and helped to manage the cost effectiveness of the offering while keeping it active in the market. The actual incentive amount and customer co-pay using the maximum "up to" thresholds was set at \$7,500 per facility and a 25% customer co-pay for 2018.

Evaluation

The *watts*mart Business program evaluation for program years 2016-2017 was performed and published in late 2018. Key findings include:

- Overall realization rate of 96.1 percent and an overall net-to-gross of 84 percent.
- The program was cost effective from all perspectives except the RIM.

A complete list of program evaluation recommendations and the Company's response is provided in Appendix 8.

PEAK REDUCTION PROGRAM

Peak Reduction programs assist the Company in balancing customer energy use during heavy peak summer hours. Further, it assists in deferring the need for higher cost investments in delivery infrastructure and generation resources that would otherwise be needed to serve those loads for a select few hours each year. These programs help the Company maximize the efficiency of the Company's existing electrical system and reduce costs for all customers.

Irrigation Load Control

The *Irrigation Load Control* program is offered to irrigation customers receiving electric service on Schedule 10, Irrigation and Soil Drainage Pumping Power Service. Participants enrolled with a third party administrator to allow the curtailment of their electricity usage in exchange for an incentive. Customer incentives are based on a site's average available load during load control program hours adjusted for the number of opt outs or non-participation. The program hours are 12pm to 8pm Mountain Time, Monday through Friday, and exclude holidays. For most participants, their irrigation equipment is set up with a dispatchable two-way control system giving the Company control of the equipment. Under this control option, participants are provided a dayahead notification of control events and have the choice to opt-out of a limited number of dispatch events per season.

A summary of the program performance, participation and cost effectiveness results for the program period of May 29, 2018 – August 17, 2018 are provided in Tables 21 and 22.

Total Enrolled MW (Gross – at Gen)	253
Average Realized Load MW (at Gen)	103
Maximum Realized Load MW (at Gen)	168
Participation Customers	194
Participation (Sites)	1,390

Table 21Irrigation Load Control Program Performance

Table 22Cost Effectiveness for Irrigation Load Control

Benefit/Cost	Benefit/Cost
Test	Ratio
PTRC	Pass
TRC	Pass
UCT	Pass
РСТ	N/A
RIM	Pass

Program Management

The program manager who is responsible for the *Irrigation Load Control* program in Idaho is also responsible for the *Irrigation Load Control* and *Cool Keeper* programs in Utah along with *Home Energy Report* in Idaho, Utah and Wyoming. For each state the program manager is responsible for managing the program administrator, the cost effectiveness of the program, contracting with program administrator through a competitive bid process, establishing and monitoring program performance and compliance, and recommending changes to increase participation.

Program Administration

EnerNOC administers and manages the *Irrigation Load Control* program through a pay-forperformance structure and is responsible for all aspects of the program.

Load Control Events and Performance

There were eleven control events initiated in 2018. The date, time and estimated impact for each event is provided in Table 23.

Date	Event	Event Times	Estimated Load Reduction - Idaho at Gen (MW)
7/6/2018	1	4:00PM - 8:00PM MDT	168
7/9/2018	2	3:00PM - 7:00PM MDT	127
7/12/2018	3	3:00PM - 7:00PM MDT	152
7/18/2018	4	4:00PM - 8:00PM MDT	134
7/20/2018	5	3:00PM - 7:00PM MDT	118
7/23/2018	6	4:00PM - 8:00PM MDT	93
7/25/2018	7	3:00PM - 7:00PM MDT	115
7/31/2018	8	4:00PM - 8:00PM MDT	54
8/6/2018	9	3:00PM - 7:00PM MDT	47
8/8/2018	10	4:00PM - 8:00PM MDT	57
8/14/2018	11	4:00PM - 8:00PM MDT	72

Table 23Irrigation Load Control Events

Verification of Data

The *Irrigation Load Control* program verification of data for program years 2016-2017 was completed in November 2018 and distributed to Idaho Staff in December 2018.

COMMUNICATIONS, OUTREACH AND EDUCATION

The Company uses earned media, customer communications, paid media, and program-specific media to communicate the value of energy efficiency, provide information regarding low-cost, nocost energy efficiency measures and to educate customers on the availability of technical assistance, services and incentives. The overall goal is to engage customers to reduce their energy usage through behavioral changes as well as changes in equipment, appliances, and structures. The Company calls this multi-faceted campaign "wattsmart" and shares a common theme: Rocky Mountain Power wants to help you save money and energy.

Customer Communications

As part of the Company's regular communications to its customers, newsletters are delivered to residential customers to provide energy efficiency tips, programs and incentives. Bill inserts and outer envelopes that feature energy efficiency messages are consistently used. The Company also uses its website and social media, such as Twitter and Facebook, to communicate and engage customers on DSM offers and incentives. Table 24 shows the communication source and the frequency of the message.

Communication Source	Frequency of Message
Web: rockymountainpower.net/wattsmart and promotional URL wattsmart.com link directly to the energy efficiency landing page. Once there customers can self-select their state for specific programs and incentives.	Messages rotate each month based on the season
Twitter	Weekly tweets
Facebook	Information and tips posted 3-4 times per month. Promoted posts and mobile ads are also used where appropriate.
Connect residential newsletter	Newsletters are sent via bill insert and email 4 times per year with energy efficiency information
Home Energy Savings program inserts	1 per year

Table 24 Communication Source and Frequency

Paid Media/ wattsmart Campaign

In 2018, the Company deployed a wattsmart advertising campaign to inform and educate residential customers about the benefits energy efficiency contributes to the greater good in addition to saving money. 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:

- Implement an advertising campaign that features wattsmart energy efficiency messaging and connect it to benefits for Idaho.
- Promote customer conservation (behavioral changes) and increase participation and savings through the Company's wattsmart DSM programs.
- Motivate customers in Idaho to reduce consumption independently or to do so by participating in the Company's wattsmart DSM programs.
- Educate customers on how these programs can help them save money on their utility bills, reduce energy consumption and to help Idaho thrive.
- Demonstrate by example how business customers are saving energy and enjoying the benefits of being wattsmart.

The audiences for these messages were prioritized as follows:

- Residential customers
- Low-income customers
- Small/mid-size business customers
- Large commercial/industrial customers
- Retailers, contractors and trade allies

General Key Messages:

- Using energy wisely at home and in your business saves you money, and it's good for Idaho.
- Surprising as it sounds, Rocky Mountain Power wants to help you use less energy.
- Rocky Mountain Power is your energy partner
 - We want to help you keep your costs down.
 - We offer wattsmart programs and cash incentives to help you save money and energy in your home or business.
 - Being wattsmart is good for your wallet, and for Idaho, now and into the future.

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

New creative was developed to target business customers and included TV, radio, print, social media, and digital. An overlay of typography to punctuate key points was included in TV ads so messages resonate better when played on hand-held devices when the sound is muted. Ads focused on case studies and highlighted business customers that saved energy and money by being wattsmart. Ads geo-targeted by zip code were used on Facebook to reach small business customers with time-sensitive messages to encourage lighting upgrades.

Table 25 outlines each communication channel and the overall impressions achieved in 2018.

Communication Channel	Value to Communication Portfolio	Impressions to date
Television	Television has the broadest reach and	Idaho Falls:
	works as the most effective media	 609,900 residential impressions
	channel.	 683,088 business impressions
Radio	Given the cost relative to television,	Idaho Falls:
	radio builds on communications	 318,000 residential impressions
	delivered via television while	 381,600 business impressions
	providing for increased frequency of messages.	
Newspaper	Supports broadcast messages and	A total of 24 insertions targeting
	guarantees coverage in areas harder	business customers were provided
	to reach with broadcast.	to:
		Jefferson Star/Shelley Pioneer
		Idaho State Journal
		Idaho Falls Post Register
		News-Examiner
		Preston Citizen
		Rexburg Standard Journal
Digital Display	Include hermor ade en local sites	• 267,264 total impressions
Digital Display	hlogs behavioral ad targeting and	1,455,419 residential impressions
	pay-per-click ad placements.	005,025 business impressions
Internet Search (i.e. Google)	20,622 total impressions	14,219 total impressions
Twitter (@RMP_Idaho)	Tweets energy efficiency tips, Tweets	1,041 Twitter followers
	posted on a weekly basis	
Facebook	Awareness regarding energy	23,124 Facebook followers
www.facebook.com/	efficiency tips and a location to share	Facebook advertising – 246,707
rockymountainpower.wattsmart	information.	residential impressions
		104,341 business impressions

Table 25 Communication Channels

The total number impressions for the wattsmart campaign were 4,590,367 impressions.

Residential Creative Links

ΤV

- Being wattsmart is good, Idaho 68 degrees (winter) http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/February_20 18/ID_DSM_Res_TV_Winter.mp4
- Being wattsmart is good, Idaho 78 degrees (summer) :30 www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/June_2018/ID_DS M_Res_TV_BETTER_SUMMER_PYG_30.mp4
- Being wattsmart is good, Idaho 78 degrees (summer) :15 http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/June_2018/I D_DSM_Res_BETTER_SUMMER_15.mp4

Radio

 Being wattsmart is good, Idaho http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/February_20 18/ID_DSM_Res_Radio_17PCRMID6006_Thrive.mp3

Social

 Being wattsmart is good, Idaho http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2017/June_2017/I D_DSM_Res_Facebook_Video_Screenshot.png

Online

- Being wattsmart is Good, Helps, Better, Idaho http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/February_20 18/ID_DSM_Res_Digital_Display_Ads.pdf
- Being wattsmart is Good (digital storyboard) http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2017/June_2017/I D_DSM_Res_Digital_Animated_Storyboard_Good_300x250.pdf

Business Creative Links

ΤV

- The Smith Group case study TV http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/March_2018 /ID_wattsmart_Business_Smith_Group_TV_PCRMWB300417.mp4
- Smith's Food & Drug Stores case study TV http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/April_2018/ RMP_DSM_Biz_Smiths_30_TV.mp4
- Casper's FatBoy Ice Cream case study TV http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/June_2018/ RMP_DSM_Bus_Caspers_Ice_Cream_V12.mp4

Radio

- The Smith Group case study radio http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/February_20 18/ID_wattsmart_Business_Smith_Group_Radio17rmpbiz-6004.mp3
- Smith's Food & Drug case study radio http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/April_2018/ RMP_DSM_Biz_Smiths_F-D_Radio_18-rmputbiz-6003.mp3
- Casper's FatBoy Ice Cream case study radio http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/June_2018/ RMP_DSM_Bus_Radio_CaspersIceCream.mp3

Print

- The Smith Group case study print http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/February_20 18/ID_wattsmart_Business_Smith_Group_print_b-w.pdf
- Smith's Food & Drug Stores case study print http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/April_2018/ RMP_DSM_Biz_Smiths_F-D_print_b-w.pdf
- Casper's FatBoy Ice Cream case study print http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/June_2018/ RMP_DSM_Bus_CaspersIceCream_Print_b-w.pdf
- Home and Garden Special Edition Jefferson Star www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/April_2018/ID_D SM_Res_Good_Print.pdf

Social Media

- Wattsmart Small Business Direct Lighting http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/February_20 18/UT_SBDI_FB_YourTown_Mar30_Screen_Shot_2018-01-05.png
- Business lighting incentives Facebook http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/June_2018/I D_wattsmart_Business_Lighting_Push_FB_July_2018.png
- Smith's Food & Drug Stores case study Facebook http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/April_2018/ RMP_DSM_Bus_FB_Smiths_Food_Drug.png
- Casper's FatBoy Ice Cream case study Facebook http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/June_2018/ RMP_DSM_Biz_FB_Caspers.png

Online

- Business lighting incentives digital http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/June_2018/I D_wattsmart_Business_Lighting_Digital_2018.pdf
- The Smith Group case study digital http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/March_2018 /ID_wattsmart_Business_SmithGroup_160x600_F.jpg
- Smith's Food & Drug Stores case study digital http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2018/April_2018/ RMP_DSM_Biz_SmithsF-D_Digital_300x250_F.jpg

Program Specific Communications

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.

Home Energy Savings

Information on the Home Energy Savings program is communicated to customers, retailers and trade allies through a variety of channels including emails, bill inserts, newsletters, press releases, website and social media.

The program communications team supported two main initiatives in 2018: 1) Promoting smart thermostat instant incentives, and 2) Offering a free advanced power strip to customers.

For smart thermostats, emails were sent to thousands of customers in the spring and during the holiday shopping season to tie with Nest and Ecobee offers. CLEAResult delivered the emails through their marketing automation platform.

In the fall, Idaho customers received an email and/or direct mail offer for a free advanced power strip. Approximately 4,000 customers ordered the APS and received the package with information on how to use the device.

A summary of outreach is displayed in Table 26:

Communications Channel	Approximate Number of Customers
Bill insert	38,000
Emails	50,000
Direct mail	30,000
Social media ads– Facebook & Instagram	76,815
Total	194,815

Table 26Home Energy Savings Communications

Home Energy Reports

In 2018, the Company transitioned *Home Energy Reports* from Oracle to Bidgely. To help with the transition, emails were sent to 13,246 customers in advance of receiving their first Bidgely report to inform them of the new home energy reports.

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

wattsmart Business program

During 2018, communications reminded customers to inquire about incentives for lighting and lighting controls, HVAC upgrades with an emphasis on advanced rooftop controls, irrigation upgrades and other energy efficiency measures. Radio and print ads featured case study examples from program participants in the spring and focused on incentives for lighting upgrades in early summer. Emails and digital search directed viewers to the Company's website.²⁰ Collateral material for *watt*smart Business was used for direct customer contact by the Company's project managers, regional business managers, and its trade allies.

Emails encouraged customers to reach out for free energy assessments for lighting and/or HVAC improvements.

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

Direct mail was also used in the spring and fall to target irrigation customers and to encourage energy saving retrofits.

The program's breakdown of impressions by media type is shown in Table 27.

Communications Channel	2018
Radio	254,400
Print	168,198
Display	1,034,958
Social	154,858
Eblasts	3,452
Direct Mail	3,518
Search	4,719

Table 27 Impressions by Media Type

Energy Education in Schools

The Company offers a *watt*smart Schools education program through the National Energy Foundation ("NEF"). The program is designed to develop a culture of energy efficiency among teachers, students, and families. The centerpiece is a series of one-hour presentations with hands-on, large group activities for 4th grade students. Teachers are provided instructional materials for use in their classrooms, and students are sent home with a Household Report Card to explore energy use in their homes and to encourage efficient behaviors.

²⁰ www.wattsmart.com

In 2018, NEF conducted presentations in Idaho schools in the fall. Presentations were given during one week in September and a second week in October. The program met its outreach goals by completing 24 presentations to reach 1,723 students and 73 teachers with 87 percent of "Household Report Cards", which are used as part of a home energy audit activity, completed and returned.

The Idaho NEF report is available as Appendix 7.

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 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 organization to ensure they are performed and managed by personnel who are not responsible for program management.

Information on evaluation activities completed or in progress during 2018 is summarized in Table 28 below. Summaries of the recommendations are provided in Appendix 8. The evaluation report is available at <u>www.pacificorp.com/es/dsm/idaho.html</u>.

Program	Years Evaluated	Evaluator	Progress Status
wattsmart Business	2016 - 2017	Cadmus	Completed
Home Energy Savings	2017 - 2018	ADM	In Progress

Table 28Program Evaluations



Appendix 1 Idaho Cost Effectiveness

NAVIGANT

Memorandum

- To: Esther Giezendanner and Brian Ludwig, PacifiCorp
- From: David Basak, Navigant
- **Date:** April 3, 2019
- Re: Cost-Effectiveness for the Portfolio and Sector Level Idaho

Navigant estimated the cost-effectiveness for the overall energy efficiency portfolio and component sectors, based on 2018 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall energy efficiency portfolio and the two sector components.

The portfolio passes the cost-effectiveness for the PCT test. The memo consists of the following tables.

- Table 1 Utility Inputs
- Table 2 Portfolio Level Costs 2018
- Table 3 Benefit/Cost Ratios by Portfolio Type
- Table 4 2018 Total Portfolio (Including NEBs) Cost-Effectiveness Results
- Table 5 2018 Total Portfolio Cost-Effectiveness Results
- Table 6 2018 C&I Energy Efficiency Portfolio Cost-Effectiveness Results
- Table 7 2018 Residential Energy Efficiency Portfolio (Including NEBs) Cost-Effectiveness Results
- Table 8 2018 Residential Energy Efficiency Portfolio Cost-Effectiveness Results
- Table 9 Low Income Non-Energy Benefits (2018)
- Table 10 Home Energy Savings Non-Energy Benefits by Measure

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Residential Programs

Parameter	Value
Discount Rate	6.57%
Residential Line Loss	11.47%
Commercial Line Loss	10.75%
Industrial Line Loss	7.52%
Irrigation Line Loss	11.45%
Residential Energy Rate (\$/kWh)1	\$0.1006
Commercial Energy Rate (\$/kWh)1	\$0.0861
Industrial Energy Rate (\$/kWh)1	\$0.0622
Irrigation Energy Rate (\$/kWh)1	\$0.0897
Inflation Rate	2.20%

Table 1 - Utility Inputs

¹ Future rates determined using a 2.20% annual escalator.

Table 2 – Portfolio Level Costs 2018

Expense	Cost
Commercial & Industrial Evaluation Costs	\$154,668
Residential Evaluation Costs	\$25,575
Low Income Energy Conservation Education	\$25,000
Outreach & Communications	\$179,853
Potential Study	\$66,379
System Support	\$11,917
Total Costs	\$463,392

Table 3 – Benefit/Cost Ratios by Portfolio Type							
Measure Group	PTRC	TRC	UCT	RIM	РСТ		
Total Portfolio (Including NEBs)	0.93	0.86	0.94	0.31	3.58		
Total Portfolio	0.81	0.74	0.94	0.31	3.46		
C&I Programs	0.87	0.79	1.04	0.32	3.44		
Residential Programs (Including NEBs)	1.25	1.17	0.89	0.30	3.94		

0.80

0.72

0.89

0.30

3.49

Table 4 – 2018 Total Portfolio (Including NEBs) Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0598	\$6,074,980	\$5,676,239	-\$398,741	0.93
Total Resource Cost Test (TRC) No Adder	\$0.0598	\$6,074,980	\$5,227,015	-\$847,965	0.86
Utility Cost Test (UCT)	\$0.0469	\$4,766,097	\$4,491,878	-\$274,220	0.94
Rate Impact Test (RIM)		\$14,375,828	\$4,491,878	-\$9,883,950	0.31
Participant Cost Test (PCT)		\$3,878,266	\$13,875,855	\$9,997,588	3.58
Lifecycle Revenue Impacts (\$/kWh)				:	\$0.0000104864
Discounted Participant Payback (years)					1.47

Table 5 - 2018 Total Portfolio Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0598	\$6,074,980	\$4,941,101	-\$1,133,879	0.81
Total Resource Cost Test (TRC) No Adder	\$0.0598	\$6,074,980	\$4,491,878	-\$1,583,103	0.74
Utility Cost Test (UCT)	\$0.0469	\$4,766,097	\$4,491,878	-\$274,220	0.94
Rate Impact Test (RIM)		\$14,375,828	\$4,491,878	-\$9,883,950	0.31
Participant Cost Test (PCT)		\$3,878,266	\$13,405,306	\$9,527,040	3.46
Lifecycle Revenue Impacts (\$/kWh)				9	60.0000075828
Discounted Participant Payback (years)					1.47

Table 6 – 2018 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	\$0.0538	\$4,191,177	\$3,648,672	-\$542,505	0.87
Total Resource Cost Test (TRC) No Adder	\$0.0538	\$4,191,177	\$3,316,941	-\$874,235	0.79
Utility Cost Test (UCT)	\$0.0410	\$3,194,263	\$3,316,941	\$122,679	1.04
Rate Impact Test (RIM)		\$10,245,921	\$3,316,941	-\$6,928,979	0.32
Participant Cost Test (PCT)		\$2,816,009	\$9,693,496	\$6,877,487	3.44
Lifecycle Revenue Impacts (\$/kWh)				Ś	\$0.0000113278
Discounted Participant Payback (years)					1.95

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0685	\$1,625,655	\$2,027,568	\$401,913	1.25
Total Resource Cost Test (TRC) No Adder	\$0.0685	\$1,625,655	\$1,910,074	\$284,419	1.17
Utility Cost Test (UCT)	\$0.0554	\$1,313,685	\$1,174,936	-\$138,749	0.89
Rate Impact Test (RIM)		\$3,871,758	\$1,174,936	-\$2,696,822	0.30
Participant Cost Test (PCT)		\$1,062,258	\$4,182,359	\$3,120,102	3.94
Lifecycle Revenue Impacts (\$/kWh)				2	\$0.0000081507
Discounted Participant Payback (years)					0.79

Table 7 – 2018 Residential Energy Efficiency Portfolio (Including NEBs) Cost-Effectiveness Results

Table 8 – 2018 Residential Energy Efficiency Portfolio Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0685	\$1,625,655	\$1,292,430	-\$333,225	0.80
Total Resource Cost Test (TRC) No Adder	\$0.0685	\$1,625,655	\$1,174,936	-\$450,719	0.72
Utility Cost Test (UCT)	\$0.0554	\$1,313,685	\$1,174,936	-\$138,749	0.89
Rate Impact Test (RIM)		\$3,871,758	\$1,174,936	-\$2,696,822	0.30
Participant Cost Test (PCT)		\$1,062,258	\$3,711,810	\$2,649,553	3.49
Lifecycle Revenue Impacts (\$/kWh)				Ş	\$0.0000038983
Discounted Participant Payback (years)					0.79

The tables below summarize the non-energy benefits for the Low Income and Home Energy Savings programs.

Table 9 – Low Income Non-Energy Benefits (2018)

Non-Energy Benefit	Program Impact	Perspective Adjusted
Health & Safety Benefit	\$166,540.98	PTRC, TRC
Pmt Arrearage & Assist	\$98,048.00	PTRC, TRC
Total	\$264,588.98	

Measure Name	Non- Energy Benefits Water (\$/yr)	Non- Energy Benefits Other (\$/yr)	Quantity	Measure Life	Total NEBs (\$/yr)	Discount Rate	Total Net Present Value Benefits
Appliances	\$1,323	\$0	61	14.0	\$1,323	6.57%	\$12,650.95
Energy Kits - DHW	\$30,483	\$0	1,132	11.0	\$30,483	6.57%	\$248,901.77
Energy Kits - Lighting	\$0	\$1,642	1,181	13.0	\$1,642	6.57%	\$14,984.34
Lighting	\$0	\$50,749	66,930	12.1	\$50,749	6.57%	\$440,864.25
Total NEBs	\$31,805	\$52,391	69,304	-	\$84,196	-	\$717,401.30

Table 10 - Home Energy Savings Non-Energy Benefits by Measure

NAVIGANT

Memorandum

- To: Esther Giezendanner and Brian Ludwig, PacifiCorp
- From: David Basak, Navigant
- **Date:** April 3, 2019
- Re: Cost-Effectiveness Results for the Home Energy Savings Program Idaho

Navigant estimated the cost-effectiveness results for the Idaho 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 9 measure categories.

Cost-effectiveness was tested using the 2017 IRP decrement for all measure categories. The program passes the cost-effectiveness for the UCT 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 (without NEBs) Cost-Effectiveness Results Table 6 - Home Energy Savings Appliances Cost-Effectiveness Results Table 7 - Home Energy Savings Building Shell Cost-Effectiveness Results Table 8 - Home Energy Savings Electronics Cost-Effectiveness Results Table 9 - Home Energy Savings Energy Kits - DHW Cost-Effectiveness Results Table 10 - Home Energy Savings Energy Kits – Lighting Cost-Effectiveness Results Table 11 - Home Energy Savings HVAC Cost-Effectiveness Results Table 12 - Home Energy Savings Lighting Cost-Effectiveness Results Table 13 - Home Energy Savings Water Heating Cost-Effectiveness Results Table 14 - Home Energy Savings Whole Home Cost-Effectiveness Results Table 15 - Home Energy Savings Non-Energy Benefits by Measure Table 16 - Home Energy Savings Program (with NEBs) Cost-Effectiveness Results Table 17 - Home Energy Savings Appliances (with NEBs) Cost-Effectiveness Results Table 18 - Home Energy Savings Energy Kit – DHW (with NEBs) Cost-Effectiveness Results Table 19 - Home Energy Savings Energy Kit – Lighting (with NEBs) Cost-Effectiveness Results Table 20 - Home Energy Savings Lighting (with NEBs) Cost-Effectiveness Results

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Table 1 - Home Energy Savings inputs	
Parameter	Value
Discount Rate	6.57%
Residential Line Loss	11.47%
Residential Energy Rate (\$/kWh) ¹	\$0.1006
Inflation Rate	2.20%

Table 1 - Home Energy Savings Inputs

¹ Future rates determined using a 2.20% annual escalator.

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Dev.	Incentives	Total Utility Costs	Gross Customer Costs
Appliances	\$0	\$23	\$920	\$13	\$3,050	\$4,005	\$7,595
Building Shell	\$0	\$63	\$2,546	\$36	\$19,010	\$21,654	\$33,635
Electronics	\$0	\$2,258	\$91,639	\$1,282	\$100,224	\$195,403	\$168,063
Energy Kits - DHW	\$0	\$2,060	\$68,402	\$1,170	\$15,184	\$86,817	\$15,184
Energy Kits - Lighting	\$0	\$129	\$4,287	\$73	\$6,850	\$11,340	\$6,850
HVAC	\$0	\$4,008	\$162,668	\$2,276	\$162,150	\$331,103	\$178,775
Lighting	\$0	\$3,921	\$81,119	\$2,227	\$88,465	\$175,731	\$629,322
Water Heating	\$0	\$24	\$965	\$14	\$2,350	\$3,352	\$3,144
Whole Home	\$0	\$103	\$4,178	\$58	\$13,000	\$17,340	\$19,690
Total	\$0	\$12,588	\$416,725	\$7,150	\$410,283	\$846,746	\$1,062,258

Table 2 – Home Energy Savings Annual Program Costs

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	6,791	100%	6,791	100%	6,791	14
Building Shell	18,796	100%	18,796	100%	18,796	45
Electronics	676,512	100%	676,512	100%	676,512	5
Energy Kits - DHW	617,263	96%	592,573	95%	562,944	11
Energy Kits - Lighting	38,690	96%	37,142	95%	35,285	13
HVAC	1,200,873	49%	588,428	97%	570,775	17
Lighting	1,174,740	75%	881,055	47%	414,096	12
Water Heating	7,125	100%	7,125	100%	7,125	13
Whole Home	30,845	100%	30,845	100%	30,845	40
Total	3,771,635	75%	2,839,267	82%	2,323,169	13

Table 4 - Ben	efit/Cost Ra	tios by Mea	sure Categor	у	
Measure Group	PTRC	TRC	UCT	RIM	РСТ
Appliances with NEBs	1.88	1.84	0.78	0.27	3.06
Appliances	0.40	0.36	0.78	0.27	1.40
Building Shell	0.77	0.70	1.18	0.41	1.75
Electronics	0.40	0.37	0.50	0.19	2.50
Energy Kits with NEBs - DHW	5.17	4.95	2.18	0.31	52.69
Energy Kits - DHW	2.42	2.20	2.18	0.31	37.11
Energy Kits with NEBs - Lighting	2.78	2.64	1.31	0.31	8.78
Energy Kits - Lighting	1.48	1.35	1.31	0.31	6.71
HVAC	1.38	1.26	1.30	0.41	5.11
Lighting with NEBs	0.99	0.95	0.89	0.27	1.86
Lighting	0.45	0.41	0.89	0.27	1.53
Water Heating	0.78	0.71	0.88	0.27	3.13
Whole Home	1.83	1.66	2.31	0.50	3.85
Total with NEBs	1.32	1.24	1.13	0.32	3.32
Total	0.91	0.83	1.13	0.32	2.88

Table 5 – Home Energy Savings Program Level (without NEBs) Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0585	\$1,158,715	\$1,056,619	-\$102,096	0.91
Total Resource Cost Test (TRC) No Adder	\$0.0585	\$1,158,715	\$960,563	-\$198,152	0.83
Utility Cost Test (UCT)	\$0.0428	\$846,746	\$960,563	\$113,817	1.13
Rate Impact Test (RIM)		\$2,981,906	\$960,563	-\$2,021,343	0.32
Participant Cost Test (PCT)		\$1,062,258	\$3,059,761	\$1,997,503	2.88
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000033693
Discounted Participant Payback (years)					2.84

Table 6 through Table 14 provides cost-effectiveness results without NEBs for all 9 measures.

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

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1221	\$8,550	\$3,416	-\$5,135	0.40
Total Resource Cost Test (TRC) No Adder	\$0.1221	\$8,550	\$3,105	-\$5,445	0.36
Utility Cost Test (UCT)	\$0.0572	\$4,005	\$3,105	-\$900	0.78
Rate Impact Test (RIM)		\$11,558	\$3,105	-\$8,453	0.27
Participant Cost Test (PCT)		\$7,595	\$10,602	\$3,007	1.40
Lifecycle Revenue Impacts (\$/kWh)					\$0.000001718
Discounted Participant Payback (years)					7.42

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

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0988	\$36,279	\$28,097	-\$8,182	0.77
Total Resource Cost Test (TRC) No Adder	\$0.0988	\$36,279	\$25,543	-\$10,737	0.70
Utility Cost Test (UCT)	\$0.0589	\$21,654	\$25,543	\$3,888	1.18
Rate Impact Test (RIM)		\$61,620	\$25,543	-\$36,077	0.41
Participant Cost Test (PCT)		\$33,635	\$58,975	\$25,341	1.75
Lifecycle Revenue Impacts (\$/kWh)					\$0.000002261
Discounted Participant Payback (years)					8.88

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

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0883	\$263,243	\$106,581	-\$156,662	0.40
Total Resource Cost Test (TRC) No Adder	\$0.0883	\$263,243	\$96,891	-\$166,351	0.37
Utility Cost Test (UCT)	\$0.0656	\$195,403	\$96,891	-\$98,512	0.50
Rate Impact Test (RIM)		\$515,800	\$96,891	-\$418,908	0.19
Participant Cost Test (PCT)		\$168,063	\$420,620	\$252,557	2.50
Lifecycle Revenue Impacts (\$/kWh)				9	60.0000240054
Discounted Participant Payback (years)					0.98

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) Conservation Adder	+ \$0.0178	\$86,058	\$208,297	\$122,239	2.42
Total Resource Cost Test (TRC) No Adder	\$0.0178	\$86,058	\$189,361	\$103,303	2.20
Utility Cost Test (UCT)	\$0.0180	\$86,817	\$189,361	\$102,544	2.18
Rate Impact Test (RIM)		\$607,755	\$189,361	-\$418,394	0.31
Participant Cost Test (PCT)		\$15,184	\$563,541	\$548,356	37.11
Lifecycle Revenue Impacts (\$/kWh	ı)				\$0.0000108455
Discounted Participant Payback (y	ears)				n/a

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

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

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0319	\$10,997	\$16,319	\$5,321	1.48
Total Resource Cost Test (TRC) No Adder	\$0.0319	\$10,997	\$14,835	\$3,838	1.35
Utility Cost Test (UCT)	\$0.0329	\$11,340	\$14,835	\$3,495	1.31
Rate Impact Test (RIM)		\$48,475	\$14,835	-\$33,640	0.31
Participant Cost Test (PCT)		\$6,850	\$45,940	\$39,090	6.71
Lifecycle Revenue Impacts (\$/kWh)					\$0.000007368
Discounted Participant Payback (years)					n/a

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

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0507	\$342,364	\$473,978	\$131,614	1.38
Total Resource Cost Test (TRC) No Adder	\$0.0507	\$342,364	\$430,889	\$88,525	1.26
Utility Cost Test (UCT)	\$0.0491	\$331,103	\$430,889	\$99,787	1.30
Rate Impact Test (RIM)		\$1,059,869	\$430,889	-\$628,980	0.41
Participant Cost Test (PCT)		\$178,775	\$913,456	\$734,681	5.11
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000105020
Discounted Participant Payback (years)					0.28

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1007	\$383,048	\$172,712	-\$210,336	0.45
Total Resource Cost Test (TRC) No Adder	\$0.1007	\$383,048	\$157,011	-\$226,037	0.41
Utility Cost Test (UCT)	\$0.0462	\$175,731	\$157,011	-\$18,721	0.89
Rate Impact Test (RIM)		\$585,789	\$157,011	-\$428,779	0.27
Participant Cost Test (PCT)		\$629,322	\$960,929	\$331,607	1.53
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000101809
Discounted Participant Payback (years)					17.57

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

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

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0596	\$4,147	\$3,254	-\$893	0.78
Total Resource Cost Test (TRC) No Adder	\$0.0596	\$4,147	\$2,958	-\$1,189	0.71
Utility Cost Test (UCT)	\$0.0482	\$3,352	\$2,958	-\$394	0.88
Rate Impact Test (RIM)		\$10,851	\$2,958	-\$7,893	0.27
Participant Cost Test (PCT)		\$3,144	\$9,849	\$6,705	3.13
Lifecycle Revenue Impacts (\$/kWh)					\$0.000001729
Discounted Participant Payback (years)					1.09

Table 14 - Home Energy Savings Whole Home Cost-Effectiveness Results (Load Shape – ID_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0416	\$24,029	\$43,967	\$19,938	1.83
Total Resource Cost Test (TRC) No Adder	\$0.0416	\$24,029	\$39,970	\$15,941	1.66
Utility Cost Test (UCT)	\$0.0300	\$17,340	\$39,970	\$22,630	2.31
Rate Impact Test (RIM)		\$80,188	\$39,970	-\$40,218	0.50
Participant Cost Test (PCT)		\$19,690	\$75,848	\$56,159	3.85
Lifecycle Revenue Impacts (\$/kWh)					\$0.000002837
Discounted Participant Payback (years)					2.16

In addition to the energy benefits reported above, appliances, energy savings kits and lighting in the Home Energy Savings program offer significant non-energy benefits (NEBs). Table 15 through Table 20 detail the non-energy benefits and cost-effectiveness results.

Measure Name	Non- Energy Benefits Water (\$/yr)	Non- Energy Benefits Other (\$/yr)	Quantity	Measure Life	Total NEBs (\$/yr)	Discount Rate	Total Net Present Value Benefits
Appliances	\$1,323	\$0	61	14.0	\$1,323	6.57%	\$12,650.95
Energy Kits - DHW	\$30,483	\$0	1,132	11.0	\$30,483	6.57%	\$248,901.77
Energy Kits - Lighting	\$0	\$1,642	1,181	13.0	\$1,642	6.57%	\$14,984.34
Lighting	\$0	\$50,749	66,930	12.1	\$50,749	6.57%	\$440,864.25

Table 15 - Home Energy Savings Non-Energy Benefits by Measure

The following tables provide the cost-effectiveness results after adding in the non-energy benefits detailed above beginning with the overall program results.

Table 16 - Home Energy Savings Program (with NEBs) Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0585	\$1,158,715	\$1,527,168	\$368,453	1.32
Total Resource Cost Test (TRC) No Adder	\$0.0585	\$1,158,715	\$1,431,112	\$272,397	1.24
Utility Cost Test (UCT)	\$0.0428	\$846,746	\$960,563	\$113,817	1.13
Rate Impact Test (RIM)		\$2,981,906	\$960,563	-\$2,021,343	0.32
Participant Cost Test (PCT)		\$1,062,258	\$3,530,310	\$2,468,052	3.32
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000084570
Discounted Participant Payback (years)					2.84

Table 17 - Home Energy Savings Appliances (with NEBs) Cost-Effectiveness Results (Load Shape – Residential ERWH 7P)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1221	\$8,550	\$16,066	\$7,516	1.88
Total Resource Cost Test (TRC) No Adder	\$0.1221	\$8,550	\$15,756	\$7,206	1.84
Utility Cost Test (UCT)	\$0.0572	\$4,005	\$3,105	-\$900	0.78
Rate Impact Test (RIM)		\$11,558	\$3,105	-\$8,453	0.27
Participant Cost Test (PCT)		\$7,595	\$23,253	\$15,658	3.06
Lifecycle Revenue Impacts (\$/kWh)					\$0.000001718
Discounted Participant Payback (years)					7.42

Table 18 - Home Energy Savings Energy Kit – DHW (with NEBs) Cost-Effectiveness Results
(Load Shape – Residential_ERWH_7P)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0178	\$86,058	\$444,754	\$358,696	5.17
Total Resource Cost Test (TRC) No Adder	\$0.0178	\$86,058	\$425,818	\$339,760	4.95
Utility Cost Test (UCT)	\$0.0180	\$86,817	\$189,361	\$102,544	2.18
Rate Impact Test (RIM)		\$607,755	\$189,361	-\$418,394	0.31
Participant Cost Test (PCT)		\$15,184	\$799,997	\$784,813	52.69
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000108455
Discounted Participant Payback (years)					n/a

Table 19 - Home Energy Savings Energy Kit – Lighting (with NEBs) Cost-Effectiveness Results (Load Shape – Residential_Lighting_7P)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0319	\$10,997	\$30,554	\$19,556	2.78
Total Resource Cost Test (TRC) No Adder	\$0.0319	\$10,997	\$29,070	\$18,073	2.64
Utility Cost Test (UCT)	\$0.0329	\$11,340	\$14,835	\$3,495	1.31
Rate Impact Test (RIM)		\$48,475	\$14,835	-\$33,640	0.31
Participant Cost Test (PCT)		\$6,850	\$60,175	\$53,325	8.78
Lifecycle Revenue Impacts (\$/kWh)					\$0.000007368
Discounted Participant Payback (year	s)				n/a

Table 20 - Home Energy Savings Lighting (with NEBs) Cost-Effectiveness Results (Load Shape – Residential_Lighting_7P)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1007	\$383,048	\$379,918	-\$3,130	0.99
Total Resource Cost Test (TRC) No Adder	\$0.1007	\$383,048	\$364,217	-\$18,831	0.95
Utility Cost Test (UCT)	\$0.0462	\$175,731	\$157,011	-\$18,721	0.89
Rate Impact Test (RIM)		\$585,789	\$157,011	-\$428,779	0.27
Participant Cost Test (PCT)		\$629,322	\$1,168,135	\$538,813	1.86
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000101809
Discounted Participant Payback (years)					17.57



Memorandum

To:	Esther Giezendanner and Brian Ludwig, PacifiCorp
From:	David Basak, Navigant
Date:	April 5, 2019
Re:	Cost-Effectiveness Results for the Home Energy Reporting Program - Idaho

Navigant estimated the cost-effectiveness results for the Idaho Home Energy Reporting Program, based on 2018 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program.

Cost-effectiveness was tested using the 2017 IRP decrement. The program fails to pass all costeffectiveness 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 - HER Program Level Cost-Effectiveness Results – Includes All Program Costs

Table 5 - HER Program Level Cost-Effectiveness Results – Without Startup Costs

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Tuble 1 Home Energy Reporting inputs						
Parameter	Value					
Discount Rate	6.57%					
Residential Line Loss	11.47%					
Residential Energy Rate (\$/kWh) ¹	\$0.1006					
Inflation Rate	2.20%					

Table 1 - Home Energy Reporting Inputs

¹ Future rates determined using a 2.20% annual escalator.

Table 2 – Home Energy Reporting Annual Program Costs

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Development	Incentives	Total Utility Costs	Gross Customer Costs
HER	\$0	\$7,766	\$151,808	\$1,019	\$0	\$160,594	\$0
HER w/o Startup Fees	\$0	\$7,766	\$61,808	\$1,019	\$0	\$70,594	\$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
HER	2,802,000	100%	2,802,000	100%	2,802,000	1
HER w/o Startup Fees	2,802,000	100%	2,802,000	100%	2,802,000	1

Table 4 - HER Program Level Cost-Effectiveness Results – Includes All Program Costs (Load Shape – ID_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0598	\$160,594	\$144,247	-\$16,347	0.90
Total Resource Cost Test (TRC) No Adder	\$0.0598	\$160,594	\$131,133	-\$29,460	0.82
Utility Cost Test (UCT)	\$0.0598	\$160,594	\$131,133	-\$29,460	0.82
Rate Impact Test (RIM)		\$448,676	\$131,133	-\$317,543	0.29
Participant Cost Test (PCT)		\$0	\$288,083	\$288,083	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000912123
Discounted Participant Payback (years)				n/a

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0263	\$70,594	\$144,247	\$73,653	2.04
Total Resource Cost Test (TRC) No Adder	\$0.0263	\$70,594	\$131,133	\$60,540	1.86
Utility Cost Test (UCT)	\$0.0263	\$70,594	\$131,133	\$60,540	1.86
Rate Impact Test (RIM)		\$358,676	\$131,133	-\$227,543	0.37
Participant Cost Test (PCT)		\$0	\$288,083	\$288,083	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000653604
Discounted Participant Payback (years)					n/a

Table 5 - HER Program Level Cost-Effectiveness Results – Without Startup Costs (Load Shape – ID_Single_Family_Cooling)

NAVIGANT

Memorandum

- To: Esther Giezendanner and Brian Ludwig, PacifiCorp
- From: David Basak, Navigant
- **Date:** April 3, 2019
- Re: Cost-Effectiveness Results for the Low Income Weatherization Program Idaho

Navigant estimated the cost-effectiveness results for the Idaho Low Income Weatherization Program, based on 2018 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program.

Cost-effectiveness was tested using the 2017 IRP decrement. The program does not pass any of the cost-effectiveness tests.

- 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 Benefit/Cost Ratios by Measure Category
- Table 5 Low Income Weatherization Program Level (without NEBs) Cost-Effectiveness
- Table 6 Low Income Weatherization Non-Energy Benefits
- Table 7 Low Income Weatherization Program (with NEBs) Level Cost-Effectiveness Results

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Table 1 - Low Income Weatherization Inputs						
Parameter	Value					
Discount Rate	6.57%					
Residential Line Loss	11.47%					
Residential Energy Rate (\$/kWh)1	\$0.1006					
Inflation Rate	2.20%					

¹ Future rates determined using a 2.20% annual escalator.

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Development	Incentives	Total Utility Costs	Gross Customer Costs
Low Income Weatherization	\$0	\$11,012	\$9,249	\$6,373	\$229,138	\$255,771	\$0
Total	\$0	\$11,012	\$9,249	\$6,373	\$229,138	\$255,771	\$0

Table 2 - Low Income Weatherization Annual Program Costs

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	82,868	100%	82,868	100%	82,868	25
Total	82,868	100%	82,868	100%	82,868	25

Table 4 - Benefit/Cost Ratios by Measure Category							
Measure Group	PTRC	TRC	UCT	RIM	РСТ		
Low Income Weatherization with NEBs	1.39	1.36	0.33	0.21	n/a		
Low Income Weatherization	0.36	0.33	0.33	0.21	n/a		

Table 5 - Low Income Weatherization Program Level (without NEBs) Cost-Effectiveness (Load Shape – ID_Single_Family_Cooling

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.2054	\$255,771	\$91,564	-\$164,207	0.36
Total Resource Cost Test (TRC) No Adder	\$0.2054	\$255,771	\$83,240	-\$172,531	0.33
Utility Cost Test (UCT)	\$0.2054	\$255,771	\$83,240	-\$172,531	0.33
Rate Impact Test (RIM)		\$390,600	\$83,240	-\$307,361	0.21
Participant Cost Test (PCT)		\$0	\$363,967	\$363,967	n/a
Lifecycle Revenue Impacts (\$/kWh)					\$0.000034779
Discounted Participant Payback (years)					n/a

PY2018 Idaho Cost-Effectiveness Results – Low Income Weatherization April 3, 2019 Page 3 of 3

In addition to the energy benefits reported above, the Low Income program offers significant nonenergy benefits (NEBs). Table 6 details the non-energy benefits and Table 7 provides the costeffectiveness results.

Table 6 - Low Income Weatherization Non-Energy Benefits								
Non-Energy Benefit	Program Impact	Perspective Adjusted						
Health & Safety Benefit	\$166,540.98	PTRC, TRC						
Pmt Arrearage & Assist	\$98,048.00	PTRC, TRC						
Total	\$264,588.98							

Table 7 - Low Income Weatherization Program (with NEBs) Level Cost-Effectiveness Results (Load Shape – ID_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.2054	\$255,771	\$356,153	\$100,382	1.39
Total Resource Cost Test (TRC) No Adder	\$0.2054	\$255,771	\$347,829	\$92,058	1.36
Utility Cost Test (UCT)	\$0.2054	\$255,771	\$83,240	-\$172,531	0.33
Rate Impact Test (RIM)		\$390,600	\$83,240	-\$307,361	0.21
Participant Cost Test (PCT)		\$0	\$363,967	\$363,967	n/a
Lifecycle Revenue Impacts (\$/kWh)				S	\$0.0000034779
Discounted Participant Payback (years)					n/a

NAVIGANT

Memorandum

To: Esther Giezendanner and Brian Ludwig, PacifiCorp
From: David Basak, Navigant
Date: April 3, 2019
Re: Cost-Effectiveness Results for the Wattsmart Business Program - Idaho

Navigant estimated the cost-effectiveness results for the Idaho Wattsmart Business Program, based on 2018 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program and for the 13 measure categories.

Cost-effectiveness was tested using the 2017 IRP decrement for all measure categories. The program passes the UCT cost-effectiveness test. The memo consists of the following tables.

- Table 1 Utility Inputs
- Table 2 Annual Wattsmart Business Program Costs by Measure Category
- Table 3 Annual Wattsmart Business Program Savings by Measure Category
- Table 4 Benefit/Cost Ratios by Measure Category
- Table 5 Wattsmart Business Program Level Cost-Effectiveness Results
- Table 6 Wattsmart Business Additional Measures Cost-Effectiveness Results
- Table 7 Wattsmart Business Appliances Cost-Effectiveness Results
- Table 8 Wattsmart Business Building Shell Cost-Effectiveness Results
- Table 9 Wattsmart Business Compressed Air Cost-Effectiveness Results
- Table 10 Wattsmart Business Direct Install Cost-Effectiveness Results
- Table 11 Wattsmart Business Energy Management Cost-Effectiveness Results
- Table 12 Wattsmart Business Farm & Dairy Cost-Effectiveness Results
- Table 13 Wattsmart Business Food Service Equipment Cost-Effectiveness Results
- Table 14 Wattsmart Business HVAC Cost-Effectiveness Results
- Table 15 Wattsmart Business Irrigation Cost-Effectiveness Results
- Table 16 Wattsmart Business Lighting Cost-Effectiveness Results
- Table 17 Wattsmart Business Motors Cost-Effectiveness Results
- Table 18 Wattsmart Business Refrigeration Cost-Effectiveness Results

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Parameter	Value
Discount Rate	6.57%
Commercial Line Loss	10.75%
Industrial Line Loss	7.52%
Irrigation Line Loss	11.45%
Commercial Energy Rate (\$/kWh)1	\$0.0861
Industrial Energy Rate (\$/kWh)1	\$0.0622
Irrigation Energy Rate (\$/kWh)1	\$0.0897
Inflation Rate	2.20%

Table 1 - Utility Inputs

¹ Future rates determined using a 2.20% annual escalator.

Measure Category	Engineering Costs	Utility Admin	Program Delivery	Program Dev.	Inspections	Incentives	Total Utility Costs	Gross Customer Costs
Additional Measures	\$1,366	\$89	\$0	\$65	\$0	\$1,776	\$3,296	\$10,193
Appliances	\$0	\$0	\$5	\$0	\$0	\$100	\$106	\$460
Building Shell	\$0	\$615	\$13,488	\$452	\$0	\$25,214	\$39,770	\$89,390
Compressed Air	\$0	\$718	\$70,029	\$528	\$0	\$12,007	\$83,282	\$28,212
Direct Install	\$0	\$18,035	\$263,177	\$11,171	\$0	\$588,443	\$880,825	\$196,148
Energy Management	\$146,786	\$19,813	\$0	\$4,561	\$0	\$16,571	\$187,731	\$62,049
Farm & Dairy	\$0	\$581	\$94,632	\$427	\$0	\$11,122	\$106,761	\$23,725
Food Service Equipment	\$0	\$127	\$2,795	\$94	\$0	\$1,850	\$4,866	\$3,069
HVAC	\$39,810	\$4,856	\$10,720	\$1,711	\$0	\$45,171	\$102,268	\$128,624
Irrigation	\$6,326	\$4,949	\$106,332	\$14,229	\$0	\$219,519	\$351,356	\$641,186
Lighting	\$2,283	\$58,693	\$635,282	\$25,194	\$35,936	\$420,600	\$1,177,987	\$1,570,709
Motors	\$65,836	\$2,821	\$4,061	\$2,082	\$0	\$24,064	\$98,864	\$60,614
Refrigeration	\$1,617	\$105	\$0	\$77	\$0	\$684	\$2,483	\$1,630
Total	\$264,024	\$111,402	\$1,200,522	\$60,591	\$35,936	\$1,367,120	\$3,039,595	\$2,816,009

Table 2 – Annual Wattsmart Business Program Costs by Measure Category

Measure Category	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Additional Measures	11,840	72%	8,525	89%	7,587	20
Appliances	32	72%	23	89%	21	14
Building Shell	82,123	72%	59,129	89%	52,624	15
Compressed Air	95,856	100%	95,856	84%	80,519	15
Direct Install	2,029,112	94%	1,907,365	89%	1,697,555	12
Energy Management	828,535	100%	828,535	84%	695,969	8
Farm & Dairy	77,545	97%	75,219	74%	55,662	10
Food Service Equipment	17,018	72%	12,253	89%	10,905	13
HVAC	310,814	100%	310,814	65%	202,029	16
Irrigation	2,584,719	97%	2,507,177	74%	1,855,311	7
Lighting	4,576,320	94%	4,301,741	89%	3,828,549	14
Motors	378,158	84%	317,653	77%	244,593	15
Refrigeration	14,016	100%	14,016	100%	14,016	15
Total	11,006,088	95%	10,438,305	84%	8,745,340	12

Table 3 – Annual Wattsmart Business Program Savings by Measure Category

Table 4 - Benefit/Cost Ratios by Measure Category Measure Category									
Measure Category	FIRC	IKC	001		FCI				
Additional Measures	0.53	0.48	1.54	0.40	1.19				
Appliances	0.02	0.02	0.09	0.07	0.27				
Building Shell	0.35	0.32	0.76	0.33	0.94				
Compressed Air	0.46	0.42	0.48	0.24	3.83				
Direct Install	1.50	1.36	0.72	0.28	11.17				
Energy Management	0.74	0.67	0.80	0.27	7.31				
Farm & Dairy	0.18	0.17	0.18	0.13	2.80				
Food Service Equipment	0.88	0.80	0.95	0.31	4.20				
HVAC	0.87	0.79	1.09	0.37	2.74				
Irrigation	0.80	0.73	1.26	0.31	2.56				
Lighting	0.89	0.81	1.49	0.37	2.81				
Motors	1.10	1.00	1.23	0.35	5.65				
Refrigeration	2.22	2.02	2.79	0.42	9.03				
Total	0.90	0.82	1.09	0.33	3.44				

Table 5 – Wattsmart Business Program Level Cost-Effectiveness Results							
Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio		
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0518	\$4,036,509	\$3,648,672	-\$387,837	0.90		
Total Resource Cost Test (TRC) No Adder	\$0.0518	\$4,036,509	\$3,316,941	-\$719,567	0.82		
Utility Cost Test (UCT)	\$0.0390	\$3,039,595	\$3,316,941	\$277,347	1.09		
Rate Impact Test (RIM)		\$10,091,253	\$3,316,941	-\$6,774,311	0.33		
Participant Cost Test (PCT)		\$2,816,009	\$9,693,496	\$6,877,487	3.44		
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000110750		
Discounted Participant Payback (years)					1.95		

Table 5 Wettemart Business Brogram Lavel Cast Effectiveness Besults

Table 6 through Table 18 provide cost-effectiveness results for all 13 measures.

Table 6 - Wattsmart Business Additional Measures Cost-Effectiveness Results (Load Shape – ID Miscellaneous Mfg General)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio		
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1061	\$10,592	\$5,610	-\$4,982	0.53		
Total Resource Cost Test (TRC) No Adder	\$0.1061	\$10,592	\$5,067	-\$5,525	0.48		
Utility Cost Test (UCT)	\$0.0330	\$3,296	\$5,067	\$1,771	1.54		
Rate Impact Test (RIM)		\$12,530	\$5,067	-\$7,463	0.40		
Participant Cost Test (PCT)		\$10,193	\$12,151	\$1,958	1.19		
Lifecycle Revenue Impacts (\$/kWh)					\$0.000001058		
Discounted Participant Payback (years)					17.38		

Table 7 - Wattsmart Business Appliances Cost-Effectiveness Results (Load Shape – ID Miscellaneous Water Heat)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$1.9634	\$415	\$10	-\$405	0.02
Total Resource Cost Test (TRC) No Adder	\$1.9634	\$415	\$9	-\$406	0.02
Utility Cost Test (UCT)	\$0.4998	\$106	\$9	-\$97	0.09
Rate Impact Test (RIM)		\$125	\$9	-\$116	0.07
Participant Cost Test (PCT)		\$460	\$122	-\$338	0.27
Lifecycle Revenue Impacts (\$/kWh)					\$0.000000024
Discounted Participant Payback (years	5)				n/a

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1650	\$94,113	\$33,337	-\$60,776	0.35
Total Resource Cost Test (TRC) No Adder	\$0.1650	\$94,113	\$30,306	-\$63,806	0.32
Utility Cost Test (UCT)	\$0.0697	\$39,770	\$30,306	-\$9,463	0.76
Rate Impact Test (RIM)		\$92,435	\$30,306	-\$62,129	0.33
Participant Cost Test (PCT)		\$89,390	\$84,389	-\$5,001	0.94
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000011773
Discounted Participant Payback (yea	rs)				20.00

Table 8 - Wattsmart Business Building Shell Cost-Effectiveness Results (Load Shape – ID School Space Cool)

Table 9 - Wattsmart Business Compressed Air Cost-Effectiveness Results (Load Shape – ID_Miscellaneous_Mfg_General)

(
Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio			
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1088	\$94,973	\$44,118	-\$50,855	0.46			
Total Resource Cost Test (TRC) No Adder	\$0.1088	\$94,973	\$40,108	-\$54,865	0.42			
Utility Cost Test (UCT)	\$0.0955	\$83,282	\$40,108	-\$43,174	0.48			
Rate Impact Test (RIM)		\$163,864	\$40,108	-\$123,756	0.24			
Participant Cost Test (PCT)		\$28,212	\$107,938	\$79,726	3.83			
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000023452			
Discounted Participant Payback (years)					2.36			

Table 10 - Wattsmart Business Direct Install Cost-Effectiveness Results (Load Shape – ID_Miscellaneous_Lighting)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0299	\$466,954	\$699,553	\$232,600	1.50
Total Resource Cost Test (TRC) No Adder	\$0.0299	\$466,954	\$635,958	\$169,004	1.36
Utility Cost Test (UCT)	\$0.0565	\$880,825	\$635,958	-\$244,867	0.72
Rate Impact Test (RIM)		\$2,306,791	\$635,958	-\$1,670,834	0.28
Participant Cost Test (PCT)		\$196,148	\$2,190,652	\$1,994,504	11.17
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000396722
Discounted Participant Payback (year	rs)				n/a

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Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0534	\$223,281	\$164,705	-\$58,576	0.74
Total Resource Cost Test (TRC) No Adder	\$0.0534	\$223,281	\$149,732	-\$73,549	0.67
Utility Cost Test (UCT)	\$0.0449	\$187,731	\$149,732	-\$37,999	0.80
Rate Impact Test (RIM)		\$554,835	\$149,732	-\$405,103	0.27
Participant Cost Test (PCT)		\$62,049	\$453,599	\$391,550	7.31
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000144741
Discounted Participant Payback (years)					0.83

Table 11 - Wattsmart Business Energy Management Cost-Effectiveness Results (Load Shape – ID_Miscellaneous_Mfg_General)

Table 12 - Wattsmart Business Farm & Dairy Cost-Effectiveness Results (Load Shape – ID_Irrigation_General)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.2554	\$113,196	\$20,620	-\$92,576	0.18
Total Resource Cost Test (TRC) No Adder	\$0.2554	\$113,196	\$18,746	-\$94,450	0.17
Utility Cost Test (UCT)	\$0.2409	\$106,761	\$18,746	-\$88,016	0.18
Rate Impact Test (RIM)		\$147,623	\$18,746	-\$128,878	0.13
Participant Cost Test (PCT)		\$23,725	\$66,341	\$42,616	2.80
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000036781
Discounted Participant Payback (year	rs)				2.67

Table 13 - Wattsmart Business Food Service Equipment Cost-Effectiveness Results (Load Shape – ID_Miscellaneous_Mfg_General)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0540	\$5,748	\$5,063	-\$685	0.88
Total Resource Cost Test (TRC) No Adder	\$0.0540	\$5,748	\$4,603	-\$1,145	0.80
Utility Cost Test (UCT)	\$0.0457	\$4,866	\$4,603	-\$264	0.95
Rate Impact Test (RIM)		\$14,689	\$4,603	-\$10,087	0.31
Participant Cost Test (PCT)		\$3,069	\$12,887	\$9,818	4.20
Lifecycle Revenue Impacts (\$/kWh)					\$0.000002209
Discounted Participant Payback (years)					1.28

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0619	\$140,703	\$122,718	-\$17,985	0.87
Total Resource Cost Test (TRC) No Adder	\$0.0619	\$140,703	\$111,562	-\$29,141	0.79
Utility Cost Test (UCT)	\$0.0450	\$102,268	\$111,562	\$9,294	1.09
Rate Impact Test (RIM)		\$301,759	\$111,562	-\$190,197	0.37
Participant Cost Test (PCT)		\$128,624	\$352,080	\$223,456	2.74
Lifecycle Revenue Impacts (\$/kWh)					\$0.000033764
Discounted Participant Payback (years	s)				5.42

Table 14 - Wattsmart Business HVAC Cost-Effectiveness Results (Load Shape – ID School HVAC Aux)

Table 15 - Wattsmart Business Irrigation Cost-Effectiveness Results (Load Shape – ID_Irrigation_General)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0552	\$606,314	\$485,813	-\$120,500	0.80
Total Resource Cost Test (TRC) No Adder	\$0.0552	\$606,314	\$441,648	-\$164,665	0.73
Utility Cost Test (UCT)	\$0.0320	\$351,356	\$441,648	\$90,293	1.26
Rate Impact Test (RIM)		\$1,405,081	\$441,648	-\$963,433	0.31
Participant Cost Test (PCT)		\$641,186	\$1,643,473	\$1,002,288	2.56
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000393708
Discounted Participant Payback (year	s)				2.57

Table 16 - Wattsmart Business Lighting Cost-Effectiveness Results (Load Shape – ID_Miscellaneous_Lighting)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0539	\$2,155,319	\$1,925,363	-\$229,956	0.89
Total Resource Cost Test (TRC) No Adder	\$0.0539	\$2,155,319	\$1,750,330	-\$404,989	0.81
Utility Cost Test (UCT)	\$0.0295	\$1,177,987	\$1,750,330	\$572,342	1.49
Rate Impact Test (RIM)		\$4,731,177	\$1,750,330	-\$2,980,847	0.37
Participant Cost Test (PCT)		\$1,570,709	\$4,412,948	\$2,842,238	2.81
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000605742
Discounted Participant Payback (years)					3.75

		Sechancous_			
Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0458	\$121,473	\$134,142	\$12,669	1.10
Total Resource Cost Test (TRC) No Adder	\$0.0458	\$121,473	\$121,947	\$474	1.00
Utility Cost Test (UCT)	\$0.0373	\$98,864	\$121,947	\$23,083	1.23
Rate Impact Test (RIM)		\$343,833	\$121,947	-\$221,886	0.35
Participant Cost Test (PCT)		\$60,614	\$342,205	\$281,591	5.65
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000042048
Discounted Participant Payback (yea	rs)				1.73

Table 17 - Wattsmart Business Motors Cost-Effectiveness Results (Load Shape – ID_Miscellaneous_Mfg_General)

Table 18 - Wattsmart Business Refrigeration Cost-Effectiveness Results (Load Shape – ID_Grocery_Refrigeration)

	(
Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) Conservation Adder	+ \$0.0226	\$3,429	\$7,619	\$4,190	2.22
Total Resource Cost Test (TRC) No Adder	\$0.0226	\$3,429	\$6,927	\$3,498	2.02
Utility Cost Test (UCT)	\$0.0163	\$2,483	\$6,927	\$4,444	2.79
Rate Impact Test (RIM)		\$16,510	\$6,927	-\$9,583	0.42
Participant Cost Test (PCT)		\$1,630	\$14,711	\$13,081	9.03
Lifecycle Revenue Impacts (\$/kWh)				\$0.000001816
Discounted Participant Payback (y	ears)				0.77


Appendix 2 Program Expenditures by Category

2019 Brogram		dmin - Prog		Admin -		Customer	D	ealer/Trade Ally	En	gineering	F	Program	In	spection	м	arketing	Pro	og Devel	т	otal Cast
2018 Flogram	De	livery Total	U	ility Total	Inc	centive Total		Incentive Total		Total	м	&V Total		Total		Total		Total		
Home Energy Reporting	\$	151,808	\$	7,766							\$	-			\$	-	\$	1,019	\$	160,594
Home Energy Savings	\$	416,725	\$	12,588	\$	77,999	\$	332,284			\$	3,638			\$	1,986	\$	1,526	\$	846,746
Low Income Weatherization	\$	9,249	\$	11,012	\$	229,138	\$	-			\$	-	\$	-	\$	1,235	\$	5,138	\$	255,771
Low Income Education			\$	25,000											\$	-	\$	-	\$	25,000
wattsmart Business - Agricultural	\$	87,283	\$	4,949	\$	219,739			\$	6,326	\$	-	\$	-	\$	-	\$	-	\$	318,297
wattsmart Business - Commercial	\$	42,740	\$	55,647	\$	1,051,200			\$	214,512	\$	-	\$	31,645	\$	-	\$	-	\$	1,395,744
wattsmart Business - Industrial	\$	19,049	\$	50,806	\$	96,181			\$	43,185	\$	-	\$	4,291	\$	-	\$	-	\$	213,512
wattsmart Business - Portfolio	\$	1,051,450	\$	-	\$	-			\$	-	\$	6,126			\$	46,407	\$	8,058	\$	1,112,041
2018 Program cost	Ś	1.778.304	Ś	167.768	Ś	1.674.257	Ś	332.284	Ś	264.024	Ś	9.763	Ś	35.936	Ś	49.628	Ś	15.742	Ś	4.327.705
ŭ			· ·										· ·			•	-			
	Ac	dmin - Prog		Admin -		Customer	D	ealer/Trade Ally	En	gineering	P	ortfolio	In	spection	м	arketing	Pro	og Devel	_	
2018 Portfolio Activity	De	livery Total	UI	ility Total	Inc	centive Total		Incentive Total		Total	ΕIV	1&V Total		Total		Total		Total	10	otal Cost
Outreach & Comm - wattsmart	\$	36,740	\$	1,292											\$	141,820			\$	179,853
Portfolio - DSM Central	\$	7,380	\$	2,258															\$	9,638
Portfolio - TRL			\$	2,279															\$	2,279
Portfolio - Potential Study	\$	62,503	\$	3,876															\$	66,379
Portfolio Evaluation - C&I			\$	11,615							\$	143,053							\$	154,668
Portfolio Evaluation - Residential			\$	7,850							\$	17,725							\$	25,575
Total 2018 Portfolio Cost	\$	1,884,927	\$	196,938	\$	1,674,257	\$	332,284	\$	264,024	\$	170,542	\$	35,936	\$	191,448	\$	15,742	\$	4,766,097



Appendix 3 Idaho Energy Efficiency Measure Installation Verifications

Idaho Measure Installation Verifications

Low Income Weatherization

All projects

- All measures are qualified through US Department of Energy approved audit tool.
- 100 percent inspection by agency inspector of all homes treated, reconciling work completed and quality (corrective action includes measure verification) prior to invoicing Company.
- Community Action Partnership Association of Idaho (CAPAI) follows with random inspections.
- Company program manager and/or inspector joins CAPAI and state inspectors during their monitoring session provided their random selection of homes includes dwellings funded by Rocky Mountain Power.

Home Energy Savings

Site inspections are performed 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.

- Duct sealing
- Duct sealing and insulation
- Ductless heat pumps
- Gas furnace with electrically commutated motor (ECM)
- Ground source heat pumps
- Heat pumps
- Heat pump best practices installation and proper sizing
- Heat pump tune-ups
- 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.

- Central air conditioners
- Clothes washers
- Evaporative coolers
- Smart Thermostats

Site inspections are not conducted for the following measures, which 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.

- LED bulbs
- Light fixtures
- Room air conditioners
- Advanced power strips

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 party 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 has 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 Home Energy Savings Retailers 2018

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Retailer	City	State	LEDs	Fixtures
Ace Hardware #15881	Lava Hot Spring	ID	х	
Costco 1033	Pocatello	ID	х	Х
Do It Best - Malad City	Malad City	ID	х	
Dollar Tree #3691	Rexburg	ID	х	
	Chubbuck			
Home Depot 1807	(Pocatello)	ID	Х	Х
Lowe's #2587	Pocatello	ID	х	
Thomas Market Inc. #1	Malad City	ID	х	
True Value #10217	Montpelier	ID	х	
Walmart #1878	Rexburg	ID	х	
Wal-Mart #1905	Blackfoot	ID	х	Х
Walmart 1995	СНИВВИСК	ID	х	

Table 1: 2018 Participating Midstream/Upstream Retailers

Table 2: 2018 Participating Downstream Retailers

Participating Retailer (Retailers who are actively enrolled in the program)	City	State	Clothes Washers - CEE Tier 2 and Above - Electric DHW & Electric Dryer - ID	Clothes Washers - CEE Tier 3 - Electric DHW & Electric Dryer - ID	Energy Efficient Clothes Washer	Smart Thermostat	Windows
Advanced Window Products Inc	Salt Lake	ПΤ					x
Allstates Home Pro	Franklin	ID					x
Amazing Siding of Idaho	Boise	ID					х
Best Buy #944	Idaho Falls	ID			х	х	
Campbell's Quality Exteriors	Idaho Falls	ID					x
Chris Kent Inc	Idaho Falls	ID					x
Costco #484	Orem	UT				х	
Denning's Showkase	Idaho Falls	ID			x		
High Country Glass & Mirror, Inc.	St. Anthony	ID					x
Home Depot #1802	Idaho Falls	ID			x	x	х З

Home Depot #4410	West Jordan	UT				x	
Home Depot #4414	Logan	UT				х	
Kohl's - Ammon	Ammon	ID				х	
Lowes	Idaho Falls	ID					
Lowe's	Pocatello	ID					
Lowe's #1906	Idaho Falls	ID	x	x	х	х	х
Lowe's #2275	Salt Lake City	UT				x	
Lowe's Home Centers	Pocatello	ID					
Lowes.com		UT			х		
Sears #2278	Idaho Falls	ID			х		
Sears #3290	Rexburg	ID			х		
Valley Glass	Idaho Falls	ID					х
Valley Glass Inc.	Ogden	UT					x
Verizon Wireless - Idaho Falls	Idaho Falls	ID				x	

Retailer located in Utah but participated in the program

Table 3: 2018 Non-Participating Downstream Retailers

Participating Retailer (Retailers who are actively enrolled in the program)	City	State	Clothes Washers - CEE Tier 2 and Above - Electric DHW & Electric Dryer - ID	Clothes Washers - CEE Tier 3 - Electric DHW & Electric Dryer - ID	Energy Efficient Clothes Washer	Smart Thermostat	Windows
Amazon.com	Seattle	WA				х	
BestBuy.com	Internet	NJ				x	
Ebajeshome.com	Miami	FL				х	
ebay.com	San Jose	CA				х	
Kohls.com	Middletown	ОН				x	
Nest.com	Palo Alto	CA				x	
Newegg.com	Whittier	СА				x	
Reve Exteriors	Portland	OR					х
Target.com	Minneapolis	MN				x	

Table 4: 2018 Participating Idaho HVAC Trade Allies

Trade Ally Name (Trade ally may be located outside of the territory)	City	State	Central Air Conditioner Equipment	Efficient Gas Furnace with ECM	Electric System to Heat Pump Conversion	Heat Pump, Ductless
Alpine Heating	Idaho Falls	ID		Х	Х	Х
Conan Heating Inc.	Idaho Falls	ID	Х	Х		Х
First Call Jewel Inc.	Idaho Falls	ID	Х	Х		Х
Kohl's - Ammon	Ammon	ID				
Modern Plumbing Heating & Electric	Rigby	ID	Х	Х		
Right Now, Inc	Caldwell	ID				Х

Table 5: 2018 Participating Idaho Weatherization Trade Allies

	City	State	Insulation-Attic	Insulation-Attic, Self- Installed	Insulation-Wall	Windows
Advanced Insulation	Idaho Falls	ID	х			
Allstates Home Pro	Franklin	ID				х
Amazing Siding of Idaho	Boise	ID				х
BDI Insulation of Idaho Falls	Idaho Falls	ID		х		
Campbell's Quality Exteriors	Idaho Falls	ID				х
Chris Kent Inc	Idaho Falls	ID				х
Doug's Repair	Rexburg	ID	х			
High Country Glass & Mirror, Inc.	St. Anthony	ID				х
Home Depot #1802	Idaho Falls	ID		х		х
Lowe's #1906	Idaho Falls	ID				х
Synergy Efficiency LLC	Chubbuck	ID	х			
Valley Glass	Idaho Falls	ID				х

Table 6: 2018 Participating Idaho Manufactured Homes Trade Allies

Trade Ally Name (Trade ally may be located outside of the territory)	City	State	Manufactured Homes Duct Sealing	No redemptions in 2017
Home Energy Experts	Centerville	UT	х	
Synergy Efficiency LLC	Chubbuck	ID	х	



Appendix 5 *watt*smart Business Energy Efficiency Alliance



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

Business Name

Search Results: 25 record(s) found

About Us	Service Areas	Company Name	Contact Information	Specialty	Business Type	Projects Completed	Distance (miles)
Premium Vendor Learn More: https://wattsmartbusine ss.com/premiumvendo rs/lms/	Idaho, Utah	Lighting & Maintenance Service Address: 663 West 4330 South Salt Lake City, UT 84123 Website: http://www.lmslighting. com	Phone: 801-281-0400 Name: Chris Munford Email: cmunford@Imslighting. com	Lighting	Contractor	66	
Premium Vendor	Idaho, Utah, Wyoming	Codale - Salt Lake City Address: 5225 West 2400 South Salt Lake City, UT 84120 Website:	Phone: 801-975-5525 Name: Tammy Smith Email: tammys@codale.com	Controls – Lighting, Lighting, Lighting instant incentives	Distributor	35	



Premium Vendor	Idaho, Utah, Wyoming	CED- Logan Address: 636 N. 600 W. Logan, UT 84321 Website: http://cedlogan.shopce d.com	Phone: 435-752-8905 Name: Devin Migliori Email: devinm@cedlogan.co m	Farm and dairy, Irrigation, Lighting, Lighting instant incentives	Distributor	2
	Idaho, Utah, Wyoming	Elite Energy Solutions Address: 162 S 1900 W Suite 100 Lindon, UT 84042 Website: http://www.eliteenergy solutions.com	Phone: 801-640-9779 Name: Chet Stevens Email: cstevens@elitees.net	Building envelope	Contractor	42
	Idaho, Utah, Wyoming	Automated Mechanical Address: 1574 West 2650 South Ogden, UT 84010 Website: http://www.automated mechanical.com	Phone: 801-525-9500 Name: Thomas Mudge Email: tmudge@automatedm echanical.com	Controls – HVAC, HVAC - evaporative, HVAC - unitary, HVAC check-up, Motors and VFDs	Contractor	39
	Idaho, Utah, Wyoming	Energy Management Collaborative IIc Address: 2890 Vicksburg Lane N Plymouth, MN 55447 Website: http://www.emcllc.com	Phone: 952-542-7968 Name: Jolene Fenn- Jansen Email: jfenn- jansen@emcllc.com	Lighting	Other	26
	Idaho	Hatch Lighting Inc Address: P.O. Box 51163 Idaho Falls, ID 83405 Website:	Phone: 208-200-3000 Name: Alban Hatch Email: alban@hatchlightingsu pply.com	Lighting	Distributor	23
	Idaho, Utah, Wyoming	BidEnergy Inc. Address: 1628 JFK Blvd, Suite 2100 Philadelphia, PA 19103 Website: http://bidenergy.com/	Phone: 215-732-4480 Name: Tim Mayo Email: tim.mayo@bidenergy.c om	Appliances, Building envelope, Controls – Lighting, Food service, HVAC - evaporative, HVAC - unitary, Lighting, Motors and VFDs, Office equipment	Other	9



Idaho, Utah, Wyoming	Engie Services U.S. Inc Address: 136 Longwater Drive, Suite 103 Norwell, MA 02061 Website: http://www.engieservic es.us	Phone: 781-563-4376 Name: Jamie Cragnoline Email: jamie.cragnoline@engi e.com	Controls – Lighting, HVAC - unitary, Lighting, Motors and VFDs	Contractor, Engineering_Firm	9
Idaho, Utah, Wyoming	Optica Lighting Address: 1772 Ross Dr Ogden, UT 84403 Website: http://www.opticalightin g.com	Phone: 801-510-6314 Name: Mike Walsh Email: mike@opticalighting.co m	Lighting	Contractor, Distributor	9
Idaho, Utah, Wyoming	Harris Lighting Products Address: 1405 west 800 north Preston, ID 83263 Website: http://www.haleymham blin.wixsite.com/harrisl p	Phone: 208-852-2890 Name: Chase Harris Email: chase@harrislightingpr oducts.com	Controls – Lighting, Lighting	Distributor, Manufacturer_Rep, Other	6
Idaho	Electrical Wholesale Supply Address: 1355 Fremont Ave Idaho Falls, ID 83402 Website: http://electricalwholesa lesupply.com/	Phone: 208-523-2800 Name: Neil Price Email: neil.price@electricalwh olesale.com	Controls – Lighting, Lighting	Distributor, Other	6
Idaho, Utah, Wyoming	Trane Address: 2817 South 1030 West Salt Lake City , UT 84119 Website: http://www.trane.com	Phone: 801-415-2032 Name: Mario Maestas Email: mmaestas@trane.com	Building envelope, Compressed air, Controls – HVAC, HVAC - evaporative, HVAC - unitary, HVAC check-up, Motors and VFDs, Other Specialty	Contractor, Distributor, Manufacturer_Rep, Other	5
Idaho, Wyoming	D&S Electrical Address: 455 South Eastern Avenue Idaho Falls, ID 83402 Website: http://www.d- s.com/index.html	Phone: 208-731-3701 Name: Dave Bennett Email: davebennett@d-s.com	Lighting, Motors and VFDs	Distributor	4



Idaho	CED - Idaho Falls Address: 1305 South Utah Avenue Idaho Falls, ID 83402 Website: https://ced- if.shopced.com	Phone: 208-523-2022 Name: Julian Abrajan Email: jabrajan@cedidahofall s.com	Controls – Lighting, Lighting, Lighting instant incentives	Distributor	2
Idaho	Platt Electric Supply- Pocatello Address: 2815 Garrett Way A Pocatello, ID 83201 Website:	Phone: 208-233-2002 Name: Mark Steed Email: mark.steed@platt.com	Lighting, Lighting instant incentives	Distributor	2
Idaho, Utah, Wyoming	Brilliant Lighting Center Address: 1964 N 400 E North Ogden, UT 84414 Website: http://www.brilliantlighti ngcenter.com	Phone: 435-327-1020 Name: Mark Miller Email: mcm605@gmail.com	Lighting, Lighting instant incentives	Distributor	2
Idaho, Utah, Wyoming	Relevant Solutions Address: 3186 Washington Street Salt Lake City, UT 84115 Website: http://www.relevantsol utions.com	Phone: 801-214-3317 Name: Alan Sweatfield Email: alan.sweatfield@relev antsolutions.com	Controls – HVAC, Motors and VFDs	Distributor	1
Idaho, Utah, Wyoming	BriteSwitch, LLC Address: 195 Nassau St, Ste 13 Princeton, NJ 08542 Website: http://www.briteswitch. com	Phone: 609-945-5349 Name: Laura Oliver Email: laura.oliver@briteswitc h.com	Controls – Lighting, Lighting	Other	1
Idaho, Utah, Wyoming	Long Building Technologies Address: 4689 S. Cherry St. Murray, UT 84123 Website: http://www.long.com/	Phone: 801-290-6506 Name: Paul Christiansen Email: pchristiansen@long.co m	HVAC - evaporative, HVAC instant incentives, Motors and VFDs	Distributor, Manufacturer_Rep	1



Idaho, Utah, Wyoming	ACES Companies Address: 33 N Main St. Suite 207 Logan, UT 84321 Website: https://www.acescomp anies.com/	Phone: 435-232-2821 Name: TY Haguewood Email: ty@acescompanies.co m	Lighting, Other Specialty	Contractor	1
Idaho, Utah, Wyoming	Comfort Solutions Address: 1470 Wall Ave Ogden, UT 84404 Website: http://www.comfortsolu tionsutah.com	Phone: 801-393-2206 Name: Adam Yearsley Email: adam@comfortsolution sutah.com	HVAC - unitary, HVAC instant incentives	Contractor	1
Idaho	Platt Electric Supply - Idaho Falls Address: 3020 S Yellowtone Hwy Idaho Falls, ID 83402 Website:	Phone: 801-597-0867 Name: Joey Golden Email: Joey.golden@platt.co m	Lighting, Lighting instant incentives	Distributor	1
Idaho, Utah	Lennox Industries Inc. Address: 1008 W 2780 S Salt Lake City, UT 84119 Website: http://www.lennoxcom mercial.com	Phone: 801-973-8889 Name: Jeff Barrett Email: jeff.barrett@lennoxind. com	HVAC - unitary	Distributor	1
Idaho, Utah, Wyoming	Clark's Quality Roofing, Inc. Address: 334 West Anderson Avenue Murray, UT 84107 Website: http://www.clarkroof.co m	Phone: 801-266-3575 Name: Hilary Clark Email: hilaryc@clarkroof.com	Building envelope	Contractor	1



Appendix 6 Idaho Measures

		Effective Date	En Calc
Program : Appliance Recycling - ID			
Measure Category : Appliances			
Freezers:Freezer Recycling	Residential		
Freezer Recycling - Secondary Market Intervention - ID	Freezer recycling, retailer pickup	07/01/2014	Unit m
Refrigerators:Refrigerator Recycling	Residential		
Refrigerator Recycling - Secondary Market Intervention - ID	Refrigerator recycling, retailer pickup	07/01/2014	Unit m
Measure Category : Food Service Equipment			
Freezers:Residential Freezer Recycling	Non-Residential		
Freezer Recycling (residential used in a business) - ID	Freezer recycling, residential unit at non-residential site	07/01/2014	Unit m
Refrigerators:Residential Refrigerator Recycling	Non-Residential		
Refrigerator Recycling (residential used in a business) - ID	Refrigerator recycling, residential unit at non-residential site	07/01/2014	Unit m
Measure Category : Lighting			
General Service Lamps:CFL Kit	Non-Residential		

nergy Savings culation method	Gross incremental annual electric savings (kWh/yr)	Savings unit

nust be in working	1,033	Measure	
nust be in working	1,022	Measure	

nust be in working	1,033	Measure
nust be in working	1,022	Measure

EISA Compliant	30.23	Measure
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		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
Measure Category : Appliances					
Clothes Washers:Clothes Washer - Electric DHW & Electric	Residential				
Clothes Washers - CEE Tier 2 - Electric DHW & Gas Dryer - ID	Energy efficient clothes washer	01/29/2016	Weighted CEC IMEF	84.1	Measure
Clothes Washers - CEE Tier 2 - Gas DHW & Electric Dryer - ID	Energy efficient clothes washer	01/29/2016	Weighted CEC IMEF	67.01	Measure
Clothes Washers - CEE Tier 3 - Electric DHW & Electric Dryer - ID	Energy efficient clothes washer	01/30/2016	Weighted CEC IMEF	180	Measure
Clothes Washers - CEE Tier 3 - Electric DHW & Gas Dryer - ID	Energy efficient clothes washer	01/29/2016	Weighted CEC IMEF	102	Measure
Clothes Washers - CEE Tier 3 - Gas DHW & Electric Dryer - ID	Energy efficient clothes washer	01/29/2016	Weighted CEC IMEF	76.98	Measure
Measure Category : Energy Kits					
Lighting:CFL Kit	Residential				
Energy Savings Kit - CFL - ID	Energy savings kit - 4-13 W CFLs	04/14/2014	EISA-compliant general	63.68	null
Lighting and Plumbing:Basic Kit	Residential				
Energy Savings Kit - Basic - 1 Bathroom - ID	Energy savings kit - 4-13W CFLs, 1.5 GPM kitchen aerator, 0.5 GPM bathroom aerator, 1.5 GPM showerhead	04/14/2014	EISA-compliant general	412.04	null
Energy Savings Kit - Basic - 2 Bathrooms - ID	Energy savings kit - 4-13W CFLs, 1.5 GPM kitchen aerator, 2- 0.5 GPM bathroom aerators, 2-1.5 GPM showerheads	04/14/2014	EISA-compliant general	734.63	null
Lighting and Plumbing:Better Kit	Residential				
Energy Savings Kit - Better - 1 Bathroom - ID	Energy savings kit - 4-13W CFLs, 1.5 GPM kitchen aerator, 0.5 GPM bathroom aerator, 1.5 GPM handheld showerhead	04/14/2014	EISA-compliant general	412.04	null
Energy Savings Kit - Better - 2 Bathrooms - ID	Energy savings kit - 4-13W CFLs, 1.5 GPM kitchen aerator, 2- 0.5 GPM bathroom aerators, 2-1.5 GPM handheld showerheads	04/14/2014	EISA-compliant general	734.63	null
Measure Category : HVAC					
Controls and Thermostats:Thermostat	Residential				
Smart T-stat w/ ASHP - ID	Wi-Fi enabled, programmable climate control device that allows the user to customize a schedule to control the temperature of their home throughout the day	01/30/2016	Standard manual or	1,063	Measure
Smart T-stat w/ EFAF - ID	Wi-Fi enabled, programmable climate control device that allows the user to customize a schedule to control the temperature of their home throughout the day	01/30/2016	Standard manual or	1,330	Measure
Smart T-stat w/ EFAF + CAC - ID	Wi-Fi enabled, programmable climate control device that allows the user to customize a schedule to control the temperature of their home throughout the day	01/30/2016	Standard manual or	1,448	Measure
Smart_Tstat_W/Any_Gas_Instant_Rebates - ID	Wi-Fi enabled smart thermostat with occupancy sensing technology	09/03/2018	Weighted-Standard	162	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
Smart_Tstat_w/ASHP_Instant_Rebates - ID	Wi-Fi enabled smart thermostat with occupancy sensing technology	03/01/2018	Weighted-Standard	1,063	Measure
Smart_Tstat_W/EFAF_CAC_Instant_Rebates - ID	Wi-Fi enabled smart thermostat with occupancy sensing technology	03/01/2018	Weighted-Standard	1,448	Measure
Smart_Tstat_w/EFAF_Instant_Rebates - ID	Wi-Fi enabled smart thermostat with occupancy sensing technology	03/01/2018	Weighted-Standard	1,330	Measure
Cooling:Evaporative Cooler	Residential				
Evaporative Cooler - Min 3,500 CFM - Self Install - ID	Evaporative coolers	01/30/2016	CAC	368	Measure
Ducting:Duct Sealing and/or Insulation	Residential				
Duct Sealing & Insulation - Electric Heat - ID	Seal and insulate existing duct work	01/30/2016	Unsealed duct work;	3,802	Measure
Duct Sealing Only - Pre-Insulated Ducts - Electric FAF with CAC - ID	Seal existing duct work - Pre-insulated ducts	08/20/2012	Unsealed duct work with	2,177	Measure
Duct Sealing Only - Pre-Insulated Ducts - Electric FAF without CAC - ID	Seal existing duct work - Pre-insulated ducts	08/20/2012	Unsealed duct work with	2,138	Measure
Duct Sealing Only - Pre-Insulated Ducts - Electric Heat Pump Heating system - ID	Seal existing duct work - Pre-insulated ducts	08/20/2012	Unsealed duct work with	2,059	Measure
Heat Pump:Heat Pump - Ductless	Residential				
New Homes Ductless Heat Pump - ID	New Homes Ductless Heat Pump - ID	01/30/2016	New Home with Zonal	3,089	Measure
Measure Category : Lighting					
General Service Fixtures:CFL	 Residential				
CFL Fixture - ENERGY STAR - ID	ENERGY STAR general service CFL fixture	04/14/2014	Standard Fixture	43.66	Measure
General Service Fixtures:LED	Residential				
LED Fixture - ENERGY STAR - ID	ENERGY STAR general service LED fixture	04/14/2014	Standard Fixture	40.94	Measure
General Service Lamps:CFL	Residential				
CFL General Purpose - A-Lamp: 10 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	Incandescent general	10.08	Measure
CFL General Purpose - A-Lamp: 11 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	12.82	Measure
CFL General Purpose - A-Lamp: 11 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	9.55	Measure
CFL General Purpose - A-Lamp: 11 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	9.55	Measure
CFL General Purpose - A-Lamp: 13 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	21.37	Measure
CFL General Purpose - A-Lamp: 13 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	15.92	Measure
CFL General Purpose - A-Lamp: 13 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	15.92	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
CFL General Purpose - A-Lamp: 14 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	20.66	Measure
CFL General Purpose - A-Lamp: 14 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	15.39	Measure
CFL General Purpose - A-Lamp: 14 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	15.39	Measure
CFL General Purpose - A-Lamp: 14 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	15.39	Measure
CFL General Purpose - A-Lamp: 15 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	19.94	Measure
CFL General Purpose - A-Lamp: 15 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	14.86	Measure
CFL General Purpose - A-Lamp: 15 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	14.86	Measure
CFL General Purpose - A-Lamp: 19 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	17.1	Measure
CFL General Purpose - A-Lamp: 19 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	12.73	Measure
CFL General Purpose - A-Lamp: 19 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	12.73	Measure
CFL General Purpose - A-Lamp: 20 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	23.51	Measure
CFL General Purpose - A-Lamp: 20 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	17.51	Measure
CFL General Purpose - A-Lamp: 20 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	17.51	Measure
CFL General Purpose - A-Lamp: 9 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	14.25	Measure
CFL General Purpose - A-Lamp: 9 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	10.61	Measure
CFL General Purpose - A-Lamp: 9 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	10.61	Measure
CFL General Purpose - Spiral: 10 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	13.53	Measure
CFL General Purpose - Spiral: 10 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	10.08	Measure
CFL General Purpose - Spiral: 10 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	10.08	Measure
CFL General Purpose - Spiral: 11 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	12.82	Measure
CFL General Purpose - Spiral: 11 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	9.55	Measure
CFL General Purpose - Spiral: 11 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	9.55	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
CFL General Purpose - Spiral: 12 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	12.11	Measure
CFL General Purpose - Spiral: 12 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	9.02	Measure
CFL General Purpose - Spiral: 12 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	9.02	Measure
CFL General Purpose - Spiral: 13 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	21.37	Measure
CFL General Purpose - Spiral: 13 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	15.92	Measure
CFL General Purpose - Spiral: 13 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	15.92	Measure
CFL General Purpose - Spiral: 14 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	20.66	Measure
CFL General Purpose - Spiral: 14 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	15.39	Measure
CFL General Purpose - Spiral: 14 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	15.39	Measure
CFL General Purpose - Spiral: 15 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	27.07	Measure
CFL General Purpose - Spiral: 15 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	20.16	Measure
CFL General Purpose - Spiral: 18 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	24.93	Measure
CFL General Purpose - Spiral: 18 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	18.57	Measure
CFL General Purpose - Spiral: 18 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	18.57	Measure
CFL General Purpose - Spiral: 19 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	24.22	Measure
CFL General Purpose - Spiral: 19 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	18.04	Measure
CFL General Purpose - Spiral: 19 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	18.04	Measure
CFL General Purpose - Spiral: 20 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	23.51	Measure
CFL General Purpose - Spiral: 20 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	17.51	Measure
CFL General Purpose - Spiral: 20 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	17.51	Measure
CFL General Purpose - Spiral: 21 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	27.06	Measure
CFL General Purpose - Spiral: 22 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	26.53	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
CFL General Purpose - Spiral: 23 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	34.9	Measure
CFL General Purpose - Spiral: 23 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	26	Measure
CFL General Purpose - Spiral: 23 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	26	Measure
CFL General Purpose - Spiral: 24 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	25.47	Measure
CFL General Purpose - Spiral: 25 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	24.94	Measure
CFL General Purpose - Spiral: 26 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	32.77	Measure
CFL General Purpose - Spiral: 26 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	24.41	Measure
CFL General Purpose - Spiral: 26 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	24.41	Measure
CFL General Purpose - Spiral: 27 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	32.05	Measure
CFL General Purpose - Spiral: 27 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	23.88	Measure
CFL General Purpose - Spiral: 27 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	23.88	Measure
CFL General Purpose - Spiral: 28 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	31.34	Measure
CFL General Purpose - Spiral: 28 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	23.35	Measure
CFL General Purpose - Spiral: 28 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	23.35	Measure
CFL General Purpose - Spiral: 29 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	30.63	Measure
CFL General Purpose - Spiral: 29 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	22.82	Measure
CFL General Purpose - Spiral: 29 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	22.82	Measure
CFL General Purpose - Spiral: 3 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	6.37	Measure
CFL General Purpose - Spiral: 3 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	6.37	Measure
CFL General Purpose - Spiral: 30 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	29.92	Measure
CFL General Purpose - Spiral: 30 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	22.28	Measure
CFL General Purpose - Spiral: 30 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	22.28	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
CFL General Purpose - Spiral: 31 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	29.2	Measure
CFL General Purpose - Spiral: 31 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	21.75	Measure
CFL General Purpose - Spiral: 31 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	21.75	Measure
CFL General Purpose - Spiral: 32 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	28.49	Measure
CFL General Purpose - Spiral: 32 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	21.22	Measure
CFL General Purpose - Spiral: 32 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	21.22	Measure
CFL General Purpose - Spiral: 4 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	14.96	Measure
CFL General Purpose - Spiral: 4 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	11.14	Measure
CFL General Purpose - Spiral: 4 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	11.14	Measure
CFL General Purpose - Spiral: 5 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	17.81	Measure
CFL General Purpose - Spiral: 5 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	13.26	Measure
CFL General Purpose - Spiral: 5 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	13.26	Measure
CFL General Purpose - Spiral: 6 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	16.38	Measure
CFL General Purpose - Spiral: 6 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	12.2	Measure
CFL General Purpose - Spiral: 6 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	12.2	Measure
CFL General Purpose - Spiral: 7 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	15.67	Measure
CFL General Purpose - Spiral: 7 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	11.67	Measure
CFL General Purpose - Spiral: 7 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	11.67	Measure
CFL General Purpose - Spiral: 8 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	14.96	Measure
CFL General Purpose - Spiral: 8 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	11.14	Measure
CFL General Purpose - Spiral: 8 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	11.14	Measure
CFL General Purpose - Spiral: 9 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	14.25	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
CFL General Purpose - Spiral: 9 watts - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	null	10.61	Measure
CFL General Purpose - Spiral: 9 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-General Purpose	04/14/2014	EISA-compliant general	10.61	Measure
General Service Lamps:LED	Residential				
LED General: 10 watts - ID	Energy efficient Light Emitting Diode Lamps-General Purpose	04/14/2014	null	23.99	Measure
LED General: 12 watts - ID	Energy efficient Light Emitting Diode Lamps-General Purpose	04/14/2014	null	22.53	Measure
LED General: 13 watts - ID	Energy efficient Light Emitting Diode Lamps-General Purpose	04/14/2014	null	21.81	Measure
LED General: 14 watts - ID	Energy efficient Light Emitting Diode Lamps-General Purpose	04/14/2014	null	21.08	Measure
LED General: 15 watts - ID	Energy efficient Light Emitting Diode Lamps-General Purpose	04/14/2014	null	20.35	Measure
LED General: 16 watts - ID	Energy efficient Light Emitting Diode Lamps-General Purpose	04/14/2014	null	26.89	Measure
LED General: 8 watts - ID	Energy efficient Light Emitting Diode Lamps-General Purpose	04/14/2014	null	15.26	Measure
Specialty Lamps:CFL	Residential		I		
CFL Specialty - 3-Way: 10,20,28 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	42.45	Measure
CFL Specialty - 3-Way: 10,20,28 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	42.45	Measure
CFL Specialty - 3-Way: 10,20,28 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	42.45	Measure
CFL Specialty - 3-Way: 12,19,28 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	42.98	Measure
CFL Specialty - 3-Way: 12,19,28 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	42.98	Measure
CFL Specialty - 3-Way: 12,19,28 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	42.98	Measure
CFL Specialty - 3-Way: 12,20,26 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	42.45	Measure
CFL Specialty - 3-Way: 12,20,26 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	42.45	Measure
CFL Specialty - 3-Way: 12,20,26 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	42.45	Measure
CFL Specialty - 3-Way: 12,20,29 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	56.98	Measure
CFL Specialty - 3-Way: 12,20,29 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	42.45	Measure
CFL Specialty - 3-Way: 12,20,29 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	42.45	Measure
CFL Specialty - 3-Way: 12,21,32 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	56.27	Measure
CFL Specialty - 3-Way: 12,21,32 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	41.92	Measure
CFL Specialty - 3-Way: 12,21,32 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	41.92	Measure
CFL Specialty - 3-Way: 12,22,33 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	41.39	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
CFL Specialty - 3-Way: 12,22,33 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	41.39	Measure
CFL Specialty - 3-Way: 12,22,33 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	41.39	Measure
CFL Specialty - 3-Way: 12,23,29 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	40.86	Measure
CFL Specialty - 3-Way: 12,23,29 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	40.86	Measure
CFL Specialty - 3-Way: 12,23,29 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	40.86	Measure
CFL Specialty - 3-Way: 13,20,25 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	42.45	Measure
CFL Specialty - 3-Way: 13,20,25 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	42.45	Measure
CFL Specialty - 3-Way: 13,20,25 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	42.45	Measure
CFL Specialty - 3-Way: 14,19,32 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	57.7	Measure
CFL Specialty - 3-Way: 14,19,32 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	42.98	Measure
CFL Specialty - 3-Way: 14,19,32 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	42.98	Measure
CFL Specialty - 3-Way: 15,26,40 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	39.26	Measure
CFL Specialty - 3-Way: 15,26,40 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	39.26	Measure
CFL Specialty - 3-Way: 15,26,40 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	39.26	Measure
CFL Specialty - 3-Way: 16,25,32 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	53.42	Measure
CFL Specialty - 3-Way: 16,25,32 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	39.79	Measure
CFL Specialty - 3-Way: 16,25,32 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	39.79	Measure
CFL Specialty - Candelabra: 13 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	21.37	Measure
CFL Specialty - Candelabra: 13 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	15.92	Measure
CFL Specialty - Candelabra: 13 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	15.92	Measure
CFL Specialty - Candelabra: 14 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	20.66	Measure
CFL Specialty - Candelabra: 14 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	15.39	Measure
CFL Specialty - Candelabra: 14 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	15.39	Measure
CFL Specialty - Candelabra: 3 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	26.36	Measure
CFL Specialty - Candelabra: 3 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	19.63	Measure
CFL Specialty - Candelabra: 3 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	19.63	Measure
CFL Specialty - Candelabra: 5 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	14.25	Measure
CFL Specialty - Candelabra: 5 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	10.61	Measure
CFL Specialty - Candelabra: 5 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	10.61	Measure
CFL Specialty - Candelabra: 7 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	23.51	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
CFL Specialty - Candelabra: 7 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	17.51	Measure
CFL Specialty - Candelabra: 7 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	17.51	Measure
CFL Specialty - Candelabra: 9 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	22.08	Measure
CFL Specialty - Candelabra: 9 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	16.45	Measure
CFL Specialty - Candelabra: 9 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	16.45	Measure
CFL Specialty - Daylight: 10 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	21.37	Measure
CFL Specialty - Daylight: 10 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	15.92	Measure
CFL Specialty - Daylight: 10 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	15.92	Measure
CFL Specialty - Daylight: 13 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	21.37	Measure
CFL Specialty - Daylight: 13 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	15.92	Measure
CFL Specialty - Daylight: 13 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	15.92	Measure
CFL Specialty - Daylight: 14 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	20.66	Measure
CFL Specialty - Daylight: 14 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	15.39	Measure
CFL Specialty - Daylight: 14 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	15.39	Measure
CFL Specialty - Daylight: 15 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	19.94	Measure
CFL Specialty - Daylight: 15 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	14.86	Measure
CFL Specialty - Daylight: 18 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	24.93	Measure
CFL Specialty - Daylight: 18 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	18.57	Measure
CFL Specialty - Daylight: 19 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	24.22	Measure
CFL Specialty - Daylight: 19 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	18.04	Measure
CFL Specialty - Daylight: 19 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	18.04	Measure
CFL Specialty - Daylight: 20 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	23.51	Measure
CFL Specialty - Daylight: 20 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	17.51	Measure
CFL Specialty - Daylight: 20 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	17.51	Measure
CFL Specialty - Daylight: 22 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	26.53	Measure
CFL Specialty - Daylight: 23 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	34.9	Measure
CFL Specialty - Daylight: 23 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	26	Measure
CFL Specialty - Daylight: 23 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	26	Measure
CFL Specialty - Daylight: 24 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	EISA-compliant general	25.47	Measure
CFL Specialty - Daylight: 26 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	32.77	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
CFL Specialty - Daylight: 26 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	24.41	Measure
CFL Specialty - Daylight: 26 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	24.41	Measure
CFL Specialty - Daylight: 27 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	32.05	Measure
CFL Specialty - Daylight: 27 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	23.88	Measure
CFL Specialty - Daylight: 9 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	22.08	Measure
CFL Specialty - Daylight: 9 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	16.45	Measure
CFL Specialty - Daylight: 9 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	16.45	Measure
CFL Specialty - Dimmable: 11 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	20.66	Measure
CFL Specialty - Dimmable: 11 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	15.39	Measure
CFL Specialty - Dimmable: 11 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	15.39	Measure
CFL Specialty - Dimmable: 14 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	32.77	Measure
CFL Specialty - Dimmable: 14 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	24.41	Measure
CFL Specialty - Dimmable: 14 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	24.41	Measure
CFL Specialty - Dimmable: 15 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	32.05	Measure
CFL Specialty - Dimmable: 15 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	23.88	Measure
CFL Specialty - Dimmable: 15 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	23.88	Measure
CFL Specialty - Dimmable: 16 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	17.1	Measure
CFL Specialty - Dimmable: 16 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	12.73	Measure
CFL Specialty - Dimmable: 16 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	12.73	Measure
CFL Specialty - Dimmable: 20 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	28.49	Measure
CFL Specialty - Dimmable: 20 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	21.22	Measure
CFL Specialty - Dimmable: 20 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	21.22	Measure
CFL Specialty - Dimmable: 23 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	54.85	Measure
CFL Specialty - Dimmable: 23 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	40.86	Measure
CFL Specialty - Dimmable: 23 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	40.86	Measure
CFL Specialty - Dimmable: 24 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	54.13	Measure
CFL Specialty - Dimmable: 24 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	40.33	Measure
CFL Specialty - Dimmable: 24 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	40.33	Measure
CFL Specialty - Dimmable: 25 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	12/31/2013	null	39.79	Measure
CFL Specialty - Dimmable: 26 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	52.71	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
CFL Specialty - Dimmable: 26 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	39.26	Measure
CFL Specialty - Dimmable: 26 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	39.26	Measure
CFL Specialty - Dimmable: 27 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	52	Measure
CFL Specialty - Dimmable: 27 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	38.73	Measure
CFL Specialty - Dimmable: 27 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	38.73	Measure
CFL Specialty - Globe: 11 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	20.66	Measure
CFL Specialty - Globe: 11 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	15.39	Measure
CFL Specialty - Globe: 11 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	15.39	Measure
CFL Specialty - Globe: 12 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	19.94	Measure
CFL Specialty - Globe: 12 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	14.86	Measure
CFL Specialty - Globe: 12 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	14.86	Measure
CFL Specialty - Globe: 14 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	20.66	Measure
CFL Specialty - Globe: 14 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	15.39	Measure
CFL Specialty - Globe: 14 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	15.39	Measure
CFL Specialty - Globe: 15 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	19.94	Measure
CFL Specialty - Globe: 15 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	14.86	Measure
CFL Specialty - Globe: 15 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	14.86	Measure
CFL Specialty - Globe: 25 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	19.94	Measure
CFL Specialty - Globe: 25 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	14.86	Measure
CFL Specialty - Globe: 25 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	14.86	Measure
CFL Specialty - Globe: 9 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	22.08	Measure
CFL Specialty - Globe: 9 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	16.45	Measure
CFL Specialty - Globe: 9 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	16.45	Measure
CFL Specialty - Outdoor: 11 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	20.66	Measure
CFL Specialty - Outdoor: 11 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	15.39	Measure
CFL Specialty - Outdoor: 13 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	19.23	Measure
CFL Specialty - Outdoor: 13 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	14.33	Measure
CFL Specialty - Outdoor: 14 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	32.77	Measure
CFL Specialty - Outdoor: 14 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	24.41	Measure
CFL Specialty - Outdoor: 14 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	24.41	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
CFL Specialty - Outdoor: 15 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	32.05	Measure
CFL Specialty - Outdoor: 15 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	23.88	Measure
CFL Specialty - Outdoor: 23 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	12.11	Measure
CFL Specialty - Outdoor: 23 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	9.02	Measure
CFL Specialty - Outdoor: 26 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	34.9	Measure
CFL Specialty - Outdoor: 26 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	26	Measure
CFL Specialty - Outdoor: 9 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	22.08	Measure
CFL Specialty - Outdoor: 9 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	16.45	Measure
CFL Specialty - Reflector: 11 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	13.53	Measure
CFL Specialty - Reflector: 11 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	10.08	Measure
CFL Specialty - Reflector: 11 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	10.08	Measure
CFL Specialty - Reflector: 14 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	36.33	Measure
CFL Specialty - Reflector: 14 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	27.06	Measure
CFL Specialty - Reflector: 14 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	27.06	Measure
CFL Specialty - Reflector: 15 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	35.62	Measure
CFL Specialty - Reflector: 15 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	26.53	Measure
CFL Specialty - Reflector: 15 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	26.53	Measure
CFL Specialty - Reflector: 16 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	34.9	Measure
CFL Specialty - Reflector: 16 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	26	Measure
CFL Specialty - Reflector: 16 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	26	Measure
CFL Specialty - Reflector: 18 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	40.6	Measure
CFL Specialty - Reflector: 18 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	30.24	Measure
CFL Specialty - Reflector: 18 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	30.24	Measure
CFL Specialty - Reflector: 19 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	39.89	Measure
CFL Specialty - Reflector: 19 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	29.71	Measure
CFL Specialty - Reflector: 19 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	29.71	Measure
CFL Specialty - Reflector: 20 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	39.18	Measure
CFL Specialty - Reflector: 20 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	29.18	Measure
CFL Specialty - Reflector: 20 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	29.18	Measure
CFL Specialty - Reflector: 23 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	47.72	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
CFL Specialty - Reflector: 23 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	35.55	Measure
CFL Specialty - Reflector: 23 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	35.55	Measure
CFL Specialty - Reflector: 26 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	45.59	Measure
CFL Specialty - Reflector: 26 watts - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	null	33.96	Measure
CFL Specialty - Reflector: 26 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	33.96	Measure
CFL Specialty - Reflector: 9 watts - Direct Install - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	14.96	Measure
CFL Specialty - Reflector: 9 watts - Mail By Request - ID	Energy efficient Compact Fluorescent Lamps-Specialty	04/14/2014	Incandescent bulb	11.14	Measure
CFL Specialty - Reflector: 9 watts - Retail - ID	Energy efficient Compact Fluorescent Lamps-Specialty	01/01/2014	Incandescent bulb	11.14	Measure
Specialty Lamps:LED	Residential				-
LED Downlight: 10 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	39.98	Measure
LED Downlight: 12 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	38.52	Measure
LED Downlight: 13 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	37.8	Measure
LED Downlight: 14 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	37.07	Measure
LED Downlight: 15 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	36.34	Measure
LED Downlight: 16 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	42.88	Measure
LED Downlight: 17 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	42.16	Measure
LED Downlight: 18 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	41.43	Measure
LED Downlight: 20 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	39.98	Measure
LED Downlight: 5 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	50.88	Measure
LED Downlight: 6 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	50.15	Measure
LED Downlight: 7 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	16.72	Measure
LED Downlight: 8 watts - ID	Energy efficient Light Emitting Diode Lamps-Downlight	04/14/2014	null	26.89	Measure
LED Specialty - 3-Way: 3,8,18 watts - Retail - ID	Energy efficient Light Emitting Diode Lamps-Specialty	01/30/2016	Incandescent Lamp	37.04	Measure
LED Specialty - Candelabra: 7 watts - ID	Energy efficient Light Emitting Diode Lamps-Specialty	01/30/2016	Incandescent bulb	23.51	Measure
Measure Category : Plumbing					

Low Flow Aerators:Aerator - 0.5 gpm	Residential				
Low Flow Aerator - Direct Install - Electric Only - 0.5 gpm - ID	Install Low Flow Aerator	04/14/2014	2.2 gpm	74.12	Measure
Low Flow Aerator - Mail By Request - Any Water Heat Fuel - 0.5 gpm - ID	Install Low Flow Aerator	04/14/2014	2.2 gpm	30.67	Measure
Low Flow Aerator - Mail By Request - Electric Only - 0.5 gpm - ID	Install Low Flow Aerator	04/14/2014	2.2 gpm	62.59	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Home Energy Savings Program - ID					
Low Flow Aerator - Retail - Any Water Heat Fuel - 0.5 gpm - ID	Install Low Flow Aerator	04/14/2014	2.2 gpm	28.25	Measure
Low Flow Aerators:Aerator - 1.5 gpm	Residential				
Low Flow Aerator - Direct Install - Electric Only - 1.5 gpm - ID	Install Low Flow Aerator	04/14/2014	2.2 gpm	30.52	Measure
Low Flow Aerator - Mail By Request - Any Water Heat Fuel - 1.5 gpm - ID	Install Low Flow Aerator	04/14/2014	2.2 gpm	12.63	Measure
Low Flow Aerator - Mail By Request - Electric Only - 1.5 gpm - ID	Install Low Flow Aerator	04/14/2014	2.2 gpm	25.77	Measure
Low Flow Aerator - Retail - Any Water Heat Fuel - 1.5 gpm - ID	Install Low Flow Aerator	04/14/2014	2.2 gpm	11.63	Measure
Low Flow Showerheads:Showerhead - 1.50 gpm	Residential				
Low Flow Showerhead - Direct Install - Electric Only - 1.50 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	307	Measure
Low Flow Showerhead - Mail By Request - Any Water Heat Fuel - 1.50 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	170	Measure
Low Flow Showerhead - Mail By Request - Electric Only - 1.50 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	260	Measure
Low Flow Showerhead - Retail - Any Water Heat Fuel - 1.50 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	157	Measure
Low Flow Showerheads:Showerhead - 1.75 gpm	Residential				
Low Flow Showerhead - Direct Install - Electric Only - 1.75 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	222	Measure
Low Flow Showerhead - Mail By Request - Any Water Heat Fuel - 1.75 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	123	Measure
Low Flow Showerhead - Mail By Request - Electric Only - 1.75 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	187	Measure
Low Flow Showerhead - Retail - Any Water Heat Fuel - 1.75 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	121	Measure
Low Flow Showerheads:Showerhead - 2.00 gpm	Residential	· · · · · ·			
Low Flow Showerhead - Direct Install - Electric Only - 2.00 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	139	Measure
Low Flow Showerhead - Mail By Request - Any Water Heat Fuel - 2.00 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	77	Measure
Low Flow Showerhead - Mail By Request - Electric Only - 2.00 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	117	Measure
Low Flow Showerhead - Retail - Any Water Heat Fuel - 2.00 gpm - ID	Install a Low Flow Showerhead	04/14/2014	2.5 gpm	81	Measure
Measure Category : Water Heating					
Water Heater:Heat Pump Water Heater	Residential				

HPWH Tier 2 or Above Basement 0-55gallons - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,750	Measure
HPWH Tier 2 or Above Basement 0-55gallons Self Install - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,750	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit			
Program : Home Energy Savings Program - ID								
HPWH Tier 2 or Above Ducted Electric Resistance Heat 0-55 Gallons - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,300	Measure			
HPWH Tier 2 or Above Ducted Electric Resistance Heat 0-55 Gallons Sel Install - ID	f Electric heat pump water heater	03/30/2017	RTF Weighted	1,300	Measure			
HPWH Tier 2 or Above Ducted Gas Heat 0-55 Gallons - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,785	Measure			
HPWH Tier 2 or Above Ducted Gas Heat 0-55 Gallons Self Install - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,785	Measure			
HPWH Tier 2 or Above Ducted Heat Pump 0-55 Gallons - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,510	Measure			
HPWH Tier 2 or Above Ducted Heat Pump 0-55 Gallons Self Install - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,510	Measure			
HPWH Tier 2 or Above Garage 0-55 Gallons - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,570	Measure			
HPWH Tier 2 or Above Garage 0-55 Gallons Self Install - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,570	Measure			
HPWH Tier 2 or Above Indoor Electric Resistance Heat 0-55 Gallons - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,467	Measure			
HPWH Tier 2 or Above Indoor Electric Resistance Heat 0-55 Gallons Self Install - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,467	Measure			
HPWH Tier 2 or Above Indoor Gas Heat 0-55 Gallons - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,875	Measure			
HPWH Tier 2 or Above Indoor Gas Heat 0-55 Gallons Self Install - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,875	Measure			
HPWH Tier 2 or Above Indoor Heat Pump 0-55 Gallons - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,601	Measure			
HPWH Tier 2 or Above Indoor Heat Pump 0-55 Gallons Self Install - ID	Electric heat pump water heater	03/30/2017	RTF Weighted	1,601	Measure			
HPWH_Any_Tier_Midmarket - ID	Electric heat pump water heater	09/01/2018	Current Practice	1,116	Measure			
New Homes HPWH Tier 3 Ducted Heat Pump 0-55 Gallons Self Install -	Electric heat pump water heater	01/30/2016	RTF Weighted	1,585	Measure			
Measure Category : Whole Home								
Whole Home:New Home - Performance Path	Residential							
New Homes Whole Home Performance Path Tier 2 - ID	A flexible compliance method for contractors to build to energy efficient new homes.	01/30/2016	Home built to ID version	3,454	Measure			
Whole Home: New Homes - Energy Star Manufactured Residential								
New Manufactured Home - Energy Star - Any Electric - ID	New Manufactured Homes built to Energy Star specifications	03/01/2018	Current Practice	4,142	Measure			

New Manufactured Home - Energy Star - Any Electric - ID	New Manufactured Homes built to Energy Sta
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		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Low Income Weatherization - ID					
Measure Category : Lighting General Service Lamps:LED	Residential Low Income				
50 LED Bulbs - ID	Energy Star LEDs	03/01/2016	null	Savings included in "ID Weatherization - ID" measure	null
51 LED Light Fixture - ID	LED Light Fixtures	03/01/2016	null	Savings included in "ID Weatherization - ID" measure	null
		Effective Date	En Calc		
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Program : Low Income Weatherization - WY					
Measure Category : Lighting					
General Service Lamps:LED	Residential				
50 LED Bulbs - WY	Energy Star LEDs	04/15/2016			
General Service Lamps:LED	Residential Low In	ncome			
50 LED Bulbs - WY	Energy Star LEDs	04/15/2016			

nergy Savings culation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
null	Savings included in "WY Weatherization - WY" measure	null
null	Savings included in "WY Weatherization - WY" measure	null

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Midstream Lighting - ID					1
Measure Category : Lighting					
General Illuminance:LED	Non-Residential				
LED A-19 Lamp < 8 W, Medium Base - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	35.3	Measure
LED A-19 Lamp >= 8 W, Medium Base - MID - ID	A-19 Lamp >= 8 W. LED must be listed on qualified equipment lists.	01/20/2018	null	46.1	Measure
LED A-21 Lamp >= 12 W, Medium Base - MID - ID	A-21 Lamp >= 12 W. LED must be listed on qualified equipment lists.	01/20/2018	null	59.3	Measure
LED BR Reflector Lamp - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	56.8	Measure
LED Decorative Lamp - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	41	Measure
LED HID Replacement Lamp < 40 W - MID - ID	Corn cob relamp < 40 Watts; LED must be listed on qualified equipment list	01/20/2018	null	300.6	Measure
LED HID Replacement Lamp >= 150 W - MID - ID	HID Replacement Lamp >= 150 Lamp. LED must be listed on qualified equipment lists.	01/20/2018	null	2,213.5	Measure
LED HID Replacement Lamp >= 40 and < 80 W - MID - ID	Corn cob relamp >= 40 W and <80 W; LED must be listed on qualified equipment list	01/20/2018	null	518	Measure
LED HID Replacement Lamp >= 80 and < 150 W - MID - ID	LED lighting system upgrades, hid replacement lamp >= 80w and < 150w Replacement. HID Replacement Lamp >= 80W and < 150W must be advanced dimming controls.	01/20/2018	null	1,247.8	Measure
LED MR16 Reflector Lamp - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	62.7	Measure
LED PAR Reflector Lamp - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	92.9	Measure
LED PLC Pin-based Lamp < 10 W - MID - ID	PLC Pin-based L10 based Lamp. LED must be listed on qualified equipment lists.	01/20/2018	null	50.8	Measure
LED PLC Pin-based Lamp >= 10 W - MID - ID	PLC Pin-based Lamp >= 10 based. LED must be listed on qualified equipment lists.	01/20/2018	null	48	Measure
LED PLL Pin-based Lamp - MID - ID	PLL Pin-based LED based Lamp. LED must be listed on qualified equipment lists.	01/20/2018	null	56.4	Measure
LED Recessed Downlight Kit - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	47.2	Measure
LED Wall Pack Fixture < 50 W - MID - ID	LED Wall Pack 15W-50W; LED must be listed on qualified equipment list	01/20/2018	null	577.1	Measure
LED Wall Pack Fixture < 50 W with Occupancy Sensor - MID - ID	LED wall pack fixture. LED must be listed on qualified equipment lists.	01/20/2018	null	692.5	Measure
LED Wall Pack Fixture >= 50 W - MID - ID	LED Wall Pack 15W-50W; LED must be listed on qualified equipment list	01/20/2018	null	577.1	Measure
LED Wall Pack Fixture >= 50 W with Occupancy Sensor - MID - ID	LED wall pack fixture. LED must be listed on qualified equipment lists.	01/20/2018	null	692.5	Measure
General Illuminance:T5 Fluorescent	Non-Residential				
T5 HO Fluorescent Lamp - MID - Reduced Wattage - ID	< = 51W T5HO Replacement Lamp	01/20/2018	null	21.2	Measure
General Illuminance:T8 Fluorescent	Non-Residential				

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Midstream Lighting - ID					
T8 Fluorescent Lamp - MID - Reduced Wattage - ID	< = 28W CEE Replacement Lamp	01/20/2018	null	11.9	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : Small Business Direct Install - ID					
Measure Category : Electronics					
Plug Load:Advanced Power Strip	Non-Residential				
Advanced Power Strip - Small Business Dierct Install - ID	Non-Lighting - Advaned Power Strip	10/01/2016	Standard Power Strip or		null
Measure Category : Lighting					
General Illuminance:LED	Non-Residential				
LED - Exterior Fixture - Wall Pack - Small Business Direct Install - ID	LED Fixture. Must be on the Qulified List	10/01/2016	HID	Savings vary by Deemed Hours of Operation	null
LED - Exterior Fixture - Area Flood - Small Business Direct Install - ID	LED Fixture. Must be on the Qulified List	10/01/2016	HID	Savings vary by Deemed Hours of Operation	null
LED - Exterior Fixture - Entryway Wall Pack - Small Business Direct Inst - ID	all LED Fixture. Must be on the Qulified List	10/01/2016	HID	Savings vary by Deemed Hours of Operation	null
LED Fixture - Retrofit - High and Low Bay - Small Business Direct Instal	⁻ High and Low Bay LED Fixture, High and Low Bay	10/01/2016	HID	Savings vary by Deemed Hours of Operation	null
LED Fixture - Retrofit - Troffer Kit - 4 Lamp 48" Prismatic - Small Busine Direct Install - ID	^{ss} LED Fixture. Must be on the Qulified List	10/01/2016	Т8	Savings vary by Deemed Hours of Operation	null
LED Fixture - Retrofit for HO and VHO Fixture Kit - Small Business Direction Install - ID	ct Energy E fficient Light Emitting Diode Lamps-General Purpose	10/01/2016	T12 HO/VHO	Savings vary by Deemed Hours of Operation	null
LED Tubular - Retrofit - Small Business Direct Install - ID	Energy efficient Light Emitting Diode Lamps-General Purpose	10/01/2016	Т8	Savings vary by Deemed Hours of Operation	null
General Service Lamps:LED	Non-Residential				
LED General Purpose - Small Business Direct Install - ID	Energy efficient Light Emitting Diode Lamps-General Purpose	10/01/2016	EISA-compliant general	Savings vary by Deemed Hours of Operation	null
LED Pin Based - Small Business Direct Install - ID	Energy efficient Light Emitting Diode Lamps-Pin based Horizontal Mount	10/01/2016	Compact Flourecent	Savings vary by Deemed Hours of Operation	null
Specialty Lamps:LED	Non-Residential				
LED PAR - Small Business Direct Install - ID	Energy efficient Light Emitting Diode Lamps-Specialty	10/01/2016	Incandecent	Savings vary by Deemed Hours of Operation	null
LED Pin-based - Reflector Lamp - Small Buiness Direct Install - ID	Energy efficient Light Emitting Diode Lamps-Specialty	10/01/2016	Halogen	Savings vary by Deemed Hours of Operation	null
LED Specialty - Candelabra - Small Business Direct Install - ID	Energy efficient Light Emitting Diode Lamps-Specialty	10/01/2016	Incandescent Lamp	Savings vary by Deemed Hours of Operation	null
LED Specialty - MR 16 - Small Business Direct Install - ID	Energy efficient Light Emitting Diode Lamps-Specialty	10/01/2016	Incandescent Lamp	Savings vary by Deemed Hours of Operation	null

Measures Effective on 03/28/2019

		Effective Date	En Calc
Program : wattsmart Business - ID			
Measure Category : Custom			
Irrigation:Variable Frequency Drives	Non-Residential		
Irrigation pump VFD- ID	Add VFD to existing or new irrigation pump	01/01/2018	
Irrigation:Variable Frequency Drives	Non-Residential Irrigation		
Irrigation pump VFD- ID	Add VFD to existing or new irrigation pump	01/01/2018	
Measure Category : Farm & Dairy Livestock Waterers:High-efficiency livestock waterer	Non-Residential Agriculture		
High efficiency livestock waterer (New Construction) - ID	High efficiency livestock waterer	11/13/2014	Standar
High efficiency livestock waterer (Retrofit) - ID	High efficiency livestock waterer	11/13/2014	Standar
Water Heating:Heat reclaimer	Non-Residential Agriculture		
Heat recovery (New Construction) - ID	Reclaim heat from refrigeration condenser to heat water	11/13/2014	Syste
Heat recovery (Retrofit) - ID	Reclaim heat from refrigeration condenser to heat water	11/13/2014	Syste
Measure Category : Food Service Equipment			
Freezers:Commercial Freezer	Non-Residential		
Commercial Transparent Door Freezer: 30 <= V < 50 - ID	High Efficiency Energy Star qualified Commercial Transparent Door Freezer with an interior volume equal to (30 <= V < 50 cubic feet)	11/13/2014	Stand
Refrigerators:Residential Refrigerator CEE Tier 3	Non-Residential		
CEE Tier 3 Refrigerator - Bottom Freezer w/o Ice thru door (residential used in a business) - ID	Energy efficient refrigerators	08/20/2012	
CEE Tier 3 Refrigerator - Side-by-Side w/Ice thru door (residential used in a business) - ID	Energy efficient refrigerators	08/20/2012	
CEE Tier 3 Refrigerator - Side-by-Side w/o Ice thru door (residential used in a business) - ID	Energy efficient refrigerators	08/20/2012	
CEE Tier 3 Refrigerator - Top Freezer w/Ice thru door (residential used in a business) - ID	Energy efficient refrigerators	08/20/2012	
CEE Tier 3 Refrigerator - Top Freezer w/o Ice thru door (residential used in a business) - ID	Energy efficient refrigerators	08/20/2012	

Measure Category : HVAC

ergy Savings ulation method	Gross incremental annual electric savings (kWh/yr)	Savings unit

null	Savings vary by install configuration - see attached calculator	kWh

	Savings vary by install	
null	configuration - see attached	kWh
	calculator	

d waterer with less	1,209	Measure
d waterer with less	1,209	Measure

m with heat from	Savings vary by install configuration	kWh
m with heat from	Savings vary by install configuration	kWh

lard Commercial	1,504	Measure

null	90.1	Measure
null	91.1	Measure
null	106.9	Measure
null	84.7	Measure
null	84.8	Measure

Measures Effective on 03/28/2019

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : wattsmart Business - ID					
Controls and Thermostats:Controls and Thermostats	Non-Residential				
Advanced Rooftop Unit Control: => 5 tons and <= 10 tons - ID	Qualifying advanced rooftop unit control installed on existing rooftop unit w/ =>5 and <=10 nominal tons	01/20/2018	null	Site-Specific	Measure
Advanced Rooftop Unit Control: > 10 tons and <= 15 tons - ID	Qualifying advanced rooftop unit control installed on existing rooftop unit w/ >10 and <=15 nominal tons	01/20/2018	null	Site-Specific	Measure
Advanced Rooftop Unit Control: > 15 tons and <= 20 tons - ID	Qualifying advanced rooftop unit control installed on existing rooftop unit w/ >15 and <=20 nominal tons	01/20/2018	null	Site-Specific	Measure
Advanced Rooftop Unit Control: > 20 tons - ID	Qualifying advanced rooftop unit control installed on existing rooftop unit >20 nominal tons	01/20/2018	null	Site-Specific	Measure
Controls and Thermostats:Thermostat	Non-Residential				
Smart Thermostat - ID	Residential used in a business, see Home Energy Savings program requirements.	01/20/2018	null	Site-Specific	Measure
Cooling:Unitary Commercial Air Conditioners, Air-Cooled	Non-Residential				
Unitary CAC (Air): < 65, 000 Btu/hr (single phase): Single Package - CEE Advanced Tier - ID	CEE Tier 2, High Efficiency Air Conditioner Air Cooled < 65,000 Btu/hr, single package	01/20/2018	Code required Air Cooled	Savings vary by install configuration	Ton
Unitary CAC (Air): < 65, 000 Btu/hr (single phase): Split System - CEE Advanced Tier - ID	CEE Tier 2, High Efficiency Air Conditioner Air Cooled < 65,000 Btu/hr, split system	01/20/2018	Code required Air Cooled	Savings vary by install configuration	Ton
Unitary CAC (Air): All equipment sizes (three phase): Single Package - CEE Advanced Tier - ID	CEE Tier 1, High Efficiency Air Conditioner Air Cooled, All equipment sizes, single package	01/20/2018	Code required Air Cooled	Savings vary by install configuration	Ton
Unitary CAC (Air): All equipment sizes (three phase): Split System - CEE Advanced Tier - ID	CEE Tier 2, High Efficiency Air Conditioner Air Cooled, All equipment sizes, split system	01/20/2018	Code required Air Cooled	Savings vary by install configuration	Ton
Cooling:Unitary Commercial Air Conditioners, Water and	Non-Residential				
Unitary CAC (Evaporative) All equipment sizes: Single Package - CEE Tier 1 - ID	High Efficiency Air Conditioner Water and Evaporatively Cooled, Single Package	01/20/2018	Code required Water or	Savings vary by install configuration	Ton
Unitary CAC (Evaporative): All equipment sizes: Split System - CEE Tier - ID	1 High Efficiency Air Conditioner Water and Evaporatively Cooled, Split System	01/20/2018	Code required Water or	Savings vary by install configuration	Ton
Heat Pump:Heat Pumps - Air-Cooled - Heating Mode	Non-Residential				
HP - Air (Heating & Cooling Mode): >= 65,000 Btu/hr (three phase): Singl Package - 17°F db/15°F wb outdoor air - CEE Tier 2 - ID	eCEE Tier 2, High Efficiency Single Package heat pump air cooled >= 65,000 Btu/hr and : 17°F db/15°F wb outdoor air three phase	01/20/2018	Code required Air source	Savings vary by install configuration	Ton
HP - Air (Heating & Cooling Mode): >= 65,000 Btu/hr (three phase): Singl Package - 47°F db/43°F wb outdoor air - CEE Tier 2 - ID	eCEE Tier 2, High Efficiency Single Package heat pump air cooled >= 65,000 Btu/hr and : 47F db/15F wb outdoor air three phase	01/20/2018	Code required Air source	Savings vary by install configuration	Ton
HP - Air (Heating & Cooling Mode): >= 65,000 Btu/hr (three phase): Split System - 17°F db/15°F wb outdoor air - CEE Tier 2 - ID	CEE Tier 2, High Efficiency Split System heat pump air cooled >= 65,000 Btu/hr and : 17°F db/15°F wb outdoor air three phase	01/20/2018	Code required Air source	Savings vary by install configuration	Ton
HP - Air (Heating & Cooling Mode): >= 65,000 Btu/hr (three phase): Split System - 47°F db/43°F wb outdoor air - CEE Tier 2 - ID	CEE Tier 2, High Efficiency Split System heat pump air cooled >= 65,000 Btu/hr and : 47F db/15F wb outdoor air three phase	01/20/2018	Code required Air source	Savings vary by install configuration	Ton
			1		

Measure Category : Irrigation

Measures Effective on 03/28/2019

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : wattsmart Business - ID					
Water Distribution Equipment:Center Pivot Equipment	Non-Residential				
Center pivot base boot gasket - ID	Replace leaking center pivot base boot gasket	01/01/2018	base (boot) gasket - as	1,423.76	Measure
Center pivot tower gasket - ID	Replace leaking tower gasket with new tower gasket	01/01/2018	tower gasket - as deemed	35.59	Measure
Drop tube (3 ft minimum length) - ID	New drop tube OR add drop tube as part of conversion to low pressure system.	01/01/2018	drop tube - as deemed by	7.48	Measure
Gooseneck as part of conversion to low pressure system - ID	New gooseneck as part of conversion to low pressure system	01/01/2018	gooseneck - as deemed	7.48	Measure
Sprinkler Pressure Regulator Package (Custom) - ID	New pivot or linear pressure regulators replacing worn pressure regulators.	11/13/2014	null	Savings vary by install configuration	kWh
Water Distribution Equipment:Nozzles, Gaskets & Drains	Non-Residential				
Drain for wheel line, hand line, portable main line, pivot, or linear - ID	New drain replacing leaking drain	01/01/2018	drain - as deemed by RTF	169.25	Measure
Flow control nozzle - ID	New flow control nozzle for impact sprinkler replacing existing nozzle or worn flow control nozzle of same design flow or less	01/01/2018	flow control nozzle - as	40.62	Measure
Gasket for wheel line, hand line, or portable main line - ID	Replace leaking gasket, including mainline valve or section gasket, seal, or riser cap	01/01/2018	gasket - as deemed by	163.3	Measure
Nozzle - ID	New nozzle replacing worn nozzle of same design flow or less on existing sprinkler	01/01/2018	nozzle - as deemed by	40.62	Measure
Water Distribution Equipment: Pivots and Linear Systems	Non-Residential				
Low pressure sprinkler replacing impact sprinkler - ID	Replace impact sprinkler with low pressure sprinkler	01/01/2018	sprinkler - as deemed by	49.49	Measure
Low pressure sprinkler replacing worn low pressure sprinkler - ID	Replace low pressure sprinkler with low pressure sprinkler	01/01/2018	sprinkler - as deemed by	49.94	Measure
Pressure regulator - ID	Replace sprinkler pressure regulator or, in conversion from higher pressure system, add new pressure regulator	01/01/2018	regulator - as deemed by	47.98	Measure
Water Distribution Equipment:Wheel Line/Hand Line Equipment	Non-Residential				
Impact sprinkler - ID	New or rebuilt impact sprinkler replacing worn or leaking impact sprinkler	01/01/2018	impact sprinkler - as	27.29	Measure
Pipe repair - ID	Cut and press or weld repair of leaking wheel line, hand line, or portable main line.	01/01/2018	leaking pipe - as deemed	81.25	Measure
Rotating sprinkler - ID	New rotating sprinkler replacing worn or leaking impact or rotating sprinkler	01/01/2018	sprinkler - as deemed by	27.29	Measure
Thunderbird wheel line hub - ID	New Thunderbird wheel line hub replacing leaking hub	01/01/2018	wheel line hub - as	70.31	Measure
Wheel line feed hose - ID	New or rebuilt wheel line feed hose replacing leaking wheel line feed hose	01/01/2018	wheel line feed hose - as	163.53	Measure
Wheel line leveler - ID	New or rebuild wheel line leveler replacing leaking or malfunctioning leveler	01/01/2018	leveler - as deemed by	40.49	Measure

Measure Category : Lighting

General Illuminance:Custom

Non-Residential

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : wattsmart Business - ID					
Custom - Retrofit - ID	Custom lighting measure. Must save energy over baseline. Lighting product must be listed on qualified equipment lists.	01/20/2018	null	Site-Specific	kWh
General Illuminance:Exterior Lighting	Non-Residential				
Exterior Lighting - Retrofit - ID	Lighting Retrofits Exterior - ID	01/01/2017	null	Savings vary by install configuration	kwh
Street/Pole - ID	null	05/14/2016	null	Savings vary by install configuration	kwh
General Illuminance:InteriorLighting	Non-Residential				
Interior Lighting - Retrofit - ID	Lighting Retrofits Interior- ID	01/01/2017	null	Savings vary by install configuration	kwh
General Illuminance:LED	Non-Residential				
LED A-19 Lamp < 8 W, Medium Base - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	35.3	Measure
LED A-19 Lamp < 8 W, Medium Base - Retrofit - ID	LED must be listed on qualified equipment list	01/20/2018	null	Site-Specific	Measure
LED A-19 Lamp >= 8 W, Medium Base - MID - ID	A-19 Lamp >= 8 W. LED must be listed on qualified equipment lists.	01/20/2018	null	46.1	Measure
LED A-19 Lamp >= 8 W, Medium Base - Retrofit - ID	LED lighting system upgrades, a 19 Lamp. A must be advanced dimming controls.	01/20/2018	null	Site-Specific	Measure
LED A-21 Lamp >= 12 W, Medium Base - MID - ID	A-21 Lamp >= 12 W. LED must be listed on qualified equipment lists.	01/20/2018	null	59.3	Measure
LED A-21 Lamp >= 12 W, Medium Base - Retrofit - ID	LED lighting system upgrades, a 21 Lamp. A must be advanced dimming controls.	01/20/2018	null	Site-Specific	Measure
LED BR Reflector Lamp - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	56.8	Measure
LED BR Reflector Lamp - Retrofit - ID	LED must be listed on qualified equipment list	01/20/2018	null	Site-Specific	Measure
LED Decorative Lamp - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	41	Measure
LED Decorative Lamp - Retrofit - ID	LED must be listed on qualified equipment list	01/20/2018	null	Site-Specific	Measure
LED HID Replacement Lamp < 40 W - MID - ID	Corn cob relamp < 40 Watts; LED must be listed on qualified equipment list	01/20/2018	null	300.6	Measure
LED HID Replacement Lamp < 40 W - Retrofit - ID	Corn cob relamp < 40 Watts; LED must be listed on qualified equipment list	01/20/2018	70W-250W MH equivalent	Site-Specific	Measure
LED HID Replacement Lamp >= 150 W - MID - ID	HID Replacement Lamp >= 150 Lamp. LED must be listed on qualified equipment lists.	01/20/2018	null	2,213.5	Measure
LED HID Replacement Lamp >= 150 W - Retrofit - ID	LED lighting system upgrades, hid replacement lamp >= 150w Retrofit. HID Replacement Lamp >= 150W must be advanced dimming controls.	01/20/2018	null	Site-Specific	Measure
LED HID Replacement Lamp >= 40 and < 80 W - MID - ID	Corn cob relamp >= 40 W and <80 W; LED must be listed on qualified equipment list	01/20/2018	null	518	Measure
LED HID Replacement Lamp >= 40 and < 80 W - Retrofit - ID	HID Replacement Lamp >= 80W and < 150 Lamp. LED must be listed on qualified equipment lists.	01/20/2018	250W-1000W MH	Site-Specific	Measure
LED HID Replacement Lamp >= 80 W and < 150 W - Retrofit - ID	Corn cob relamp >= 40 W and <80 W; LED must be	01/20/2018	null	Site-Specific	Measure

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : wattsmart Business - ID					
	listed on qualified equipment list				
LED MR16 Reflector Lamp - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	62.7	Measure
LED MR16 Reflector Lamp - Retrofit - ID	LED must be listed on qualified equipment list	01/20/2018	null	Site-Specific	Measure
LED PAR Reflector Lamp - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	92.9	Measure
LED PAR Reflector Lamp - Retrofit - ID	LED must be listed on qualified equipment list	01/20/2018	null	Site-Specific	Measure
LED PLC Pin-based Lamp < 10 W - MID - ID	PLC Pin-based L10 based Lamp. LED must be listed on qualified equipment lists.	01/20/2018	null	50.8	Measure
LED PLC Pin-based Lamp < 10 W - Retrofit - ID	LED lighting system upgrades, plc pin Pin. PLC Pin must be advanced dimming controls.	01/20/2018	null	Site-Specific	Measure
LED PLC Pin-based Lamp >= 10 W - MID - ID	PLC Pin-based Lamp >= 10 based. LED must be listed on qualified equipment lists.	01/20/2018	null	48	Measure
LED PLC Pin-based Lamp >= 10 W - Retrofit - ID	LED lighting system upgrades, plc pin Pin. PLC Pin must be advanced dimming controls.	01/20/2018	null	Site-Specific	Measure
LED PLL Pin-based Lamp - MID - ID	PLL Pin-based LED based Lamp. LED must be listed on qualified equipment lists.	01/20/2018	null	56.4	Measure
LED PLL Pin-based Lamp - Retrofit - ID	LED lighting system upgrades, pll pin based Lamp. PLL Pin must be advanced dimming controls.	01/20/2018	null	Site-Specific	Measure
LED Recessed Downlight Kit - MID - ID	LED must be listed on qualified equipment list	01/20/2018	null	47.2	Measure
LED Recessed Downlight Kit - Retrofit - ID	LED must be listed on qualified equipment list	01/20/2018	null	Site-Specific	Measure
LED Wall Pack Fixture < 50 W - MID - ID	LED Wall Pack 15W-50W; LED must be listed on qualified equipment list	01/20/2018	null	577.1	Measure
LED Wall Pack Fixture < 50 W - Retrofit - ID	LED Wall Pack 15W-50W; LED must be listed on qualified equipment list	01/20/2018	null	Site-Specific	Measure
LED Wall Pack Fixture < 50 W with Occupancy Sensor - MID - ID	LED wall pack fixture. LED must be listed on qualified equipment lists.	01/20/2018	null	692.5	Measure
LED Wall Pack Fixture < 50 W with Occupancy Sensor - Retrofit - ID	LED wall pack fixture. LED must be listed on qualified equipment lists.	01/20/2018	null	Site-Specific	Measure
LED Wall Pack Fixture >= 50 W - MID - ID	LED Wall Pack 15W-50W; LED must be listed on qualified equipment list	01/20/2018	null	577.1	Measure
LED Wall Pack Fixture >= 50 W - Retrofit - ID	LED Wall Pack 15W-50W; LED must be listed on qualified equipment list	01/20/2018	null	Site-Specific	Measure
LED Wall Pack Fixture >= 50 W with Occupancy Sensor - MID - ID	LED wall pack fixture. LED must be listed on qualified equipment lists.	01/20/2018	null	692.5	Measure
LED Wall Pack Fixture >= 50 W with Occupancy Sensor - Retrofit - ID	LED wall pack fixture. LED must be listed on qualified equipment lists.	01/20/2018	null	Site-Specific	Measure
General Illuminance:T5 Fluorescent	Non-Residential				
T5 HO Fluorescent Lamp - MID - Reduced Wattage - ID	< = 51W T5HO Replacement Lamp	01/20/2018	null	21.2	Measure
T5 HO Fluorescent Lamp - Retrofit - Reduced Wattage - ID	< = 51W T5HO Replacement Lamp	01/20/2018	null	Site-Specific	Measure
General Illuminance:T8 Fluorescent	Non-Residential				

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : wattsmart Business - ID					
T8 Fluorescent Lamp - MID - Reduced Wattage - ID	< = 28W CEE Replacement Lamp	01/20/2018	null	11.9	Measure
T8 Fluorescent Lamp - Retrofit - Reduced Wattage - ID	< = 28W CEE Replacement Lamp	01/20/2018	null	Site-Specific	Measure
Measure Category : Refrigeration					
Controls:Adaptive Refrigeration Controller	Non-Residential				
Adaptive Refrigeration Controller (Retrofit) - ID	Replace conventional controls with adaptive controls and, in some instances, electric expansion valves.	11/13/2014	Conventional controls	Savings vary by install configuration	kWh
Fast Acting Door:Fast Acting Door	Non-Residential			-	
Fast Acting Door (Retrofit) - ID	Replace manually operated door, automatic door with long cycle time, strip curtain, or entryway with no door with fast acting door.	11/13/2014	Manually operated door,	Savings vary by install configuration	kWh
Measure Category : Wastewater					
Wastewater:Aeration	Non-Residential				
Extended Range Circulator (Retrofit) - ID	Address excess aeration with extended range circulator.	11/13/2014	Excess aeration capacity	Savings vary by install configuration	kWh

		Effective Date	Energy Savings Calculation method	Gross incremental annual electric savings (kWh/yr)	Savings unit
Program : wattsmart Small Business Lighting - ID					
Measure Category : Lighting					
Exterior Lighting:Custom	Non-Residential				
Exterior General Illuminance Lighting - New Construction/Major Renovation - Custom - ID	Custom General Illumination Lighting, exterior fixture or lamp not listed in tariff incentive tables	05/14/2016	The baseline wattage for	Savings vary by install configuration	kWh
Exterior Lighting:LED	Non-Residential				
LED Canopy/Soffit Fixture - New Construction/Major Renovation - ID	New construction/major renovation exterior LED Canopy/Soffit fixture	05/14/2016	High Intensity Discharge	460	Measure
LED Flood Light Fixture - < 100 W - New Construction/Major Renovation - ID	New construction/major renovation exterior LED Flood Light fixture, < 100 W	05/14/2016	High Intensity Discharge	679	Measure
LED Flood Light Fixture - >= 100 W - New Construction/Major Renovation - ID	New construction/major renovation exterior LED Flood Light fixture, >= 100 W	05/14/2016	High Intensity Discharge	1,183	Measure
LED Outdoor Pole/Roadway Decorative Fixture - < 75 W - New Construction/Major Renovation - ID	New construction/major renovation exterior LED Outdoor Pole/Roadway decorative fixture	05/14/2016	High Intensity Discharge	460	Measure
LED Outdoor Pole/Roadway Fixture - <= 200 W - New Construction/Major Renovation - ID	New construction/major renovation exterior LED Outdoor Area and Roadway fixture, <= 200 W	05/14/2016	High Intensity Discharge	1,095	Measure
LED Outdoor Pole/Roadway Fixture - > 200 W - New Construction/Major Renovation - ID	New construction/major renovation exterior LED Outdoor Area and Roadway fixture, > 200 W	05/14/2016	High Intensity Discharge	3,285	Measure
LED Wall Pack Fixture - < 50 W - New Construction/Major Renovation - ID	New construction/major renovation exterior LED Wall Pack fixture, < 50 W	05/14/2016	High Intensity Discharge	460	Measure
LED Wall Pack Fixture - >= 50 W - New Construction/Major Renovation - ID	New construction/major renovation exterior LED Wall Pack fixture, >= 50 W	05/14/2016	High Intensity Discharge	657	Measure
General Illuminance:Exterior Lighting	Non-Residential				
Street/Pole - ID	null	05/14/2016	null	Savings vary by install configuration	kwh
Interior Lighting:Custom	Non-Residential				
Interior Lighting - New Construction/Major Renovation - Custom - ID	Custom Lighting, interior lighting not subject to energy code.	05/14/2016	Industry standard baseline	Savings vary by install configuration	kWh
Lighting:Interior Lighting	Non-Residential				
Interior Lighting and Lighting Control - NCMR - ID	Offers prescriptive and/or custom incentives for qualifying lighting equipment	05/14/2016	Site specific determined by	Savings vary by install configuration	kWh
Lighting:Package Lighting	Non-Residential			-	
Package Lighting NCMR - ID	Offers prescriptive and/or custom incentives for qualifying lighting equipment	11/13/2014	Site specific determined by	Savings vary by install configuration	Site-specific
Package Lighting Retrofit - ID	Offers prescriptive and/or custom incentives for qualifying lighting equipment	11/13/2014	Site specific determined by	Savings vary by install configuration	Site-specific
Non-General Illuminance:Exterior Lighting Control	Non-Residential				
Exterior Dimming Control - Retrofit - ID	Must control LED tech in an ext lighting application. Control must be integral to LED fixture or fix-mounted and reduce fix power by 75% or more for a min of 6 hrs per night or when the space has been unoccupied for 15 min or less.	05/14/2016	Must control LED	Savings vary by install configuration	Watt controlled

	Effective Date	Energy Savings Calculation method
Program : wattsmart Small Business Lighting - ID		



Appendix 7 National Energy Foundation Idaho Report



BE WATTSMART, BEGIN AT HOME IDAHO

Program Report

Prepared for:



wattsmart.cOm

Michael S. Snow, Manager, Regulatory Projects Barbara Modey, Customer and Community Communications

Rocky Mountain Power 1407 W North Temple Suite 330 Salt Lake City, UT. 84116

Prepared by:

Patti Clark

Program Director

National Energy Foundation 4516 South 700 East, Suite 100 Salt Lake City, UT 84107

February 25, 2019

Savings



Home Energy Worksheets

– Returned: 1,463 – – 87% –

Teacher Packets

– Returned: 65 – – 89% –

Participants





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Program Overview

Program Description

Be *watts*mart, Begin at home, an energy efficiency education program, is a collaborative partnership between Rocky Mountain Power and the National Energy Foundation (NEF). This unique and interactive program teaches the importance of energy and natural resources and their impact on the environment. The objective is to expand and promote energy awareness through a school-based education program which encourages Idaho students and teachers to change behaviors which will impact the energy consumption in their homes and community. Teachers are also provided teaching materials to support further classroom instruction on this valuable message.

The program expanded in 2018 to include an additional four Idaho schools within the Rocky Mountain Power territory. This increased the total number of schools in the Idaho program to 24 schools.

Program Administration

Be *wattsmart*, Begin at home is administered by NEF, a non-profit organization (established in 1976) dedicated to the development, dissemination and implementation of supplementary educational materials, programs and services relating primarily to energy, energy safety, the environment and natural resources. Our mission remains constant, to cultivate and promote an energy literate society. NEF is pleased to report on activities of the Be *wattsmart*, Begin at home energy efficiency education program conducted during the 2018 – 2019 school year.

Anne Lowe,Vice President – Operations, oversees program organization. Gary Swan,Vice President – Development, oversees contract accounting. Patti Clark, Program Director, is responsible for overseeing and implementing the scope of work and Megan Hirschi is responsible for scheduling the presentations. A team of trained and seasoned presenters brought the interactive, hands-on program to Idaho schools during September and October of 2018.

Building Collaborations

The Idaho Content Curriculum Standards were adopted by the Idaho State Department of Education for all K-12 students within the state. The Be *wattsmart*, Begin at home program aligns appropriately with the 4th grade standards. Teachers appreciate the collaborative efforts to align program components to their learning standards. Curriculum correlations were provided to teacher participants in their *Teacher Guide* delivered to each teacher prior to the presentation date.

Program Implementation

This program was first implemented in the fall of 2017 and expanded in the fall of 2018 to include an additional four schools. Principals of eligible schools were sent a letter to introduce the program offered by Rocky Mountain Power and teachers were initially emailed with follow-up calls from Patti Clark or Megan Hirschi. Questions were addressed and highlights of the program content were introduced to teachers with an emphasis on how the program aligns with Idaho content standards.

Program Registration

Registration for the program was online at wattsmart.com/begin. Each registered school was checked against the qualified school list before email and phone communications were made with teachers to determine optimum presentation dates and student numbers.

After registration was qualified, a series of email communications with teachers, was sent automatically by the program registration website. The website calculated *Home Energy Worksheet* returns as well as earned gift card levels and communicated this information to the participating teachers. Later communications were customized through programming to be sent only to teachers needing a reminder to return their program documents.

Be wattsmart, Begin at home Presentation

Be *wattsmart*, Begin at home presentations were given one week in September and a second week during the month of October 2018 to accommodate the various scheduled Harvest recesses. The presentation featured a custom Keynote slideshow that brought energy concepts to the forefront of Idaho education. The presentation focused on important concepts, such as natural resources, electrical generation, the energy mix used by Rocky Mountain Power to generate electricity and tips for energy efficiency in the home.

The presentation provided interactive activities that involved and engaged the audience. Students participated in making a human electrical circuit, during which they learned key core curriculum concepts such as insulators and conductors of electricity and electrical generation. Student volunteers used props to demonstrate the process of electrical generation for their classmates. All students reviewed material learned with an "Energy Lingo" review activity at designated points throughout the presentation. To help students remember energy efficiency tips, participants viewed "Caitlynn Power" energy efficiency video vignettes produced by PacifiCorp. These videos were new to the program this year and were well received by both teachers and students. At the end of each short video, students learned a rhyme about Caitlyn's wise energy choices to help them remember the concept.

The last portion of the presentation communicated the importance of the program take-home pieces. These documents enabled households to participate in energy education along with students.

Program Materials

A Parent Letter was provided to explain the importance of Be *wattsmart*, Begin at home. In addition, students took home a *Student Guide* and *Home Energy Worksheet* to share with their families. Students who returned their worksheet received an LED nightlight featuring the Rocky Mountain Power logo as a reward.

Educators were also given helpful energy educational materials. Each teacher participant was provided a custom Be *wattsmart*, Begin at home folder. The folder contained a custom *Teacher Guide* with additional information and activities to supplement and continue energy education in the classroom. Also, in the folder were two NEF instructional posters, *Energy Efficiency* and *Electricity Serves Our Community*.

A program Implementation Steps Flier assisted teachers in carrying out the program. It also gave simple steps for successfully returning Home Energy Worksheets and the sponsor Thanks a "Watt" Card in the postage paid envelope provided in Teacher Materials Folder. A Rewarding Results Flier gave information concerning the mini-grant that teacher participants would receive for returning their student surveys. Educators received a \$50 gift card for an 80% return, or a \$25 gift card for a 50 – 79% return by the December 5, 2018 deadline.

Program Accomplishments – Fall 2018

- 24 Be wattsmart, Begin at home presentations
- 1,723 students and families reached
- 73 Idaho teachers reached
- 87% student Home Energy Worksheet surveys return
- \$50 mini-grant checks delivered to 62 Idaho teachers
- \$25 mini-grant checks delivered to 3 Idaho teachers

Program Improvements - Fall 2018

- Updated all program materials with new Rocky Mountain Power style guide and look
- New video vignettes entitled "Caitlin Power" produced by sponsor for presentation
- Updated the Energy Efficiency instructional poster
- Added four additional schools to the program

- New LED nightlight incentive with Rocky Mountain Power logo
- Added online Home Energy Worksheet option to program
- Program Evaluation completed online

Program Attachments – Fall 2018

- Fall 2018 Participating Schools
- Program Promotions
- Program Documents
 - Keynote Presentation
 - Teacher Implementation Steps Flier
 - Rewarding Results Flier
 - Student Guide
 - Teacher Guide
 - Lingo Card
 - Parent Letter
- Teacher Evaluation Compilation
- Home Energy Worksheet
- Home Energy Worksheet Summary Rocky Mountain Power
- Wise Energy Behaviors in Rocky Mountain Power Idaho Homes
- Sampling of Thanks a "Watt" Cards

Attachments

Fall 2018 Participating Schools

School Name	School Address	School City	State
Adams Elementary	110 North 2nd East	Rexburg	ID
AJ Winters Elementary	535 Clay St.	Montpelier	ID
Ammon Elementary	2900 Central Ave.	Ammon	ID
Georgetown Elementary	142 Stringtown Road	Georgetown	ID
Grace Elementary	704 South Main Street	Grace	ID
Harold B Lee Elementary	4726 W. Hwy. 36	Weston	ID
Harwood Elementary	200 W 3rd N	Rigby	ID
Hibbard Elementary	2413 n 3000 w	Rexburg	ID
Hillview Elementary	3075 Teton Street	Ammon	ID
Iona Elementary	5338 Owens Street	Iona	ID
Kennedy Elementary	60 S 5th W	Rexburg	ID
Kershaw Intermediate School	610 E 3rd North	Sugar City	ID
Lincoln Elementary	358 East 2nd South	Rexburg	ID
Lindy Ross Elementary	526 South Oakley Street	Dubois	ID
Mountain View Elementary	704 Center	McCammon	ID
Oakwood Elementary	525 South 4th East	Preston	ID
Paris Elementary	39 Fielding Street	Paris	ID
Parker-Egin Elementary	221 North Center St.	St. Anthony	ID
Philo T. Farnsworth Elementary	305 N. 3700 E.	Rigby	ID
Rimrock Elementary	4855 Brennan Bend	Idaho Falls	ID
Riverview Elementary	1463 North 800 East	Shelley	ID
Roberts Elementary	682 N. 2858 East	Roberts	ID
South Fork Elementary	7163 S 2000 W	Rexburg	ID
Thatcher Elementary School	6007 E. Thatcher Road	Thatcher	ID

Program Promotions





Be wattsmart, Begin at home

reinforces electricity learning standards in an engaging and interactive assembly. Participating teachers receive free energy education posters, activities and student materials as well as the chance to receive a Visa[®] gift card of up to \$50, depending on participation.

Presentations will be held in September and October, 2018. Sign up today at

wattsmart.com/begin.



Program Documents

Keynote Presentation









Renewable resources



POWERING YOUR GREATNESS

Nonrenewable resources



POWERING YOUR GREATNESS











Energy efficiency

Energy efficiency

•Using less energy to accomplish the same amount of work.

Technology

• Install energy-efficient products, appliances and devices.

Behavior

•Use less energy through wise behaviors that conserve energy.

POWERING YOUR GREATNESS

Let's LINGO

Find the words on your LINGO board that match these definitions:

- Using less energy to accomplish the same amount of work. **Energy efficiency**
- An energy resource that is capable of being renewed or is replaceable. **Renewable**
- Fossil fuels such as coal, natural gas and oil are considered Nonrenewable resources.
- A resource used to produce gasoline. Oil

POWERING YOUR GREATNESS





Caitlynn Power

POWERING YOUR GREATNESS











Let's LINGO

Find the words on your LINGO board that match these definitions:

- A light that can last 25 times longer than an incandescent.
- Electricity consumed by an electronic device while it is turned off or in standby mode. **Phantom load**
- Using a toaster oven or microwave for **Cooking** is more energy-efficient than using the oven.
- Set this to 120°F for a comfortable shower. Water heater

POWERING YOUR GREATNESS

• To use less of something. Reduce









Implementation Steps

- I. Verify that you have received each of the following:
 - Teacher Materials Folder
 - Your **Be wattsmart, Begin at home** Teacher Guide
 - Home Energy Worksheets for you and your students
 - Be wattsmart, Begin at home student booklets
 - Set of Parent Letters
 - Wattsmart nightlights (student incentive for completing the Home Energy Worksheet)
- 2. Distribute to each student a:
 - Be wattsmart, Begin at home student booklet
 - Home Energy Worksheet
 - Parent Letter
- 3. Reward each student who completes a Home Energy Worksheet, either online or paper, with a wattsmart nightlight.
- 4. Have each student sign the Thank You Card to Rocky Mountain Power.
- 5. Mail in the self-addressed postage-paid envelope:
 - Any completed Home Energy Worksheets
 - The Thank You Card
- To thank you for postmarking your envelope by December 5, 2018, you will receive a Visa[®] gift card for classroom use. 80 percent or greater return of registered students' Home Energy Worksheets = \$50 50 - 79 percent return of registered students' Home Energy Worksheets = \$25

For questions, or additional information, please email Megan Hirschi at megan@nef1.org.



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ID

Attention Teachers

Help us out by mailing your student *Home Energy Worksheets* and receive a
\$25 - \$50 VISA[®] gift card for classroom use, depending upon participation.
80 percent or greater return of registered students' *Home Energy Worksheets* = \$50 50 - 79 percent return of registered students' *Home Energy Worksheets* = \$25

Postmark due date: December 5, 2018

Offer open only to teachers participating in Be wattsmart, Begin at home. Certain restrictions may apply. Good while grant funding is in place. *Home Energy Worksheets* must be completed for eligibility. For more information, contact Megan Hirschi at megan@nef1.org.









Dear Parents,

The **Be wattsmart, Begin at home** program assists teachers and students to learn about energy, discuss important energy topics and engage in energy efficiency actions now. Your child has participated in a presentation addressing natural resources, energy basics and energy efficiency. Your participation in this program will help you be wattsmart, enhance energy efficiency in your home and help save money on your utility bills. Here are three simple ways that you can help:

- Review this **Be wattsmart, Begin at home** booklet with your child.
- Assist your child with completing the activities on Page 7.
- Have your child complete the *Home Energy Worksheet* online or return it to his or her teacher.

Thank you for being wattsmart and for your participation!

What's inside?

This booklet is divided into three sections that will give you the power to:

- I. Learn about sources of energy, how they get to your home and why they are important in your life.
- 2. Discuss wattsmart energy efficiency tips that will help you use energy wisely and save money.
- 3. Engage in energy efficiency by determining how energy can be saved in your home through a simple audit activity and the *Home Energy Worksheet*.

About Rocky Mountain Power

Rocky Mountain Power is committed to the delivery of reliable electric service that's safe, low-cost and increasingly from clean, renewable resources. Serving more than I million customers in Utah, Idaho and Wyoming, the company is one of the lowest cost energy producers in the nation. Rocky Mountain Power is moving toward a sustainable energy future that includes increased use of solar, wind and other renewable resources; and provides customers with more choices to meet their energy needs.

I have the *power* to be *watt*smart.

- Being wattsmart is all about taking steps to save energy which in turn can help you save money.
- You have the power to become more energy efficient. Rocky Mountain Power can help with wattsmart programs and incentives for homes and businesses. Saving energy also saves money and is good for the environment.

About the National Energy Foundation

The National Energy Foundation (NEF) is a 501 (c)(3) nonprofit organization, founded in 1976. It is dedicated to increasing energy literacy through the development, distribution and implementation of educational programs and materials. These resources relate primarily to energy, natural resources, energy efficiency, energy safety and the environment. Concepts are taught through science, math, art, technology and writing. NEF recognizes the importance of educating individuals about energy so they can make informed decisions about energy issues and use.


I have the power to learn.

The importance of energy:

Energy is the ability to do work or produce change. Virtually everything we do or use at work and home uses energy.

- Heating and cooling systems
- Computers
- Electronic equipment such as gaming and entertainment systems and TVs
- Charging electronic tablets, music players and cell phones
- Appliances
- Lights
- Food storage and preparation
- Security systems



Where does energy come from?

Our energy comes from natural resources. There are two general categories of natural resources – nonrenewable and renewable. A nonrenewable resource is not capable of being renewed, replaced or takes a very long time to replace. A renewable resource is capable of being renewed or replaced.

Primary natural resources are used to convert energy into electricity. They can be either nonrenewable or renewable.

Nonrenewable examples are:



Coal is the most abundant nonrenewable energy source in the world. There is an estimated 129 year supply remaining.



Oil can be both refined and unrefined. Refined oil is transformed into petroleum products and unrefined oil remains as crude oil.



Natural Gas is usually captured alongside oil deposits and is a major source for electrical generation.



Uranium is the fuel most widely used by nuclear plants. Nuclear energy is the energy inside the nucleus (core) of the atom of uranium.

Renewable examples are:



Solar is energy from the sun.



Wind is energy from the wind captured by a group of wind turbines (generators).



Geothermal is energy derived from the heat of the earth.



Hydropower is energy from water that generates electricity.

Secondary energy resources are created by using nonrenewable and renewable resources of energy.



Electricity is the most abundant **secondary energy resource** used. It is the flow of electrical power or charge. It occurs in nature as lightning and static electricity. A generator uses energy resources to create mechanical energy that is then converted into electrical energy.

Energy efficiency

Energy efficiency is using less energy to accomplish the same amount of work – we call it being wattsmart. There are many technologies we can use today that decrease the amount of energy needed to do work. Good examples are ENERGY STAR[®] products and LED lighting. You can save even more money if you start thinking about using energy wisely. Try turning off the lights when you leave the room, take shorter showers or turn off your electronics when you are not using them.

Using electricity



For more than 100 years, electricity has made our homes more comfortable and industries more productive. Today electricity is powering a world of electronics.

How is electricity generated? It begins with a fuel that heats water and turns it to steam. The steam drives the turbine that turns the generator motor to produce electricity.

How is electricity transmitted? Once the electricity is produced, the current flows from the generator to the power plant transformer where the voltage is increased to boost the flow of the electric current through the transmission lines. The transmission lines transport the electricity to Rocky Mountain Power's substations where the voltage is decreased. Power lines then carry the electricity from the substations to be used in our homes and businesses.

ELECTRICAL GENERATION

Energy Source	Rocky Mountain Power (2017 Basic Fuel Mix)*	United States (U.S. EPA, data)
Natural Gas	10.57%	32%
Coal	58.89%	30%
Nuclear	0.00%	20%
Petroleum	0.00%	1%
Other/misc.	10.59%	0%
Renewables (total)	19.95%	17%
Hydropower	7.09%	7.5%
Wind	8.56%	6.3%
Biomass	0.37%	1.6%
Solar	3.54%	1.3%
Geothermal	0.39%	0.4%

*This information is based on Federal Energy Regulatory Commission Form 1 data. The Rocky Mountain Power "basic fuel mix" is based on energy production and not resource capability, capacity or delivered energy. All or some of the renewable energy attributes associated with wind, solar, biomass, geothermal and qualifying hydro facilities in Rocky Mountain Power's basic fuel mix may be: (a) used in future years to comply with renewable portfolio standards or other regulatory requirements, (b) sold to third parties in the form of renewable energy credits and/or other environmental commodities or (c) excluded from energy purchased. Rocky Mountain Power's basic fuel mix includes owned resources and purchases from third parties.

I have the power to *discuss* energy use to help save money.

Saving energy happens in two ways. First, you can use less energy through wise behaviors that conserve energy. Second, you can install energy-efficient products, appliances and devices that use less energy to accomplish the same task. Let's talk about the following areas of your home that have the largest potential to save energy.

Home heating and cooling

- Install a programmable thermostat or smart thermostat. Set your thermostat to 78°F or higher in the summer and 68°F or lower in the winter.
- Make sure your house is properly insulated. If you have less than 6 inches of insulation in your attic, you would benefit from adding more.
- You can save 10 percent or more on your energy bill by reducing the air leaks in your home with caulking and weather stripping.
- To help your furnace run more efficiently and cost-effectively, keep your air filters clean.
- For windows with direct sunlight, close your blinds in the summer to keep the heat out. Open them on winter days to let the warmth in.
- Small room fans are an energy-efficient alternative to air conditioning.
- For information about energy-saving programs and cash incentives, visit **wattsmart.com**.

Water and water heating



- Check your faucets for leaks that can cost you hundreds of dollars each year.
- Install a water-efficient showerhead and save as much as \$145 a year.
- Set the water heater at 120°F.
- Install faucet aerators to decrease water use.

Lighting

- Let the sun shine in. Use daylight and turn off lights.
- Replace your incandescent bulbs with LEDs (light-emitting diodes) and save \$5 to \$8 per year per bulb. These bulbs use up to 80 percent less energy than incandescent bulbs and last much longer.
- Use lighting controls such as motion detectors and timers.
- Turn off lights when you leave the room.
- Always use the lowest wattage bulb that still gives you the light you need.
- Keep your light bulbs clean. It increases the amount of light from the bulb and reduces the need to turn on more lights.

Electronics

- Turn off your computer and game consoles when not in use.
- Home electronics are made to turn on and off many times. Always turn them off to save energy.
- Electronics with the ENERGY STAR[®] label use as much as 60 percent less energy while providing the same performance.
- Beware of phantom loads which continue to draw electricity when they are plugged in but not in use. Examples are telephone chargers, electronic games and television sets.
- Use advanced power strips for household electronics. One button will turn off multiple appliances, which conserves electricity.





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Refrigerators and freezers



- When looking to replace your old refrigerator, do so with an ENERGY STAR® model, which requires approximately 40 percent less energy than conventional models and provides energy savings without sacrificing the features you want.
- Clean door gaskets with warm water or a detergent that leaves no residue.

Dishwashers

- Only run dishwashers when full and use the "air dry" or "no heat dry" settings.
- ENERGY STAR[®] dishwashers use at least 41 percent less energy than the federal minimum standard for energy consumption.

Laundry

- Buy a moisture-sensitive dryer that automatically shuts off when clothes are dry.
- Use a drying rack whenever possible.

Cooking

- Use a microwave oven, toaster oven or slow cooker instead of a conventional oven.
- Use the right-sized pan for the stove top element.
- Cover pans with lids to keep heat from escaping.

Reduce

- Use less.
- Purchase products with little packaging.

Reuse

- Use something again.
- Reuse a box or a grocery bag.

Recycle

- Make something into another new item.
- Participate in the recycling programs in your community.



I have the power to engage in energy efficiency.

Parents, be wattsmart and watch the energy savings add up.

An individual with a combined electric and heating fuel bill of \$2,500 per year could save 20 percent or \$42/month by using these and other energy efficiency tips. That is like getting a pay raise without having to work harder or longer.

The cost of lighting your home

Take a walk around your home with your family to learn about your lighting.

- 1. Count the types of bulbs in each room and record in Table 1; then total each column.
- 2. Transfer the total for each type of lighting into Column A on Table 2.

TABLE I							
Location	Incandescent	Ŷ	CFL		LED	Ţ	
Bedroom I							
Bedroom 2							
Kitchen							
Dining room							
Living room							
Hallway							
Laundry room							
Family room							
Front porch							
Other							
TOTAL							

- 3. In Table 2, multiply the numbers in Column A by the given amounts in Column B. Place the answers in Column C.
- 4. Add the numbers in Column C to get the total approximate cost of electricity for lighting your home.
- Discover how much money you will save if all the bulbs in your home were CFLs or LEDs. Add the numbers in Column A to get the total number of bulbs in your home. Transfer the total to both rows in Table 3, Column E as indicated by the arrows.
- 6. Multiply the total number of CFLs by the annual cost of electricity for one CFL provided in Column F and put your answer in Column G.
- 7. In the last row of Table 3, multiply the total number of LEDs in Column E by the annual cost of electricity for one LED bulb provided in Column F and put your answer in Column G.

How do the amounts in Column G compare with your current total cost for lighting in Column C above?

TABLE 2 В С Α Number of bulbs Annual cost Annual cost of from Table 1 of electricity electricity for lighting for one bulb Incandescent × \$4.80 CFL × \$1.08 LED × \$0.60 TOTAL TABLE 3 Ε F G All CFLs × \$1.08 Annual cost of electricity with only CFLs All LEDs × \$0.60 Annual cost of electricity with only LEDs

Cost figures are for an individual bulb (60 Watt incandescent), the lumens equivalent CFL (13 Watts) and LED (7 Watts) each used for 2 hours each day for 30 days. EEI Typical Bills and Rates Report, Winter 2018 (12 months ending 2017).

I have the power to be wattsmart.

Together with your parent(s), complete the separate *Home Energy Worksheet*. Return the completed *Home Energy Worksheet* to your teacher or submit it online at hews@nef1.org to receive your wattsmart nightlight. You may find you are already practicing ways to be energy efficient but there is always room to do more.

Challenge yourself and your family to commit to practice energy efficiency by making wise energy choices and being wattsmart. You will not only help extend the life of our natural resources, but save money, too!

For other energy-saving ideas and incentives, visit **wattsmart.com**. Congratulations to you and your family for making a difference.



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Welcome to Be wattsmart, Begin at home

This program teaches the importance of energy and assists students and their families in saving energy in their homes. For teachers, Be **watts**mart, Begin at home reinforces important electrical concepts from your curriculum.

This *Teacher Guide* was designed to supplement program instruction. A variety of tools have been provided to allow you to format Be **watts**mart, Begin at home to meet your instructional needs. These tools include:

- General guidelines and activity suggestions
- Classroom activities to further the impact of lessons
- Additional fun and interesting activities for students
- Activities containing STEM-correlated curriculum for your classroom

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About the National Energy Foundation

The National Energy Foundation (NEF) is a unique 501(c)(3) nonprofit educational organization dedicated to the development, dissemination and implementation of supplementary educational materials and programs. These resources for education relate primarily to energy, water, natural resources, science, math, technology, conservation, energy efficiency and the environment. NEF recognizes the importance and contribution of natural resources to our economy, to our national security, the environment and our quality of life.

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STEM	Science			Technology			Engineering					Math					
Connections	Science as Inquiry	Energy Sources, Forms and Transformations	Science and Technology	Personal and Social Perspectives	Productivity Tools	Communication Tools	Research Tools	Problem-solving and Decision-making Tools	Historical Perspective	Design and Modeling	Invention and Innovation	Test Design and Troubleshooting	Use and Maintain	Numbers and Operations	Measurement	Data Analysis and Probability	Connection to the Real World
Activity																	
Pass the Sack		•		•													
The Search for Energy	•	•	•	•										•		•	•
A Bright Idea!	•	•	•	•	•	•	•	•	•	•	•	•	•				
The Art of Circuits	•	•	•					•		•	•	•					•
Shine a Light on History		•	•	•		•	•	•	•		•						
Layered Lunch	•		•							•							
How Do You Rate?	•	•		•		•	•					•	•		•		•
Energy in Math														•	•	•	•
Be wattsmart, Begin at home Poster		•		•			•	•									•

Activity: Pass the Sack

Objective

Students will demonstrate the difference between renewable and nonrenewable resources and the need for conservation of resources.

Curriculum Focus

Science Social Studies

Materials

- Two different kinds of candy or other objects students find desirable
- Sack to hold candy, such as a gallon size plastic bag

Key Vocabulary

Nonrenewable resource Renewable resource

Next Generation Science Correlations 4-ETSI – 2

4-ESS3 – 1-2 4-ESS3.A 5-ETS1 – 2 5-ETS1 – 1 5-ESS3 – 1 MS-ESS3 – 4 MS-ESS3.A



Introduction

Statistical research confirms world consumption of natural resources is increasing every year. Continued population growth ensures that demand for renewable and nonrenewable energy resources necessary to maintain our way of life will continue to increase. This creates problems for future availability of nonrenewable resources. Nonrenewable resources are just that, resources that cannot be renewed. For example, a resource used at our present rate might last about 100 years. Factor in population growth and increasing reliance on technology, and that resource may last only 79 years.

In this activity, two different types of candy (or other objects students would like) will represent resources. One type of candy will represent renewable resources and the other will represent nonrenewable resources.



Procedure

- Before class, count out enough candy so there is one piece per student (some of each type of candy – less of one so it will run out faster). Put it in the sack or bag. Save the remaining candy. If you have a very polite class, count enough candy for half of the class. You want the contents to run out before everyone gets candy!
- 2. Tell students you will be demonstrating how resources get used over time by playing "Pass the Sack." Show students the sack and explain that when they get the sack, they should take some energy and pass the sack to the person next to them.
- 3. Before passing the sack to the first student, review renewable and nonrenewable resources. Have students give examples of each as you hand the sack to a student.
- 4. While this discussion is taking place, allow students to pass around the bag of candy without any rules about how many pieces students may take. Occasionally, add four or five pieces of **one** type of candy you are using, this will be your renewable resource. The sack will be empty before it reaches all the students.
- 5. Ask students who did not get any candy how they might obtain energy from other students. What if each student represented a country? How do countries obtain resources, trade, barter (trade for goods), buy (trade for currency), invade and take or go to war? What effect did the availability of candy have on relationships between students? What effect might the availability of natural resources have on the relationship among nations, provinces, states, people, standards of living and quality of life?

Natural Resources

Be **watt**smart Begin at home

- 6. Explain how our resources are like the candy. Which type was the nonrenewable? How could you tell? (No more was added to the bag once it was being passed around.) Which type was renewable? How could you tell? (It was added periodically to renew it.)
- 7. Point out that resources have limits just like the candy. Emphasize that many resources, such as fossil fuels, are nonrenewable and are being consumed faster than they are being replaced by nature. Discuss the fact that it would be more difficult for students to eat the candy if they had

to search the room to find it instead of just taking it from the sack. Energy companies must seek resource deposits and obtain rights to drill or mine for them; they do not just magically appear.

- 8. Point out that renewable resources can also have limitations. They may not generate electricity as reliably as nonrenewable sources and the amount of energy produced may vary with weather and location.
- 9. Plan how to pass out the remaining candy.

Discussion

- Should rules be established to determine how the candy is distributed?
- Do oil, coal and natural gas companies have rules/regulations that must be followed to find resources?
- Should there be rules and regulations on how much oil, coal and natural gas people use?
- How do the class' social decisions influence the availability of candy?



To Know and Do More

Go to eia.gov/kids to access games, tips and facts for kids to learn about renewable energy and energy efficiency.

Discuss whether or not it is possible to run out of a renewable resource. Wood and fresh water are examples of renewable resources that can be used faster than nature can replace them.

Natural Resources

Activity: The Search for Energy

Objective

The student will learn the difference between renewable and nonrenewable resources.

Curriculum Focus

Math Science Social Studies

- Materials
- 1/2 bag popcorn or other small item to represent solar energy
- Small pieces of ripped paper to represent approximate U.S. nonrenewable energy reserves
 - 164 black coal
 - 22 red uranium
 - 8 green natural gas
 - 2 blue oil
- Large sheet or tarp to place paper and popcorn on for easy clean up (optional)
- Copies of "Data Table and Graph"

Key Vocabulary

Nonrenewable resources Renewable resources Next Generation Science Correlations

4-ESS3-1 4-ESS3.A 5-ESS3 - 1 MS-PS1 - 2 MS-LS2 - 1 MS-ESS3.A

Introduction

Fossil fuels are extremely useful energy sources. Our society has adopted them because they can be readily available and economical. In the early part of the 20th century, a fledgling solar industry took root but was ultimately displaced by less expensive energy sources such as fossil fuels. Today some fossil fuels are harder to find and increasingly more costly. The sun, on the other hand, is just as plentiful as it was 100 years ago. It is a renewable resource that could become our most widely used source of energy.

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The following activity is a simulation game in which students learn the difference between renewable and nonrenewable resources. The game reflects society's use and exhaustion of nonrenewable fuels and the eventual transition to renewable technologies.



Procedure

- 1. Divide the class into five equal groups. Each group will be a company going after a particular resource (coal, uranium, natural gas, oil or the sun). The paper and popcorn represent reserves of the various energy resources. Pass out copies of the student sheet "Data Table and Graph" to each group or have students create their own data tables on paper.
- 2. Have students gather in a large circle. Scatter the papers plus a handful of "solar" popcorn so they are well spread out in the center of the circle. You can do this on a sheet for easier clean up. Explain that this exercise demonstrates how the availability of resources changes over time. You may want to designate certain places as protected areas, where the resources are off limits to protect the environment.

Natural Resources

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Be **watt**smart Begin at h⊙me

3. Tell students you will do several trials and look to see how the types of resources that are available change after each trial. Tell each group that they will have 30 seconds to pick up as many papers or popcorn as they can of their assigned type. Start timing.

After 30 seconds have the groups stop and count the items they have gathered. Have each group announce their results to the class and record every count in their data table. If some groups have collected all of their available resource, point out that the resource is now depleted and they are unemployed.

- 4. Scatter another handful of "solar energy," helping students realize that since the sun is a renewable resource, there is the same amount of it each time you look, whereas the nonrenewable fuels are being depleted. Repeat the search period so students can get more papers or popcorn.
- 5. Stop after 30 seconds and have the group count and record the papers and popcorn collected again. Note that there are fewer nonrenewable fuels found in the second round. Students have to look harder to find what is left. The solar count is slowly catching up with the nonrenewable fuels. Repeat with additional trials as needed.
- 6. Have groups create a bar chart or, for more advanced students, a multi-line graph of the number of papers and popcorn collected each trial.

Discussion

- Why does the solar line differ from the others? Why does it go up rather than down?
- How do improvements in technology affect the extraction of resources from the earth?
- How do improvements in technology affect our usage of renewable resources?
- In the real world, can we extract ALL of a resource? Why do some deposits go unused?



To Know and Do More

Add wind and water to the activity. Lead a discussion to be sure the students understand why you continued adding more sun, wind and/or water after each trial, but did not add more of the other papers. As a class, come up with a general outline of how to more effectively manage the resources that are available to us.

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Natural Resources

Student Sheet: Data Table and Graph

Data Table

Search Period	Coal (Black)	Uranium (Red)	Natural Gas (Green)	Oil (Blue)	Sun/Solar (Popcorn)
2					
3					
4					
Totals					



Activity: A Bright Idea!

Objective

Students will study an example of potential energy converted to energy in the forms of heat and light.

Curriculum Focus

Science

Materials

- Several general purpose C dry cell batteries
- A string of holiday lights, cut apart and stripped at the ends or small bulbs and sockets with wires
- Battery-operated toy and batteries
- Small flashlight bulbs and sockets
- Copies of "A Bright Idea!"

Key Vocabulary

chemical energy, circuit, closed circuit, current, electrode, electrolyte, kinetic energy, open circuit, parallel circuit, potential energy, radiant energy, series circuit, thermal energy, transformation, voltage

Next Generation Science Correlations

4-ETSI – I-2 4-PS3 – 2-4 4-ESS3 – I 5-PSI.B 5-ESS3 – I 5-ESS3.C MS-PS3 – 3 MS-PS3.B MS-LS2 – I MS-ESS3.A

Introduction

Alessandro Volta, an Italian physicist, made the first battery in 1795. Volta placed two different metal electrodes in an electrolyte solution (a chemical mixture which will conduct an electrical current). The chemical reaction caused an electromotive force. A common misconception is that batteries store electrical energy. This is not really true; batteries convert chemical energy to electrical energy. They store chemical energy that can be released during a chemical reaction. By using metals or carbons that have different chemical properties and an acid or base that will allow the movement of electrical charges, an electric current can be produced.

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Procedure

- 1. Demonstrate a battery-operated toy with and without the battery. Explain that energy is the ability to do work or cause change, such as moving the toy or powering a light bulb.
- 2. Discuss:
 - How do we know the energy from the battery is working?
 - What kind of energy is the toy giving off? (possible answers include kinetic energy, mechanical, light, sound and heat)
 - The battery converts chemicals (chemical energy) to electricity (electrical energy) and the toy converts electricity to many possible forms of energy, including mechanical energy, heat (thermal energy), light and sound.
- 3. Have students use the materials provided to experiment with simple circuits by following the guided inquiry activity on the student sheet. As the students do the activity, have them note the light and heat energy given off.
- 4. Give students examples of types of potential and kinetic energy.

Kinetic energy $-\ a\ person\ riding\ a\ bike,\ a\ fire\ in\ a\ wood-burning\ stove,\ a\ person\ running$

Potential energy – a lump of coal, a sandwich, a rock at the top of a hill

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	()							
	Discu	ssion						
Write	the word choices or	n the board. Read th	ne statements to t	he student	s and have the	em fill in the bla	nks using the wo	ords.
Ι.	A battery converts	chemical energy in	to	energy.				
2.	Electricity is a form	of	energy.					
3.	The light bulb conv	verts electrical energy	gy into	and _		_ energy.		
4.	A battery contains	ene	ergy.					
Wo	rd choices:							
	potential	electrical	heat	kinetic	light			
Ans	wers:							
	I. electrical	2. kinetic	3. light, hea	t	4. potential			
	Q							
	To Kn	low and Do I	More					
Ask st yester	udents if they believe day that contained a	e batteries are impo battery.Their list mi	rtant to our way oght include:	of life toda	y. Have studer	nts make a list o	f all the items th	ey used
		Wristwatch Automobile Cell phone		Tablet Video g TV ren	game controlle note control	er		

To continue this, have students add to the list all of the items they can think of that use batteries. Are your students surprised at how many items today depend on batteries to operate and how many battery-operated items they depend on daily?



Career Awareness Activity

Search the internet for a company that produces batteries. Discover the various job opportunities and careers within that company. Your list might include: scientists, chemists, research analysts, accountants, purchasing agents and administrative assistants.

Student Sheet: A Bright Idea!

Alessandro Volta, an Italian physicist, made the first battery in 1795. Volta put sheets of two different types of metal in a jar of water with a chemical that could carry electricity (an electrolyte). The chemical reaction between the electrolyte and the metal plates caused electrons to move when the plates were connected with a wire. The flow of electrons moving in a wire is called an electric current, or electricity.

Using one battery and one light, make the bulb light up. Congratulations, you have made an electrical circuit!

- 1. What did you have to do to get the light to come on and complete the circuit? How was it touching the battery?
- 2. What do you have to do to make the light bulb turn off and then back on?
- 3. What do you think the electrical terms "open circuit" and "closed circuit" mean?
- 4. How do you think a light switch works?
- 5. What type and form of energy is in the battery?
- 6. The battery's energy was transformed into what other forms of energy?

Using one battery, try to light up two lights.

I. Sketch how the wires are connected to the battery when you light two lights.

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- 2. Are the lights the same brightness as when you lit only one or are they dimmer?
- 3. A series circuit has only one path that electrons can follow as they are pushed from one side of the battery to the other. A parallel circuit has more than one path and the electrons can go more than one way to get from one end of the battery to the other. Which type of circuit did you make and draw?
- 4. Experiment with multiple batteries connected together, placing the positive end of one battery touching the negative end of another battery. What effect does the number of batteries have on the brightness of the bulbs?
- 5. If you leave the battery connected to a bulb long enough, you will feel the wire and the ends of the battery getting warm. What do you think is causing this?
- 6. Can that heat be useful? Can it be dangerous? Give an example to prove your point.

7. Wash your hands when you are finished.

Activity: The Art of Circuits

Objective

The students will learn about conservation of energy and energy transfer by experimenting with electrical circuits.

Curriculum Connection

Science Social Studies Language Arts Art

Materials

- Playdough[®] or homemade salt dough
- 9V batteries
- 9V battery clips with red and black cables
- 2V LED miniature light bulbs
- Insulating material cardboard, packaging plastic or dough made from sugar, not salt (optional)

Key Vocabulary

Energy transfer Electric current LED (light-emitting diode) Electric circuit Insulator Conductor

Next Generation Science Correlations

4-PS3 - 2 4-PS3 - 4 4-PS3.A-B, D 4-ETS1 - 1 4-ETS1.A 5-ETS1 - 1 5-ETS1.A MS-PS3 - 3 MS-PS3.A-B MS-ETS1 - 1 MS-ETS1.A



Introduction

Materials that allow a flow of electric current to pass through them more easily are called conductors. Aluminum, silver, copper and water are examples. Insulators block the flow of electricity. Nonmetallic materials, such as rubber, plastic, wood, cloth and dry air are insulators. An electrical circuit is a path of conductors through which electric current flows. Energy can be transferred from place to place by electric current.

In this activity, students will use salt dough, which is a conductor, to design circuits which will transfer electrical energy. If they are successful, the electricity will be transformed to light and heat energy in a miniature LED bulb.



Procedure

- I. Introduce students to their materials:
 - a. Attach the battery to a battery clip with red and black cables. The red lead is the positive terminal and the black lead is the negative terminal.
 - b. Examine the LED bulb. Two wires (or legs) extend from the bulb. The longer wire is the positive side of the LED and the short wire is the negative side. The LED should only be connected to dough, never directly to the battery terminals, which will cause the bulb to burn out.
- Tell students that electricity can only go through the circuits they will create in one way. The positive terminal of the battery (red lead on battery clip) must be nearest a positive (long) leg of the LED. A battery pushes electricity

around the circuit through the positive leg and out the negative (short) leg, then repeating through the next positive leg (if there is more than one LED in the circuit).

- 3. Explain that electricity will take the path of least resistance. It is easier for electricity to travel through the dough than through the LED, so if two pieces of dough are touching, the LED will not light.
- 4. Challenge students to design a simple circuit like the ones on the next page.

Electricity and Circuits

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If time allows, have students create a circuit work of art like the one below. Since the conductive dough cannot touch, use insulating material between layers.



Discussion

- How does your dough circuit light the LED compared to the circuits at your home?
- In a series circuit with multiple LEDs, what happens to the brightness of the LEDs that are further from the battery? Why?



When a light switch is off, the electrical pathway to a bulb is not complete and electricity cannot flow to light that bulb. When you flip the switch on, you close the circuit and the light turns on. If light is not needed, it is important not to waste the natural resources used to generate the electrical power that is being transformed to light. Have students create characters without noses to put over light switches at school or home. The art should help remind them to turn lights off!



Activity: Shine a Light on History

Objective

Students will gather details and make inferences from text to explain historical events related to electricity.They will use their knowledge to write information text to support an opinion.

Curriculum Focus

Language Arts Social Studies Science

Materials per student group

• Copies of ''Edison v. Holonyak''

Key Vocabulary

LED (light-emitting diode) Incandescent bulb Filament Electric meter Inference Persuasive Lumen Watt

Next Generation Science Correlations 4-PS3 - 2 4-PS3.A-B MS-PS3 - 3



Thomas Edison and Nick Holonyak are two famous lighting inventors. They both made major contributions that changed the way people lived. Thomas Edison patented the incandescent bulb in the late 1870s. Since that time, people have enjoyed the convenience of using electricity for light. Nick Holonyak created the first practical, visible-spectrum LED which revamped lighting as we know it.

偪

In this activity, students will study the contributions of these two inventors. They will gather details to form an opinion about which man was more influential in history.



Procedure

- 1. Pass out copies of "Edison v. Holonyak" and have students read about each. If time allows, they can use the internet, or other sources, to find additional information.
- 2. Have students fill out the research cards for each inventor. Using that information, they should decide which inventor was more influential in history and write a persuasive paragraph, with details from their research to support their opinion.
- 3. Challenge students to practice reciting their paragraph and then present it to another student(s) in an attempt to change a differing opinion.

Discussion

- What kinds of light bulbs are used in your home? How do they affect the way you live and work?
- What do you think the next great electrical invention will be?
- Thomas Edison said, "Genius is one percent inspiration and ninety-nine percent perspiration." What did he mean? How does his quote apply to you?



To Know and Do More

A light bulb package has a lighting facts label that contains different numbers.

- The light output in lumens.
- The power used by the bulbs, measured in Watts. The higher the wattage, the more energy the bulb uses.
- A measure of how warm or cool the light from that bulbs looks, measured in Kelvin (K). Low numbers are warmer light hues (orange or yellow). High numbers are cooler hues (blue or green).

When buying new bulbs, we should shop by lumens, not wattage. We save energy by finding bulbs with the lumens we need, then choosing the lowest wattage possible for that number of lumens.

Lighting Facts	per bulb
Brightness	800 lumens
Estimated Yearly Energy Based on 3 hrs/day, 11¢/kV Cost depends on rates an	Cost \$1.08 Wh d use
Life Based on 3 hrs/day 2	23 years
Light Appearance Warm ^{2700 K}	Cold
Energy Used	9 Watts

Activity: Layered Lunch

Objective

Students will understand that natural gas deposits are trapped and held by certain types of geologic formations.

Curriculum Focus

Science Art

Materials

- Slices of bread
- Almond butter or other thick spread (e.g. cream cheese)
- Honey
- Plastic wrap or wax paper
- Plastic knife

Key Vocabulary Permeable

Impermeable Source rock

Next Generation Science Correlations 4-ETSI - 1 4-ETSI.A 5-ETSI - 1 5-ETSI.A MS-LS4 - 1 MS-LS4.A MS-ESSI - 4 MS-ESSI.C MS-ETSI - 4 MS-ETSI.B



Introduction

How do we find natural gas? Try this activity to get an idea of the type of rock formations and characteristics geologists look for when locating natural gas deposits.

As natural gas molecules form, they migrate from shale "source rock" into more porous areas such as sandstone. Porous or permeable layers are much like a sponge with little pockets throughout the rock. The natural gas continues to move to either the earth's surface (where it escapes into the atmosphere) or it is trapped when nonporous or impermeable rock layers block its path.



Procedure

Using bread, almond butter and honey, create some edible models of rock layers.

- 1. Spread thick layers of almond butter then honey on a slice of bread. Top it with another slice of bread.
- 2. Make a second sandwich just like the first, or gently cut the sandwich in half.
- 3. Now put one sandwich (or one half) with the almond butter layer above the honey and the other sandwich (or other half) with the honey on top of the almond butter.
- 4. Next spread a thick layer of only honey on a slice of bread, adding another slice on top.
- 5. Cover your sandwiches with wax paper or plastic wrap and gently press down on them for about three seconds, representing millions of years of pressure.
- 6. Cut the sandwiches in half and observe what has happened.

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Discussion

- I. What do you think the honey represents?
- 2. Which layer do you think represents porous rock?
- 3. Which layer is the nonporous rock?
- 4. Did the honey seep into both slices of bread? Why or why not?
- 5. What do you predict would happen with a sandwich made with only almond butter?
- 6. How might the ingredients you used affect your results?
- 7. Draw the layers of your sandwich and use colored pencils or crayons to distinguish the different layers and write labels for each layer that includes: impermeable, permeable, natural gas, nonporous rock and porous rock.

Answers

The honey represented natural gas or a fossil fuel. The bread was the porous rock where the honey or natural gas gets into the little pockets or air spaces. Almond butter acted like a nonporous rock layer blocking the honey from seeping into the slice of bread above the almond butter. The results may be different depending on your ingredients: denser bread – less seepage, creamier almond butter may be less impermeable or thicker honey may not fill the little pockets as easily.



To Know and Do More

Assign students to further investigate how natural gas is trapped in rock formations. Have them draw pictures of a formation and the trapping of oil and natural gas in the earth.

Visit a natural history museum and look for prehistoric life forms and rock formations.

Activity: How Do You Rate?

Objective

Students will conduct a home survey to determine how they can use energy more efficiently by changing their habits and improving conditions and thereby improve the environment in which they live.

Curriculum Focus

Language Arts Science Social Studies

Materials

• Copies of "How Do You Rate?"

Key Vocabulary

Conservation Efficiency Environment Natural resources Quality of life

Next Generation Science Correlations 4-ESS3 – I 5-ESS3 – I 5-ESS3,C

MS-LS2 - 1

MS-ESS3.A

MS-ESS3 - 3

Introduction

We use natural resources every day. Sometimes we use them just as they come from earth or the atmosphere. At other times we alter their makeup to fit our needs. For instance, we use the sun just as it is to dry clothes, but we use photovoltaic cells to capture the sun's energy and convert it to electricity, a secondary energy source. We use coal just as it comes to us from the earth to make electricity, or we use coal to provide coke for steel manufacturing. Many natural resources we use every day are nonrenewable, once we use them they are gone; others are renewable, they can be replaced through natural and/or human processes.

It is responsible to use all resources efficiently and wisely. When we do, we reduce energy use, save money and preserve the environment. Making wise decisions today will have a positive impact on our future.

Imagine the difference we could make if we all used energy more efficiently. We would conserve natural resources for the future and enjoy better air quality and a better life. Each one of us can truly make a difference. All it takes is knowledge and action.



Procedure

Using energy efficiently and conserving our natural resources are responsible and easy actions that students can take today to show they respect the environment and have a desire to protect and preserve it.

- 1. Pass out "How Do You Rate?" Discuss the actions that may apply to the school (e.g., windows and doors have weather stripping; drapes or blinds are open on cold, sunny days and closed on hot days; thermostats are adjusted at night; lawns are only watered early or late in the day). As you discuss each action, write a T for true or F for false on the board to see how the school rates. What can the students do to improve energy use at school?
- 2. Decide on several actions the students can take at school to help save energy and protect the environment. One action might be to use both sides of their paper and then

recycle. If a room is empty during lunch or at other times, they can be sure lights are turned off and computers are on sleep mode.

- 3. Have the students take the survey home and complete it with their parent's or guardian's help. Explain to students that it is important to record their true energy use and not mark what they think they should be doing.
- 4. How did the students' homes rate? Discuss the results of the home survey. Help students to become enthusiastic about conserving natural resources and using energy more efficiently.

Electricity and Circuits

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- 5. Prepare a graph to show the results of the energy efficiency survey. Which efficiency tips are already practiced by most students? Which were least used? Graph the number of students marking "yes" for each item.
- 6. Find the mean, median, mode and range of the data on the home survey.



Discussion

Discuss the benefits of energy conservation. How will our energy use impact our future? Compare the benefits and possible inconveniences and their correlation to our quality of life.



To Know and Do More

Why do you think people do not practice all of the energy efficiency tips on the survey? Are there false assumptions that affect people's behavior? (Believing that turning things on and off uses more energy than leaving them on, for example.)

Discuss how people in other geographic areas and cultures would rate. Does everyone have a car, dishwasher or an air conditioner?



Career Awareness Activity

Have the students think of some careers that could have a big impact on your community's energy usage. Some areas to consider: teachers — impact energy usage through education and by example; utility workers — through education and incentives; government regulators — through restrictions and rewards, such as financial benefits or tax breaks.

Student Sheet: How Do You Rate?

How energy efficient is the building you live in? Together with your parents or guardians, answer the following questions to rate your home or apartment.

Circle T if the statement is true, F if the statement is false or NA if the statement does not apply to your living situation.

Heating and Cooling

Windows and doors have good weather stripping.	t f NA
Window coverings are open on cold, sunny days and closed on hot days.	t f na
Window coverings are closed at night when heat is on.	t f na
Thermostat is set at 68° F (20° C) or lower in winter.	t f na
Air conditioning is set at 78° F (26° C) or higher in	t f NA
summer.	

Ducts are insulated in unheated/uncooled areas.	Т	F	NA
Garage is insulated.	Т	F	NA
Air filters on furnace and air conditioner are cleaned and changed regularly.	Т	F	NA
Thermostat is adjusted at night.	Т	F	NA
Fireplace damper is closed when fireplace is not in use.	Т	F	NA

Water

A pitcher of water is kept in the refrigerator for drinking.	Т	F	NA
Faucets and toilets do not leak.	Т	F	NA
Showers and faucets are fitted with energy-efficient shower heads and aerators.	Т	F	NA
Showers last no longer than 5 minutes.	Т	F	NA
Toilets are low-flow, or tanks use water displacement devices.	Т	F	NA

 Hot water heater is set at 120° F (49° C). If someone in your household has a compromised immune system, consult your physician. 	t f na
Hot water pipes from water heater are insulated.	t f Na
If located in an unheated area, hot water heater is wrapped in an insulation blanket.	t f NA
Broom, not hose, is used to clean driveways and sidewalks.	t f NA
Faucet is shut off while brushing teeth and shaving.	t f NA

Appliances

Dishwasher is usually run with a full load.	Т	F	NA
Automatic air-dry is used with the dishwasher.	Т	F	NA
Washing machine is usually run with a full load.	Т	F	NA
Cold water is used in washing machine most of the	Т	F	NA
time and is always used for rinses.			

Clothes dryer is usually run with a full load.	t f NA
Clothes are often hung up to dry.	t f NA
Refrigerator is set no lower than 37° F (3° C).	t f NA
Lids are usually put on pots when boiling water:	t f NA
Oven is preheated for only 10 minutes (if at all).	t f NA

Lighting

Lights are turned off when not in use.	t f Na	Light bulbs are kept dusted and clean.	t f na
LED bulbs are used in at least one room.	t f Na	Sunlight is used whenever possible.	t f na
Security and decorative lighting is powered by solar	t f NA		
energy.			

Trash

Glass, cans and newspapers are recycled. Plastic is separated and recycled. Old clothes are often given to charities, second-hand clothing stores, etc. Food scraps and organic waste are composted.	t f NA t f NA t f NA t f NA	Over-packaged products are usually avoided. Reusable bags are used for groceries, or bags are recycled. Rechargeable batteries are used when possible. Food is often bought in bulk. Products made of recycled materials are favored.	t f NA t f NA t f NA t f NA t f NA
Transportation Car is properly tuned and tires properly inflated. Family drivers obey speed limit on the highway. Family drives an electric vehicle	t f NA t f NA t f NA	Public transportation is used when possible. Family members often walk or ride a bike for short trips. Kids and parents carpool when possible.	t f na t f na t f na
Environment Trees and bushes are maintained for wildlife shelter and food.	t f NA	Bird feeders or bird houses are maintained. Native plants are used to decrease water use.	t f na t f na

Yard and Workshop

Lawns are watered early or late in the day.	t f NA
Grass is mowed to a height of 2 to 3 inches (5 to 8 cm).	t f na
Hand tools, like pruners and clippers (rather than power tools) are used whenever possible.	t f na

Cutting edges on tools are kept sharp.	t f NA
Electrical tools are maintained and gas equipment is kept	t f na
tuned and serviced.	

Score I point for True, 0 points for False and 0 points for Not Applicable (NA).

Total Points: _

Discuss the results of this survey with your family. What can you and your family do to raise your score?

Activity: Energy in Math

Objective

The students will interpret and evaluate numerical expressions as they solve word problems.

Materials

- Student Worksheet
- Individual White Boards (optional)

Key Vocabulary Watt

Common Core Correlations

Numbers and Operations Data Analysis and Probability Connection to the Real World Measurement



Introduction:

In this activity, students will complete the problem set found on the bottom of page 22 within an allotted time (10 minutes). Students will solve the mathematical problems making connections to real world situations.

Rec.

Procedure:

- 1. Instruct students on the importance of learning to solve real world problems using their math skills. You may want to review some steps to solving word problems before beginning the first problem. The following questions might be useful to review:
 - Can you draw something to help you?
 - What can you draw?
 - What conclusions can you make from your drawing?
- 2. Pass out the worksheet.
- 3. Model the problem.

Have a pair of students work at the board while the others work independently or in pairs at their seats.

As students work, circulate. Reiterate the questions above. After several minutes, have the demonstrating students receive and respond to feedback and questions from their peers if necessary.

4. Calculate to solve and write a statement.

Give everyone two minutes to finish work on that question, sharing their work and thinking with a peer. All should write their equations and statements of the answer.

5. Assess the solution for reasonableness.

Give students one to two minutes to assess and explain the reasonableness of their solution.

Discussion/Debrief

The student debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the problem set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed. Then guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- What did you notice about this word problem?
- What is different in the problem?
- What are we trying to find out?
- How can we represent this part of the story? (draw, write a number, use manipulatives)
- What would help us organize our thinking and our work? (answers may vary: draw it out, act it out, write an equation, etc.)
- What strategies can we use to solve this problem?



To Know and Do More

Have your students turn in their worksheet showing their work to solve each problem. This will help you to assess your students' understanding of the math concepts presented in the lesson.

- 1. Jessie saved more energy than Michael. Michael saved more energy than Maggie. Maggie saved less energy than Jessie. Karen saved more energy than Jessie. List the kids' names in order of how much energy they saved, least to most:
 - Jessie, Karen, Maggie, Michael
 - Maggie, Michael, Jessie, Karen
 - Michael, Jessie, Maggie, Karen
 - Maggie, Karen, Michael, Jessie
- 2. The Maher family used 57,000 gallons of water a year, costing them \$525 to heat it. Estimate how much money they would save in a year if they cut their hot water use by 30,820 gallons.
 - \$100
 - \$240
 - \$284
 - \$525
- 3. If each person in a house uses a 60-watt bulb in their bedroom 4 hours a day, and there are three people living there, how many Watts will be used a day to light their room?
 - 20 Watts
 - 240 Watts
 - 650 Watts
 - 720 Watts
- 4. For every 10 degrees the water heater setting is turned down, you can save 6% of the energy used. If Charles turns his water heater down by 15 degrees, about what percent savings in energy will he save?
 - 6%
 - 9%
 - 12%
 - 15%

Answers: I. Maggie, Michael, Jessie, Karen; 2. \$284; 3. 720 Watts; 4. 9%

Activity: Be wattsmart, Begin at home Poster

Objective

The students will make their own energy- efficient choices that can be practiced at home to help future societies.

The students will also learn how they can be part of the solution to save energy and natural resources.

Materials

- House poster found on the following page
- Colored markers or pens

Key Vocabulary

Carbon Footprint Recycle Energy efficient

Common Core Correlations

Energy Sources, Forms and Transformation

- Personal and Social Perspectives
- Research Tools

Problem-solving and

Decision-making Tools

Connection to the Real World



Introduction:

This is a fun project for students to create after they have studied energy, energy efficiency and renewable and nonrenewable resources. Using the poster given, students will add or color the items listed below to create a house that is eco-friendly and energy efficient. You can help your students answer questions about what types of energy they can use and how it will work in the house to create efficiency and save energy.

Procedure:

- 1. Add or color the items listed below. You may want to do different items each day as you cover different topics: electricity, natural gas, water, etc.
 - Add a bicycle.
 - Add recycling bins in the garage.
 - Add trees to shade the house.
 - Add a ceiling or floor fan to the home for cooling.
 - Put a blue star (for ENERGY STAR[®] products) on the refrigerator, television and furnace.
- Color the energy-efficient showerhead.
- Color all items that use electricity, yellow.
- Color the thermostat, brown.
- Color the furnace filter that is being changed, orange.
- Draw a purple water drop next to all items in the house that use water.

Q

To Know and Do More

- Have your students write a brief description of the things their family has done to improve energy efficiency at home. Have your students add any items that will encourage their families to be energy efficient in the future.
- Choose a natural resource used for energy and create a Venn diagram comparing the positive and negative effects of the use
 of this resource on the physical environment.



L		Ν	G	0
Water Heater	Natural Gas	Natural Resource	Incandescent	Reduce
Reuse	Phantom Load	Oil	Coal	ENERGY STAR®
Renewable	Energy	Be watt smart Begin at home	Turn It Off	Uranium
Energy Efficiency	LED	Recycle	68 Degrees	Embodied Energy
Cooking	78 Degrees	Solar	Programmable or Smart Thermostat	Electricity

L		Ν	G	0
Reuse	Natural Gas	Phantom Load	LED	78 Degrees
Cooking	Electricity	Renewable	Recycle	68 Degrees
Natural Resource	Water Heater	Be watt smart Begin at home	ENERGY STAR®	Nonrenewable
Embodied Energy	Coal	Energy Efficiency	Heating	Incandescent
Programmable or Smart Thermostat	Reduce	Oil	Solar	Uranium

L		Ν	G	0
Natural Resource	Water Heater	Natural Gas	Programmable or Smart Thermostat	78 Degrees
Turn It Off	Reduce	Oil	Embodied Energy	Cooking
Phantom Load	ENERGY STAR®	Be watt smart Begin at home	Uranium	Recycle
Energy	LED	68 Degrees	Energy Efficiency	Heating
Electricity	Renewable	Incandescent	Reuse	Solar

L		Ν	G	0
Coal	Natural Gas	Solar	Turn It Off	Renewable
Water Heater	Nonrenewable	Phantom Load	Electricity	Reuse
Energy	Oil	Be watt smart Begin at home	68 Degrees	Cooking
Programmable or Smart Thermostat	Incandescent	Recycle	Uranium	Natural Resource
Reduce	78 Degrees	Embodied Energy	LED	Energy Efficiency

Dear Parents,

Today your child participated in the **Be wattsmart, Begin at home** program sponsored by Rocky Mountain Power. In this engaging presentation, your child learned key concepts of his or her science curriculum as well as important ways to be more efficient with energy use at home.

As part of the **Be wattsmart, Begin at home** program, your child received a:

- Be wattsmart, Begin at home booklet
- Home Energy Worksheet

Please take a moment to read through this informative booklet with your child. Then, fill out the *Home Energy Worksheet* in one of two ways:

• Visit hew.nef1.org and fill out an online worksheet. You will need to enter the teacher ID found on the paper worksheet.

or

• Fill out the paper worksheet and return it to your child's teacher. To thank you, Rocky Mountain Power will provide your child with a wattsmart nightlight.

We appreciate your efforts to reinforce important **Be wattsmart, Begin at home** energy knowledge and efficiency actions in your home!





UT-ID

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Program Evaluation

Be wattsmart Begin at home

Be wattsmart Evaluation

* Required

Program Evaluation

Please share your impression of Be wattsmart. *

	Strongly Agree	Agree	Disagree	Strongly Disagree
The materials were attractive and easy to use.	0	0	0	0
The materials and activities were well-received by students.	0	0	0	0
The materials were clearly written and well- organized.	0	0	0	0
Presenters were able to keep students engaged and attentive.	0	0	0	0
Overall program	0	0	0	0

If you had the opportunity, would you conduct this program again? *

Wattsmart Rocky Mountain Power Idaho program

Program Evaluation Summary

Educators' impressions of the program from 22 educators.

	Strongly Agree	Agree	Disagree	Strongly Disagree		
Materials were attractive and easy to use.	16	6	0	0	73%	27%
Materials and activities were well received by students.	16	5	1	0	73%	23% 5%
Materials were clearly written and well organized.	17	5	0	0	77%	23%
Presenters were able to keep students engaged and attentive.	16	5	1	0	73%	23% 5%
Overall program	16	6	0	0	73%	27%

Wattsmart Rocky Mountain Power Idaho program

Program Evaluation Summary

If you had the opportunity, would you conduct this program again?



Would you recommend this program to other colleagues?



In my opinion, the thing the students liked best about the materials/program was:

in my opinion, the thing the students liked best about the materials/program was.
Making the circuit
The students love the game LINGO. It keeps them engaged, however I did notice they were
disappointed that they didn't get anything for winning.
The game "LINGO" and the night-light incentive
They loved seeing the human chain conduct electricity.
Lingo, The videos, and when they asked for volunteers.
The students loved the hands on activities.
They loved the holding hands to light the light and sound.
Videos and demonstrations
All the interactive activities.
The interactive parts where they got to participate
I really thought the students were engaged with all that was presented! The presenters interacted
well with them.
The quick pace and interaction
The whole program was excellent.
learning about ways that they can conserve at home
Hands on activities
Hands on activities
The lingo game helped them stay focused
The children loved the completed circuit activity.
I idea they would get a nightlight.
Their nightlights
The video and lingo
There are hande an activities and they are constantly switching to different activities

There are hands on activities and they are constantly switching to different activities.

In the future, one thing I would change would be:

A smaller group, 1-2 classes at a time so everyone can participate to increase engagement. I wish it would have been more hands on for every student.

I wouldn't change anything.

It was a little long for students to sit, if there was a movement type activity. The students enjoyed all aspects, it was just a bit long.

Maybe spend more time on the actual vocabulary. My students were impressed but didn't know what 'conduction' or some other key words meant that the presenters often used.

More on their level and shorter.

more time

Not a thing!

Nothing, I thought it was great

Nothing, really.

Prizes for the Lingo game

The videos, the students did not like them and we as teachers thought they were weird and the person tried too hard to be funny.

The videos. The videos were new this year and although the information was valuable I felt that they were very childish and confusing with the cow that kept being brought up since it has nothing to do with energy.

This is on our end....we have the presenters present to the whole 4th grade (256 students)....next time we will have the presentation in the gym so there is more room and air flow....:)

Home Energy Worksheet (English)

Теас	cher ID:				Be watt smart Begin at h⊚me
Teac	cher Name:				
		Home	Enerav	Worksheet	
				Wash full loads in the dishur	ashar and alathan washar
Stud	lent First Name:		12.		
Неа	ting				
1.	Install and use a pr	ogrammable or smart thermostat.			
	Currently do	Will do	Ligh	ting	
	Neither		13.	Replace inefficient bulbs with	n LED bulbs.
2.	Caulk windows and	weather strip outside doors.		Have done	Will do
	Have done	Will do		Neither	
	Neither		14.	Turn lights off when not in us	e.
3.	Inspect attic insulat	ion and add insulation if needed.		Currently do	Will do
	Have done	Will do		Neither	
	Neither		Rofr	igeration	
4.	Keep furnace air filt	ers clean/replaced regularly.	45		
	Currently do	Will do	15.	STAR [®] model	erator with an ENERGY
	Neither				
Coo	olina				
5.	Replace existing air	conditioning unit with a	10		
	high-efficiency unit	or an evaporative cooling unit.	16.	environmentally safe manner	tors and/or dispose of them in an r.
	Have done	Will do		Have done	Will do
	Neither			Neither	
6.	Close blinds when w	windows are exposed to the sun.	17	Maintain refrigerator and free	zer coils and check door seals
	Currently do	Will do		twice yearly.	
	Neither			Currently do	Will do
7.	Use a fan instead o	f air conditioning.		Neither	
	Currently do	Will do	Flee	tronics	
	Neither		10		
8.	In the summer, set	thermostat to 78° F or higher.	18.	Turn on computers, TVs and \Box	
	Currently do	Will do		Currently do	Will do
	Neither			└── Neither	
Wat	er heating		Cool	king	
9.	Set the water heate	r temperature to 120° F.	19.	Use a microwave oven, toast	ter oven, slow cooker or outdoor
	Have done	Will do		grill instead of a conventiona	l oven.
	Neither			Currently do	Will do
10.	Install a high-efficie	ncy shower head.		Neither	
	Have done	Will do	Get	paid for being wattsmart	
	Neither		20.	Visit Rocky Mountain Power	at wattsmart.com for more energy-
11.	Take 5 minute show	vers.		saving tips and rebates.	
	Currently do	Will do		Have done	Will do
	Neither			Neither	
		National			NTAIN
		Energy Foundation		POWER	
		cultivating energy literacy		POWERING YOUR GR	LEAINESS

WAT ID

Home Energy Worksheet (Spanish)

Ident	ificación del profesor(a):			Ser watt smart © Empieza en casa
Nom	bre del profesor(a):			
	Verificación de	En	ergía Doméstica	1
Prim	er nombre del estudiante:	11.	Tomar duchas de 5 minutos.	–]
Cale	facción		Lo hago	Lo haré
1.	Instalar y usar un termostato programable o termostato inteligente.	12.	Lavar cargas llenas en los lavaplat	os y las lavadoras de ropa.
	Lo hago Lo haré		Lo hago	Lo haré
	Ninguno			
2.	Calafatear ventanas e instalar burletes en el exterior de las	llum	IINACION Recomplazar los focos inoficientos d	con focos LED
	puertas.	15.		
	Lo he hecho Lo haré			
	Ninguno	1/	INInguno Anagar las luces cuando no estén	en 1150
3.	Inspeccionar el aislamiento del ático y agregar aislamiento si es	14.		
	└ Ninguno	Refr	rigerador	ineficiente con un modele de
4.	Mantener los filtros de aire de la calefacción limpios/reemplezarlos regularmente.	15.	ENERGY STAR [®] .	
	Lo hago		Lo he hecho	Lo haré
	Ninguno		Ninguno	
Enfr	iamiento	16.	Desenchufar refrigeradores/congel	ladores viejos y/o
5.	Reemplazar la unidad de aire acondicionado existente por una			
	unidad de alta eficiencia o un enfriador evaporativo.			
	Lo he hecho	17	Ninguno Montonor los hobinos del refrigeror	dor v dol oppgolador o
	Ninguno	17.	inspeccionar el sello de las puertas	s dos veces al año.
6.	Cerrar las persianas cuando las ventanas están expuestas al			Lo hago
			Ninguno	
		Flec		
-		18.	Apagar computadoras, televisores	y consolas de juegos cuando
7.	Usar un ventilador en lugar del aire acondicionado.		no estén en uso.	
	Lo hago Lo haré		Lo hago	Lo haré
	Ninguno		Ninguno	
8.	En el verano, ajustar el termostato a 78º F o más.	Coc	inar	
	Lo hago	19.	Usar un horno microonda, un horn	o eléctrico, un olla de
	Ninguno		cocimiento lento o un parrilla de ai	re libre en lugar del horno
Cale	ntadores de agua			
9.	Programar el calentador de agua a 120º F.			
	Lo he hecho Lo haré	_		
	Ninguno	Rec	Iba paga siendo wattsmart	attemant com para abtenar
10.	Instalar un cabezal de ducha de alta eficiencia.	20.	más consejos y rebajas de ahorro	de energía.
	Lo he hecho		Lo he hecho	Lo haré
	Ninguno		Ninguno	
	National			N
	Energy		POWER	-
	cultivating energy literacy		POWERING YOUR GREATNE	SS

Home Energy Worksheet Summary – Rocky Mountain Power

Energy Efficient Activity	Currently do/Have done	Will do	Neither
1. Install and use a programmable or smart thermostat.	66%	12%	22%
2. Caulk windows and weather strip outside doors.	72%	17%	11%
3. Inspect attic insulation and add insulation if needed.	59%	19%	22%
4. Keep furnace air filters clean/replaced regularly.	76%	15%	9%
5. Replace existing air conditioning unit with a high-efficiency unit or an evaporative cooling unit.	42%	12%	46%
6. Close blinds when windows are exposed to the sun.	80%	10%	11%
7. Use a fan instead of air conditioning.	68%	12%	20%
8. In the summer, set thermostat to 78 degrees F or higher.	34%	14%	52%
9. Set the water heater temperature to 120 degrees F.	66%	17%	17%
10. Install a high-efficiency showerhead.	53%	17%	29%
11. Take 5 minute showers.	37%	25%	38%
12. Wash full loads in the dishwasher and clothes washer.	93%	3%	4%
13. Replace incandescent bulbs with LED bulbs.	77%	16%	7%
14. Turn lights off when not in use.	84%	14%	2%
15. Replace old, inefficient refrigerator with an ENERGY STAR model.	65%	16%	19%
16. Unplug old freezers/refrigerators and/or dispose of them in an environmentally safe manner.	60%	17%	23%
17. Maintain refrigerator and freezer coils and check door seals twice yearly.	41%	41%	19%
18. Turn off computers, TVs and game consoles when not in use.	82%	13%	4%
19. Use a microwave oven, toaster oven, crock pot or outdoor grill instead of a conventional oven.	71%	12%	17%
20. Visit Rocky Mountain Power at <u>wattsmart.com</u> for more energy-saving tips and rebates.	17%	63%	21%

Wise Energy Behaviors in Rocky Mountain Power Idaho Homes



Wise Energy Behaviors in Rocky Mountain Power Idaho Homes

Sampling of Thanks a "WATT" Cards













Appendix 8 Idaho Program Evaluation Recommendations and Responses

Idaho 2018 Evaluations

Program Evaluation Recommendations and Company Responses

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

Outlined below is a list of the programs, the years that were evaluated and published during 2018, and the third party evaluator who completed the evaluation. Program evaluations are available for review at <u>www.pacificorp.com/es/dsm/idaho.html</u>

Program	Years Evaluated	Evaluator
wattsmart Business	2016 - 2017	Cadmus

The third party evaluator's recommendations and Company's responses are provided in the tables below.

Evaluation Recommendations	Rocky Mountain Power Response
Reducing the cool roof deemed claimed savings amount to 0.13 kWh per year, per square foot.	The Program revised cool roof measure savings on January 23, 2018 and reduced the offered incentive from \$0.10/SF to \$0.05/SF. The program is now reporting 0.11 kWh per square foot per year for retrofit applications based on outputs from the Oakridge National Laboratory Cool Roof Calculator.
Add timing for emails, bill inserts, and direct mail to the media flowchart or develop a calendar showing timing of both media and other outreach combined. Additional recommendations of incorporating email with marketing campaigns and updating all materials to the latest branding scheme had already been implemented by the time of this report.	A calendar of marketing and outreach has been developed for 2019. For cost-effectiveness make branding updates with program changes, whenever possible.
Include SBDI measure data for each SBDI installation, in the program database, or at a minimum, in the data provided to the evaluation team.	This data is included in the company's database of record, but was not provided to evaluators. It will be provided to evaluators in future evaluation cycles.

Table 1wattsmart Business Evaluation Recommendations

Evaluation Recommendations	Rocky Mountain Power Response
If additional program growth is desired, consider increasing the frequency of brand marketing of the program, and business-to-business outreach by all program administrators. Target the two largest nonparticipant business sectors (Dairy/Agricultural and Real Estate/Property Management) with case studies highlighting actual energy cost savings achieved by other small businesses in those sectors. Continue growing the program approved trade ally network, to extend RMP's outreach to customers, beyond its own marketing efforts.	The Company will evaluate this recommendation should additional program growth be desired.