



Utah Energy Efficiency and Peak Reduction Annual Report

January 1, 2015 – December 31, 2015



Issued May 23, 2016



Let's turn the answers on.



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LIST OF ABBREVIATIONS AND ACRONYMS

CFL	Compact Fluorescent Lighting
DSM	Demand-side Management
EPA	Environmental Protection Agency
GWh	Gigawatt-hour
HCD	Utah Department of Workforce Services, Housing and Community Development Division
HVAC	Heating, Ventilation and Air Conditioning
IRP	Integrated Resource Plan
kW	Kilowatt
kWh	Kilowatt hour
LED	Lighting-emitting Diode
MW	Megawatt
MWh	Megawatt hour
NTG	Net-to-Gross
PCT	Participant Cost Test
PTRC	Total Resource Cost Test with 10 percent adder
RIM	Ratepayer Impact Measure Test
Schedule 193	Demand-Side Management Cost Adjustment
TRC	Total Resource Cost Test
UCT	Utility Cost Test

EXECUTIVE SUMMARY

PacifiCorp is a multi-jurisdictional electric utility providing retail service to customers in Utah, California, Idaho, Oregon, Washington, and Wyoming. Rocky Mountain Power, a division of PacifiCorp (“Company”), serves approximately 850,000 customers in Utah. Rocky Mountain Power, working in partnership with its retail customers and with the approval of the Public Utilities Commission of Utah (“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 Utah 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 status of the Demand-Side Management Cost Adjustment tariff rider (“Schedule 193”) revenue for the performance period from January 1, 2015, through December 31, 2015.¹ The Company, on behalf of its customers, invested \$61.2 million in energy efficiency and peak reduction resource acquisitions during the reporting period. The investment yielded approximately 311 gigawatt-hours (“GWh”) in first year energy savings,² 2,724,606 megawatt-hours (“MWh”) of lifetime savings³ from 2015 energy efficiency acquisitions and approximately 60.5 megawatts (“MW”) of capacity reduction from energy efficiency savings⁴ and realized reductions associated with peak management activities of approximately 115 megawatts⁵. Net benefits based on the projected value of the energy savings over the life of the individual measures are estimated at \$62.3 million⁶.

The Demand-side Management (“DSM”) portfolio was cost effective based on four of the five standard cost effectiveness tests⁷ for the reporting period. The ratepayer impact cost test was less than 1.0 indicating near-term upward pressure was placed on the price per kilowatt-hour (“kWh”) given a reduction in sales. The DSM portfolio cost effectiveness is provided in Table 1. Annual performance information for 2015 cost effectiveness is provided in detail in Appendix 2.

¹ Appendix 1 provides specific requirements from various Docket Numbers and where they are located in the annual report and appendices.

² Reported ex-ante savings are gross and at generation.

³ Estimated lifetime savings of 2015 Energy Efficiency Acquisitions was calculated by multiplying First Year Acquisitions (measured at the generator) by the weighted average measure life of the portfolio of 8.8 years. No discount was assumed for possible savings degradation over the life of the measures. Savings are gross at generator.

⁴ See Planning Process Section for explanation on how the capacity contribution savings values are calculated.

⁵ Realized load as measured at generation.

⁶ See Table 1 – Utility Cost Test Net Benefits.

⁷ Cost effectiveness results include realization rates and NTG ratios.

Table 1 – DSM Portfolio Cost Effectiveness

	Benefit/Cost Ratio	Net Benefits
PacifiCorp Total Resource Test plus 10 percent (PTRC) ⁸	1.49	\$65,598,333
Total Resource Cost Test (TRC) ⁹	1.36	\$47,524,226
Utility Cost Test (UCT) ¹⁰	1.53	\$62,369,730
Participant Cost Test (PCT) ¹¹	2.80	\$151,915,500
Ratepayer Impact Cost Test (RIM) ¹²	0.68	(\$84,116,202)

2015 Performance Compared to Forecast

The Company forecasted Utah energy efficiency program savings totaling 311,857 MWh/year and expected to achieve 135 MW¹³ of controllable load under management. These forecasts were filed with the Commission on November 3, 2014.¹⁴ The Company achieved energy efficiency acquisitions of 311,065 MWh and potential realized controllable load management reductions of 115 MW. Variation between the load forecast and actual results for the load control programs was a result of lower market adoption compared to the forecast.

Table 2 below compares the November 1, 2014 Forecast to actual savings achieved.

⁸ The PTRC is the total resource cost test with an additional 10 percent added to the benefit side of the benefit/cost formula to account for non-quantified environmental and non-energy benefits of conservation resources over supply side alternatives.

⁹ The TRC considers the benefits and costs from the perspective of all utility customers, comparing the total costs and benefits from both the utility and utility customer perspectives. It's assumed to be the closest in valuation methodology to how supply-side resources are valued.

¹⁰ The UCT provides a benefit to cost perspective from that of the utility only, comparing the total cost incurred by the utility to the benefit/value of the energy and capacity saved, it contains no customer costs or benefits in calculation of the ratio.

¹¹ The PCT compares the portion of the resource paid directly by participants to the savings realized by the participants.

¹² The RIM examines the impact of energy efficiency expenditures on non-participating ratepayers overall. Unlike supply-side investments, energy efficiency programs reduce energy sales. Reduced energy sales can lower revenue requirements while putting near-term upward pressure on rates as the remaining fixed costs are spread over fewer kilowatt-hours.

¹³ Forecast realized load reduction associated with Cool Keeper and load under Irrigation management.

¹⁴ Refer to Docket No 14-035-142.

Table 2 - 2015 Forecast to Actual Savings Comparison

	2015 Forecast (Gross - at Gen)		2015 Actual (Gross - at Gen)	
	MWH	MW	MWH	MW
Class 1 - Residential & Non-Residential				
A/C Load Control Prgm - Residential		115		101
Irrigation Load Control		20		15
Total Class 1		135		115
Class 2 - Residential Programs				
Low Income	400	0.1	246	0.05
New Homes	2,886	0.6	3,180	0.62
Home Energy Reports	62,092	12.4	61,890	12.04
Refrigerator Recycling	19,568	3.9	16,420	3.19
Home Energy Savings	108,090	21.7	99,319	19.3
Total Residential Class 2	193,036	38.7	181,055	35.2
Class 2 - Non-Residential Programs				
watt smart Business	118,821	23.9	130,009	25.3
Total Non-Residential Class 2	118,821	23.9	130,009	25.3
Total Class 2	311,857	62.6	311,065	60.5

2015 Performance

Program and Sector level results for 2015 are provided in Table 3.

Table 3¹⁵
Utah Program Results for January 1, 2015 – December 31, 2015¹⁶

	kW/Yr Savings (at site)	kW/Yr Savings (at gen)	Program Expenditures
Load Management Programs			
Cool Keeper	92,140	100,726	\$ 4,561,239.88
Irrigation Load Control	13,368	14,603	\$ 476,568.78
Total Load Management	105,508	115,328	\$ 5,037,809
	kWh/Yr Savings (at site)	kWh/Yr Savings (at gen)	Program Expenditures
Energy Efficiency Programs			
Low Income Weatherization	225,327	246,323	\$ 60,056
New Homes	2,908,612	3,179,636	\$ 1,831,129
Refrigerator Recycling	15,021,437	16,420,299	\$ 1,331,389
Home Energy Savings	90,853,050	99,318,737	\$ 17,837,946
Home Energy Reporting	56,615,083	61,890,476	\$ 2,591,545
Total Residential	165,623,509	181,055,471	\$ 23,652,065
<i>wattsmart</i> Business Commercial	88,189,274	95,872,323	\$ 18,906,104
<i>wattsmart</i> Business Industrial	29,906,011	31,654,017	\$ 6,513,415
<i>wattsmart</i> Business Agricultural	2,273,027	2,482,987	\$ 257,525
<i>wattsmart</i> Portfolio			\$ 4,960,530
Total <i>wattsmart</i> Business	120,368,311	130,009,327	\$ 30,637,573
Outreach & Communications + Class 4			
Outreach and Communication Campaign			\$ 1,611,024
U of U Ambassador Sponsorship			\$ 90
Total Energy Efficiency	285,991,820	311,064,798	\$ 55,900,751
Total System Benefit Expenditures - All Programs			\$ 60,938,560
Portfolio Technical Reference Library			\$ 39,668
Portfolio DSM Central			\$ 207,870
Total Utah Program Expenditures			\$ 61,186,098

¹⁵ Reported savings are ex-ante.

¹⁶ The values at generation include line losses between the customer site and the generation source. The Company's line losses by sector for 2015 are 9.32 percent for residential, 8.71 percent for commercial, 5.85 percent for industrial and 9.24 percent for irrigation.

REGULATORY ACTIVITIES

During the reporting period, the Company filed a number of compliance filings, updates and requests with the Commission in support of the Company programs. The Company requested and received Commission approval of tariff modifications for the following:

- Docket No. 14-035-T14. The Company filed Revised Advice No. 14-12 on January 28, 2015 requesting to adjust Schedule 193 rate to 3.62 percent. The Commission approved the Company's filing via bench Order January 29, 2015, with an effective date of February 1, 2015. The Commission's Order that confirmed bench ruling was issued March 3, 2015.
- Docket No. 15-035-T02. The Company filed for tariff revisions to Schedules 111 and 140, Home Energy Savings and *wattsmart* Business program, respectively, on February 17, 2015. The purpose of this filing was to clarify in Schedule 111 that customers have 180 days from the date of purchase to request an incentive, and to clarify in Schedule 140 that project caps and 1-year simple paybacks apply to new construction and major renovation projects that are not subject to state energy code. The Commission approved the Company's filing in its Order issued March 12, 2015, with an effective date of March 18, 2015.
- Docket No. 15-035-T03. The Company filed for tariff revisions to Schedule 105 – Irrigation Load Control Program on March 23, 2015. The purpose of the filing was to adjust the dispatch date from June 15 to June 1, and correct link references. The Commission approved the Company's filing in its Order issued April 24, 2015, with an effective date of May 1, 2015.
- Docket No. 15-035-T04. The Company filed for tariff revisions to Schedule 140 – *wattsmart* Business Program on March 20, 2015. The purpose of the filing was to add a midstream lighting offering. The Commission approved the Company's filing in its Order issued April 28, 2015, with an effective date of May 15, 2015.
- Docket No. 15-035-48. The Company filed a request on April 29, 2015 for a one-time extension of the deadline for filing the Semi-Annual DSM Forecast Report from May 1, 2015 to June 15, 2015. The Commission granted the Company's request in its correspondence issued April 30, 2015.
- Docket No. 15-035-50. The Company filed its 2014 DSM Annual Energy Efficiency and Peak Load Reduction Report on April 30, 2015. The Commission acknowledged the Company's report as being in compliance with reporting requirements in its correspondence issued July 22, 2015.
- Docket No. 15-035-T07. The Company filed for tariff revisions to Schedule 110 – New Homes Program on May 15, 2015. The purpose of the filing was to add a measure for air source heat pumps and add a 60% tier for ENERGY STAR lighting. The Commission approved the Company's filing in its Order issued June 15, 2015, except for air source heat pump incentives where natural gas is available at the property line, with an effective date of July 1, 2015.
- Docket No. 15-035-T08. The Company filed for tariff revisions to Schedule 140 – *wattsmart* Business Program May 22, 2015. The purpose of the filing was to suspend the

small business lighting incentives pending reevaluation. The Commission granted the Company's request in its Order issued June 19, 2015, with an effective date of July 1, 2015.

- Docket No. 15-035-48. The Company filed its Semi-Annual DSM Forecast Report on June 15, 2015. The Commission acknowledged the Company's report as being compliant with reporting requirements in its Order issued August 3, 2015.
- Docket No. 12-035-77. The Company filed to revise the Home Energy Reports evaluation schedule for legacy and expansion participant groups on June 30, 2015. The Commission approved the Company's filing in its Order issued July 28, 2015, with an effective date of July 31, 2015.
- Docket No. 15-035-T13. The Company filed to make changes to Schedule 111 – Home Energy Savings Program on July 28, 2015. The purpose of the filing was to add size parameters to refrigerators and make all incentive levels “up to” amounts. The Commission approved the Company's filing in its order issued August 10, 2015, with an effective date of August 11, 2015.
- Docket No. 15-035-T15. The Company filed to adjust the Schedule 193 rate from 3.62 percent to 4.0 percent November 23, 2015. The Commission approved the Company's filing in its Order issued December 23, 2015, with an effective date of January 1, 2016.
- Docket No. 15-035-T17. The Company filed for approval to suspend Schedule 117, Appliance Recycling Program on December 4, 2015. The Commission approved the Company's filing in its Order issued December 23, 2015, with an effective date of January 4, 2016.

The Company complied with the following reporting requirements in 2015:

- January 28, 2015, the Company filed the last quarterly report on New Homes Participation Rates. Future participation rates are to be reported annually, per the Order issued January 29, 2015 in Docket No. 14-035-149.
- April 22, 2015, the Company circulated its quarterly DSM Balancing Account Report for the first quarter of 2015 to the Steering Committee.
- August 24, 2015, the Company circulated its quarterly DSM Balancing Account Report for the second quarter of 2015 to the Steering Committee.
- October 29, 2015, the Company circulated its quarterly DSM Balancing Account Report for the third quarter of 2015 to the Steering Committee.
- October 30, 2015, the Company filed a compliance notice in Docket No. 15-035-48, notifying the Commission that the New Homes and *wattsmart* Business program expenditures had exceeded 90 percent of the 2015 forecasted budget that was filed on November 3, 2014 in Docket No. 14-035-142.

The Company received approval/acknowledgement in 2015 for the following items filed in 2014:

- Docket No. 12-035-77. The Commission approved the Company's filing to adjust the Home Energy Reports budget cap to \$11.7m in its Order issued January 8, 2015.
- Docket No. 14-035-142. The Commission approved the Company's 2015 DSM Communications Plan & Budget in its Order issued January 16, 2015.

- Docket No. 14-035-142. The Commission acknowledged the Company's Annual DSM Deferred Account & Forecast Report as being in compliance with reporting requirements in its correspondence issued January 14, 2015.
- Docket No. 14-035-149. In its Order issued January 29, 2015, the Commission approved the Company's filing to revise the reporting schedule for the DSM balancing account report from monthly to quarterly, New Homes participation rates report from quarterly to annually, and to discontinue the Cool Keeper semi-annual auditable report, effective January 1, 2015.

The Company received approval/acknowledgement in 2016 for the following items filed in 2015:

- Docket No. 15-035-83. The Company filed for approval of its 2016 DSM Communications Plan & Budget on December 3, 2015. The Commission approved the Company's filing in its Order issued January 27, 2016.
- Docket No. 15-035-48. The Company filed its Annual DSM Deferred Account & Forecast Report on November 2, 2015. The Commission acknowledged the Company's filing as being compliant with reporting requirements in its correspondence issued January 22, 2016.

Advisory Group and Steering Committee Activities:

Consistent with the discussion in Docket No. 12-035-69, the Company seeks input regarding its energy efficiency programs from both the Utah DSM Steering Committee and the Utah DSM Advisory Group. Both groups include representatives from a variety of constituent organizations. Members of the Steering Committee, who are not already governed by Commission confidentiality rules, signed Confidentiality Agreements with the Company in order to provide input on issues involving sensitive, confidential, or proprietary information.

The Company consulted with the DSM Steering Committee and DSM Advisory Group throughout 2015 on the following matters:

March 5, 2015 – Steering Committee

- Discussed *wattsmart* Campaign vs. Company Branding
- Provided update on Commercial Building Benchmarking Software
- Provided update on Schedule 193 Surcharge Analysis/Adjustment
- Discussed Small/Medium Business Energy Reports
- Provided update on Irrigation Load Control program
- Discussed possibility of offering Pool Pumps
- Discussed IRP Preferred Portfolio

April 16, 2015 – Advisory Group

- Reviewed completed Program Evaluation Reports
- Reviewed 2014 Annual Report Summary and 2015 Q1 Update
- Discussed New Homes Program Changes
- Update on Home Energy Report Expansion Group

- Reviewed 2015 Conservation Potential Assessment and IRP Selections
- Provided Eagle Mountain City Update
- Provided overview of the Strategic Energy Management Program

May 19, 2015 – Steering Committee

- Discussed Small Business Lighting Program proposed changes

June 23, 2015 – Steering Committee

- Discussed Cool Keeper Program device malfunction
- Reviewed 2015 IRP and Updated Budget Estimates
- Provided update on Schedule 193 Surcharge Analysis
- Discussed IRP Selection Impact on Schedule 193 surcharge rate
- Group Discussion held on DSM Strategies and Process Improvements

September 17, 2015 – Steering Committee

- Discussed 2015 Class 2 DSM Decrement Analysis
- Discussed terminating non-performing Trade Ally
- Discussed 2016-2017 DSM Strategic Plan

October 23, 2015 – Steering Committee

- Discussed November 1st Deferred Account and Forecast Report
- Discussed Schedule 193 Surcharge Adjustment
- Discussed Up-Front Payment Option (Pre-Payment)

December 1, 2015 – Advisory Group

- Reviewed 2015 Smart Grid Report
- Reviewed Commercial Building Benchmarking Software
- Reviewed Small/Medium Business Energy Reports
- Discussed 2016 Utah Strategic Plan

DSM EXPENDITURES

Energy efficiency and peak reduction activities are funded by revenue collected through Schedule 193. Expenditures are charged as incurred. The DSM balancing account is the mechanism used for managing Schedule 193 revenues collected and tracking the offsetting DSM incurred expenses. The balancing account summary for 2015 is shown in Table 4.

Table 4
Schedule 193 Balancing Account Summary

	Monthly Program Costs	Monthly Net Accrued Costs*	Rate Recovery	Carrying Charge	Cash Basis Accumulated Balance	Accrual Based Accumulated Balance
Balance as of 12/31/14					13,730,097	18,414,134
January	3,318,077	97,753	(4,853,002)	83,754	12,278,926	17,060,716
February	3,457,488	774,324	(4,566,383)	75,673	11,245,705	16,801,818
March	6,337,484	(1,655,768)	(4,692,272)	78,260	12,969,177	16,869,523
April	6,266,842	(54,610)	(4,546,602)	89,429	14,778,846	18,624,582
May	4,339,626	424,984	(4,905,099)	93,742	14,307,115	18,577,835
June	6,359,044	(316,593)	(5,996,971)	93,690	14,762,878	18,717,005
July	4,432,791	1,038,999	(7,896,362)	84,268	11,383,575	16,376,701
August	5,145,653	1,071,910	(7,295,460)	66,663	9,300,431	15,365,467
September	6,483,485	(1,307,725)	(7,124,727)	58,069	8,717,258	13,474,568
October	5,104,306	(400,031)	(5,654,586)	54,592	8,221,569	12,578,849
November	6,351,919	215,830	(4,933,464)	57,752	9,697,777	14,270,886
December	4,644,389	933,149	(5,585,786)	7,276	8,763,656	14,269,913
2015 Total	62,241,104	822,221	(68,050,713)	843,168		

*December 2015 total accrual \$5,506,258

Column Explanations:

Monthly Program Costs - Monthly expenditures for all DSM program activities posted in 2015.

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

Rate Recovery - Revenue collected through Schedule 193.

Carrying Charge - Monthly carrying charge based on "Cash Basis Accumulated Balance" of the account.

Cash Basis Accumulated Balance - 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 Based Accumulative Balance: Current balance of account including accrued costs.

PLANNING PROCESS

Integrated Resource Plan

The Company develops a biennial IRP as a means of balancing cost, risk, uncertainty, supply reliability/deliverability and long-run public policy goals.¹⁷ The plan presents a framework of future actions to ensure the Company continues to provide reliable, reasonable-cost service with manageable risks to the Company's customers. Energy efficiency and peak management opportunities are incorporated into the IRP based on their availability, characteristics and costs.

Energy efficiency and peak management resources are divided into four general classes:

- Class 1 DSM (Resources from fully dispatchable or scheduled firm capacity product offerings/programs) – Capacity savings occur as a result of active Company control or advanced scheduling. After customers agree to participate, the timing and persistence of the load reduction is involuntary on their part within the agreed limits and parameters.
- Class 2 DSM (Resources from non-dispatchable, firm energy and capacity product offerings/programs) – 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 by customers to manage the energy use at their facility or home, also commonly referred to as energy efficiency resources.
- Class 3 DSM (Resources from price responsive energy and capacity product offerings/programs) – Short-duration energy and capacity savings from actions taken by customers voluntarily based on pricing incentives or signals.
- Class 4 DSM (Resources from non-incented behavioral-based savings achieved through broad energy education and communication efforts) – Energy and/or capacity reduction typically achieved from voluntary actions taken by customers to reduce costs or benefit the environment through education, communication and/or public pleas.

Class, 1, 2 and 3 DSM resources are included as resource options in the resource planning process. Class 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, a third-party demand-side resource potential assessment (Potentials Assessment) is conducted to estimate the magnitude, timing and cost of energy efficiency and peak management resources.¹⁸ The main focus of the Potentials Assessment is on resources with sufficient reliability characteristics that are anticipated to be technically feasible and assumed achievable during the IRP's 20-year planning horizon. The estimated achievable energy efficiency potential identified in the 2015 Potentials Assessment for Utah is 7,454 GWh by

¹⁷ Information on the Company's integrated resource planning process can be found at the following address: <http://www.pacificorp.com/es/irp.html>

¹⁸ PacifiCorp Demand-Side Resource Potential Assessment For 2015-2034, <http://www.pacificorp.com/es/dsm.html>.

2034, or 22 percent of projected baseline loads.¹⁹ By definition this is the energy efficiency potential that may be achievable to acquire during the 20-year planning horizon; prior to screening for cost-effectiveness through the Company's integrated resource planning process.

The achievable technical potential of Class 2 (energy efficiency) resources for Utah by sector is shown in Table 5. The 2015 Potentials Assessment indicates that approximately 69 percent of the achievable technical potential for the Company, excluding Oregon,²⁰ is available within its Utah service area.²¹

Table 5
Utah Energy Efficiency Achievable Technical Potential by Sector

Sector	Cumulative GWh in 2034	Percent of Baseline Sales
Residential	2,025	21%
Commercial	4,017	32%
Industrial	1,369	12%
Irrigation	18	10%
Street Lighting	24	32%

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 Potentials Assessment, it is impractical to incorporate each as a stand-alone resource in the IRP. To address this issue, Class 2 DSM measures and Class 1 DSM programs are bundled by cost for modeling against competing supply-side resource options reducing the number of discrete resource options the IRP must consider to a more manageable number.

The evaluation of Class 2 DSM (energy efficiency) resources within the IRP is also informed by state-specific evaluation criteria in the development of supply-curves. While all states generally use commonly accepted cost-effectiveness tests to evaluate DSM resources, some states require variations in calculating or prioritizing the tests:

- Utah utilizes the UCT as the primary determination of cost effectiveness.
- Idaho, Oregon, and Washington utilize the TRC and consider the inclusion of quantifiable non-energy benefits.
- Oregon and Washington, in addition to considering quantifiable non-energy benefits, apply an additional 10% benefit to account for non-quantifiable externalities, consistent with the Northwest Power Act.
- Wyoming and California utilize the standard TRC test excluding quantifiable non-energy benefits and the 10% benefit adder Oregon and Washington consider.

¹⁹ Ibid, Volume 2, page 4-2.

²⁰ Oregon energy efficiency potentials assessments are performed by the Energy Trust of Oregon.

²¹ Volume 1, Page 4-2, PacifiCorp Demand-Side Resource Potential Assessment for 2015-2034.

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.

Estimated Peak Contributions

The reported capacity reduction of 60.5 MW (at generation) for energy efficiency programs during 2015 represents the estimated MW impact of the energy efficiency portfolio during PacifiCorp's system peak period. An energy-to-capacity conversion factor developed from Class 2 DSM selections in the 2015 IRP is used to translate 2015 energy savings to estimated demand reduction during the system peak. The utilization 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 2015 IRP. Utilization of this factor in determining the MW contribution of energy efficiency programs for 2015 is detailed in Table 6 below.

Table 6
Estimated Peak Contribution

Description	Value
First year energy efficiency program MWh savings acquired during 2015	311,065
Conversion factor: Coincident MW/MWh	0.000195
Estimated coincident peak MW contribution of 2015 energy efficiency acquisitions	60.52

PEAK REDUCTION PROGRAMS

Peak Reduction programs assist the Company in balancing the timing of customer energy requirements during heavy summer use hours. Peak reduction programs are intended to defer the need for higher cost investments in delivery infrastructure and peak 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.

Programs targeting capacity related resources are often specific to end use loads most prevalent in a given jurisdiction, such as the agricultural pumping and space cooling loads in Utah. In 2015, the Company offered the Irrigation Load Control program (Schedule 105) in the agricultural sector and the Cool Keeper air conditioner load management program (Schedule 114) in the residential and small commercial sectors.

The Peak Reduction Programs achieved a total of 115 MW of potential realized load control (gross at generation) in 2015. Cost effectiveness results for the reporting period are provided in Table 7.

Table 7
Cost Effectiveness for Load Control Portfolio²²

	Benefit/Cost Ratio
PacifiCorp Total Resource Cost Test plus 10 percent	Pass
Total Resource Cost Test	Pass
Utility Cost Test	Pass
Participant Cost Test	N/A
Rate Payer Impact Cost Test	Pass

²² Decrement values or avoided costs are considered confidential on load control programs. Cost effectiveness ratios and inputs will be available under a protective agreement. A "Pass" designation equates to a benefit to cost ratio of 1.0 or better.

Irrigation Load Control

The *Irrigation Load Control* program was 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 from 12 pm to 8 pm Mountain Time, Monday through Friday, and do not include holidays. For most participants, their irrigation equipment is set up with a dispatchable two-way control system giving the Company control over their loads. Under this control option, participants are provided a day-ahead 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's performance, participation and cost effectiveness results for the reporting period of June 1, 2015 – August 21, 2015 are provided in Tables 8 and 9.

Table 8
Irrigation Load Control Program Performance

Total Enrolled kW (Gross – at Gen)	34,000
Maximum Potential kW (at Gen)	14,603
Average Realized load kW (at Gen)	9,127
Maximum Realized load kW (at Gen)	11,921
Participation Customers	55
Participation (Sites)	227

Table 9
Cost Effectiveness for Irrigation Load Control

	Benefit/Cost Ratio
PacifiCorp Total Resource Cost Test plus 10 percent	Pass
Total Resource Cost Test	Pass
Utility Cost Test	Pass
Participant Cost Test	N/A
Rate Payer Impact Cost Test	Pass

Program Management

The program manager who is responsible for the *Irrigation Load Control* programs in Utah is also responsible for the *Irrigation Load Control* program in Idaho and the *Cool Keeper* program in Utah along with *Home Energy Reports* program 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-for-performance structure and is responsible for all aspects of the program.

Irrigation Load Control Events and Performance

There were seven load control events initiated in 2015. The date, time and estimated impact for each event is provided in Table 10.

Table 10
Irrigation Load Control Events

Date	Event	Event Times	Estimated Load Reduction - Utah at Gen (MW)
June 16, 2015	1	4pm - 8pm	7
June 18, 2015	2	4pm - 8pm	6
June 22, 2015	3	4pm - 8pm	9
June 25, 2015	4	4pm - 8pm	11
June 26, 2015	5	4pm - 8pm	9
June 29, 2015	6	3pm - 7pm	10
July 1, 2015	7	4pm - 8pm	12

Program Changes

The program extended its dispatch season from June 15 to June 1. Expanding the program by two weeks provides the Company additional flexibility to help meet system peak demands.

Also in 2015, the incentive rates were increased \$2 per kilowatt (“kW”) with the intent to increase and retain program participants in the program.

Evaluation

No evaluation activities occurred during 2015.

Cool Keeper

The *Cool Keeper* program is an air conditioner direct load management program targeting residential and qualifying commercial customers (equipment size equal to or less than 15 tons) who cool their homes and businesses with electric central air conditioners. On select summer weekday afternoons, when electricity demand is at its highest, the *Cool Keeper* control equipment installed on a participating customer's cooling equipment is sent a signal to cycle the operation of the air conditioners compressor "off and on" for brief periods each hour in coordination with the air conditioners of other participating customers. For their participation, customers receive an annual "thank you" bill credit up to \$40 per air conditioner being controlled depending on the size of the air conditioner.

The Cool Keeper load control system operates through two-way communications equipment with a wireless mesh network for improved control, measurement and verification of program performance.

A summary of the program's cost effectiveness, performance and participation are provided in Tables 11 and 12 below.

Table 11
Cost Effectiveness for Cool Keeper

	Benefit/Cost Ratio
PacifiCorp Total Resource Cost Test plus 10 percent	Pass
Total Resource Cost Test	Pass
Utility Cost Test	Pass
Participant Cost Test	NA
Rate Payer Impact Cost Test	Pass

Table 12
Program Performance for Cool Keeper

Maximum Potential KW (at Gen)	100,726
Maximum Realized KW (Gross – at Gen)	89,018
Total Participation	103,371

Program Management

The program manager who is responsible for the *Cool Keeper* program in Utah is also responsible for the *Irrigation Load Control* programs in Utah and Idaho along with *Home Energy Reports* in Idaho, Utah and Wyoming. The program manager is responsible for managing the program administrators, the cost effectiveness of the program, identifying and contracting with the program administrator through a competitive bid process, establishing and monitoring program

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

Program Administration

The *Cool Keeper* program is administered by GoodCents and Eaton.

GoodCents is responsible for:

- Field operations including trouble calls, installation, and maintenance of the Cool Keeper devices.
- Customer satisfaction including call center support.
- Management of Cool Keeper participation data and reporting to actively manage the program.
- Quality control of the Cool Keeper device infrastructure to ensure a 99% availability of active devices.
- Marketing to maintain a minimum level of participation and megawatt reductions.

Eaton is responsible for:

- Manufacture and delivery of the Cool Keeper devices.
- Installation, operation, and maintenance of the wireless mesh communication network.
- Quality control of the wireless mesh network.
- A hosted solutions platform to dispatch and monitor the health of the communication network.
- Program analytics including the ability to gain insight into the system and identify Cool Keeper devices which are no longer communicating.

Cool Keeper Load Control Events and Performance

There were two control events initiated in 2015. The date, time and estimated impact for each event is provided in Table 13.

Table 13
Cool Keeper Load Control Events

Date	Event	Event Times	Estimated Load Reduction - Utah at Gen (MW)
6/26/15	1	4:30pm - 5:30pm	83
8/14/15	2	4:30pm - 7:30pm	89

Evaluation

No evaluation activities occurred during 2015.

ENERGY EFFICIENCY PROGRAMS

Energy Efficiency programs are offered to all major customer sectors: residential, commercial, industrial and agricultural. The overall energy efficiency portfolio included six programs: *Home Energy Savings* – Schedule 111, *Residential Refrigerator Recycling* – Schedule 117, *New Homes* – Schedule 110, *Home Energy Reports*, *Low Income Weatherization* – Schedule 118, and *Non-Residential Energy Efficiency (wattsmart Business)* – Schedule 140. In addition to the energy efficiency programs, the Company, on behalf of customers, invested in outreach and education for the purpose of promoting the efficient use of electricity and improving program performance.

Energy efficiency savings are reported as gross, at site and ex-ante. In 2015, portfolio savings increased by approximately 16%, from 247,549,963 kWh in 2014, to 285,991,820 kWh in 2015. The portfolio was cost effective from four of the five cost tests. The ratepayer impact test was less than 1.0 indicating that there is near term upward pressure placed on the price per kilowatt-hour given a reduction in sales. Cost effectiveness results of the 2015 Energy Efficiency Portfolio are provided in Table 14.

Table 14
Cost Effectiveness for Energy Efficiency Portfolio

	Benefit/Cost Ratio	Net Benefits
PacifiCorp Total Resource Cost Test plus 10 percent	1.32	\$28,330,939
Total Resource Cost Test	1.20	\$17,767,747
Utility Cost Test	1.95	\$51,537,187
Participant Cost Test	2.57	\$132,991,565
Rate Payer Impact Cost Test	0.53	(\$94,948,745)

Table 15 provides a program-level summary of Gross and Net savings acquired in 2015 at site and at generation.

Table 15
Energy Efficiency Gross and Net Savings²³

Program	Gross kWh Savings at Site	Net kWh Savings at Site	Gross kWh Savings at Gen	Net kWh Savings at Gen
Low Income	225,327	225,327	246,323	246,323
New Homes	2,908,612	2,326,890	3,179,636	2,543,710
Refrigerator Recycling	15,021,437	13,408,136	16,420,299	14,657,506
Home Energy Savings	90,853,049	67,660,166	99,318,737	73,964,740
Home Energy Reports	56,615,083	56,615,083	61,890,476	61,890,476
wattsmart Business	120,368,312	93,358,618	130,009,327	100,849,699
Total	285,991,820	233,594,220	311,064,798	254,152,454

²³ Net savings include realization rates and NTG ratios.

The Company, working with its third-party program delivery administrators²⁴, collaborates with the following number of retailers, contractors and vendors in the delivery of its energy efficiency programs in Utah. Table 16 below lists the energy efficiency infrastructure. See Appendix 4 for a complete of Home Energy Savings retailers and Appendix 6 for the non-residential energy efficiency alliance.

Table 16
Energy Efficiency Infrastructure

Sector	Type	No.
Residential	Upstream Retailers	283
	Downstream Retailers	324
	HVAC ²⁵ Contractors	234
	Plumbing Contractors	60
	Weatherization Contractors	152
	Low Income Agencies	1
Commercial and Industrial	Lighting Trade Allies	198
	HVAC Trade Allies	70
	Motors Trade Allies	85
	Engineering Firms	22

²⁴ See program specific information for backgrounds on third party administrators.

²⁵ Heating, ventilation and air conditioning.

RESIDENTIAL PROGRAMS

The residential energy efficiency portfolio was comprised of five programs: *Home Energy Savings*, *Refrigerator Recycling*, *New Homes*, *Home Energy Reports*, and *Low Income Weatherization*. Residential savings increased by approximately 21%, from 136,436,450 kWh in 2014 to 165,623,509 kWh in 2015. The residential portfolio was cost effective based on four of the five standard cost effectiveness tests for the 2015 reporting period. Table 17 shows the cost effectiveness results for the residential portfolio.

Table 17
Cost Effectiveness for Residential Portfolio

	Benefit/Cost Ratio	Net Benefits
PacifiCorp Total Resource Test plus 10 percent	1.48	\$19,259,399
Total Resource Cost Test	1.34	\$13,838,516
Utility Cost Test	2.29	\$30,556,766
Participant Cost Test	2.94	\$77,857,274
Rate Payer Impact Cost Test	0.52	(\$50,446,167)

Home Energy Savings

The *Home Energy Savings* program is designed to provide access to and incentives for more efficient products and services installed or received by customers in new or existing homes, multi-family housing units or manufactured homes for residential customers under Electric Service Schedules 1, 2, or 3. Landlords who own property where the tenant is billed under Electric Service Schedules 1, 2, or 3 also qualify for the program. Program cost effectiveness is provided in Table 18.

Table 18
Cost Effectiveness for Home Energy Savings

	Benefit/Cost Ratio	Net Benefits
PacifiCorp Total Resource Cost Test plus 10 percent	1.71	\$21,087,229
Total Resource Cost Test	1.55	\$16,459,824
Utility Cost Test	2.59	\$28,436,102
Participant Cost Test	2.92	\$63,554,562
Rate Payer Impact Cost Test	0.58	(\$34,114,719)

Program participation by measure is provided in Table 19.

Table 19
Eligible Program Measure Categories (Units)

Measure Category	Total kWh/Yr Savings @ Site	Total Incentive	Total Quantity
Appliances	774,480	\$342,201	5,707
Building Shell	1,625,054	\$1,033,853	6,724,427 (sq ft)
Electronics	413,880	\$206,940	13,796
Energy Kits	2,777,043	\$153,291	15,158
HVAC	8,834,808	\$3,545,817	14,948
Lighting	76,421,125	\$8,367,537	3,149,608
Water Heating	6,660	\$3,350	8
Total	90,853,049	\$13,652,989	

Program Management

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

Program Administration

The *Home Energy Savings* program is administered by CLEAResult, who is responsible for:

- Retailer and trade ally engagement – CLEAResult identifies, recruits, supports and assists retailers to increase the sale of energy efficient lighting, appliances and electronics. CLEAResult enters into promotion agreements with each lighting manufacturer and retailer for the promotion of discounted CFL and 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 completed, works directly with customers when information is incorrect and/or missing from the application and processes the application for payment.
- Program specific customer communication and outreach – A summary of the communication and outreach conducted by CLEAResult on behalf of the Company are outlined in Appendix 7.

The *Home Energy Savings* program administration contract for all states expired in 2016. In 2015, the Company initiated a request for proposal and a new contract was established early 2016.

Infrastructure

In 2015, there were 1,053 potential retailer and trade ally participants in the program by delivery channel. Of this, 619 retailers and trade allies actively participated in 2015 from all delivery channels. The list of participating and non-participating retailers and trade allies by delivery channel and measure is provided in Appendix 4. Some retailers may have participated in more than one delivery type, so the count of unique participating firms is less than the total count by delivery type.

Program Changes

In 2015, the *Home Energy Savings* program was modified to add size parameters for refrigerators and make all incentive levels “up to” amounts.

Evaluation

A process and impact evaluation was conducted by a third party evaluator in 2015 for program years 2013-2014. A final evaluation has not been published as of the date of this report.

Refrigerator Recycling

The *Refrigerator Recycling* program, also known as “*See ya later, refrigerator®*”, was designed to decrease electricity use through voluntary removal and recycling of inefficient refrigerators and freezers. The program was available to residential, businesses and appliance retailers. Participants received a \$30 incentive for each qualifying refrigerator or freezer recycled through the program and an energy saving kit. The kit included two CFLs, a refrigerator thermometer card, energy-savings educational materials, and information on other efficiency programs relevant to residential, commercial and industrial customers.

Refrigerators and freezers were also collected from retailers for qualifying units to remove them from the secondary market, known as Secondary Market Intervention (“SMI”). The secondary market refers to used units collected by retailers which are then resold. Some large retail chains sell refurbished units to second hand retailers who put them back out in the market. The purpose of SMI was to remove the used, inefficient units from the secondary market. Participating retailers received an incentive of up to \$20 for each qualifying refrigerator or freezer picked up.

Program cost effectiveness for 2015 is shown in Table 20.

Table 20
Cost Effectiveness for Refrigerator Recycling

	Benefit/ Cost Ratio	Net Benefits
PacifiCorp Total Resource Cost Test plus 10 percent	2.72	\$2,288,616
Total Resource Cost Test	2.47	\$1,959,524
Utility Cost Test	2.47	\$1,959,524
Participant Cost Test ²⁶	N/A	\$10,350,208
Rate Payer Impact Cost Test	0.32	(\$7,120,676)

Program participation by measure is provided in Table 21 below.

²⁶ Participants in program incur no costs.

Table 21
Eligible Program Measures (Units)

Measure Category	Total kWh/Yr Savings @ Site	Total Incentive	Total Quantity
Energy Savings Kit	457,304	\$61,119	10,033
Energy Savings Kit (residential used in a business)	4,148	\$541	91
Freezer Recycling - Secondary Market Intervention	150,815	\$3,100	154
Freezer Recycling	2,078,328	\$64,080	2,136
Freezer Recycling (residential used in a business)	13,622	\$420	14
Refrigerator Recycling - Secondary Market Intervention	1,772,430	\$28,820	1,430
Refrigerator Recycling	10,441,470	\$254,670	8,489
Refrigerator Recycling (residential used in a business)	103,320	\$2,520	84
Total	15,021,437	\$415,270	

In 2015, more than 1.7 million pounds of metal, 271,000 pounds of plastics, and 32,400 pounds of tempered glass were recycled. In addition, the capture, recovery or destruction of more than 15,000 pounds of ozone depleting Chlorofluorocarbons (greenhouse gases), Hydrofluorocarbons, and Hydrochlorofluorocarbons, commonly used in refrigerants and foam insulation equates to more than 32,500 metric tons of carbon dioxide avoided.

Program Management

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

In the fourth quarter of 2014, the program manager identified media placement expenditures were not allocated correctly to JACO. Accordingly, JACO issued a credit to the program in 2015 which was allocated to all states based upon the percentage of media expenditures incurred.

Program Administration

The *Refrigerator Recycling* program was administered by JACO Environmental (“JACO”). JACO was one of the largest recyclers of house-hold appliances in the United States until going out of business in the fourth quarter of 2015. The Company contracted with JACO to provide customer scheduling, pick-up, incentive processing and marketing services for the *Refrigerator Recycling* program.

JACO also ensured that over 95 percent of the components and materials of the discarded appliance were either recycled for beneficial uses or eliminated in an environmentally responsible way. The remaining 5 percent could then be productively used as “fluff” to facilitate the decomposition of biodegradable landfill material.

JACO was responsible for the following:

- Appliance Pick-up – JACO handled all customer and field service operations for the program, including pick-up of refrigerators and freezers from customers and transporting the units to the de-manufacturing facility.
- Incentive processing and call-center operations – Customer service calls, pick-up scheduling and incentive processing.
- Program specific customer communication and outreach – Working in close coordination with the Company, JACO handled all the marketing for the program. The program was marketed through bill inserts, customer newsletters and TV, newspaper and online advertising.

As part of the program control process, the Company contracted with third-party independent inspectors to conduct ongoing oversight of the program's appliance recycling process, from verification that units being recycled met the program eligibility criteria to verifying they were being recycled and that the program records were accurate.

A summary of the inspection process is included in Appendix 3.

Infrastructure

Refrigerators and freezers were collected from residential/business customers and trucked to a JACO facility in Salt Lake City, Utah for disassembly and recycling.

Program Changes

On November 19, 2015, the Company was notified by JACO that they entered into a voluntary receivership, but customer pickups would continue. On November 21, the Company was notified pickups were canceled due to complications with transferring the receivership. On November 23, the Company was verbally notified that operations had ceased, and received formal correspondence confirming this November 24. The Company immediately posted this information on the program web site, issued a press release, and used another vendor to contact the affected customers to inform them their pickup was canceled. Initial data indicated this impacted 364 Utah customers. The Company also learned that JACO's bank accounts had been closed impacting the cashing of checks and customers who were recent participants would experience delays in receiving their checks.

On November 24, 2015, the Company notified the DSM Steering Committee of the recent developments with JACO, the unavailability of the program offer, and the Company's plan to make a filing requesting approval to suspend the appliance recycling offer and allow time to evaluate the options for this program.

Due to JACO closing its bank account with recent customers, the Company developed a process to pay these incentives and any bank fees incurred by customers. The process was communicated to affected customers on December 9, 2015.

During December 2015, the Company began an expedited sole source procurement process to contract for remedial or “clean-up” appliance recycling services. This provider would contact customers who had pick-ups scheduled with JACO that were canceled in November and December and, if the customer was still interested, offer the same removal service and incentive. A contract with Appliance Recycling Centers of America was executed December 30, 2015, and customer outreach began in January 2016. The Company filed a request with the Commission to suspend the program on February 5, 2016.

Evaluation

A process and impact evaluation was conducted by a third party evaluator in 2015. The evaluation was published in 2016 and is available on the Company’s website.

New Homes

The *New Homes* program provides incentives for new homes and multi-family units meeting the specific energy efficiency requirements as outlined in the program's tariff. The *New Homes* program has shown success in helping improve building practices in Utah. To be eligible for program incentives, a home must have installed qualifying stand-alone measures, or a residence must meet the minimum standards and certifications set by the program, such as a certification of ENERGY STAR.

Program results are provided below in Table 22.

Table 22
Cost Effectiveness for New Homes

	Benefit/Cost Ratio	Net Benefits
PacifiCorp Total Resource Cost Test plus 10 percent	0.25	(\$4,936,250)
Total Resource Cost Test	0.23	(\$5,085,055)
Utility Cost Test	0.81	(\$343,083)
Participant Cost Test	0.62	(\$2,672,921)
Rate Payer Impact Cost Test	0.32	(\$3,115,713)

The program was not cost effective from any perspectives in 2015. The significant decrease in cost effectiveness is largely due to the reduction in decrement values calculated for the 2015 IRP. In the most recent New Homes evaluation (not yet finalized) for program years 2013-2014, the program was cost effective with a calculated UCT of 1.03. Due to the program not being cost effective in 2015, the Company is reviewing its options going forward.

Program participation results for 2015 are provided in Table 23 below.

Table 23
New Homes Program Participation

Measures	Total kWh Savings @ Site	Total Incentives	Total Quantity
15 SEER / 12 EER / TXV MF	2,472	\$1,800	24
15 SEER / 12 EER / TXV SF	15,403	\$7,300	73
2013 EISA - 80% E* lighting 2000 to 3500 SF	2,108	\$120	2
2014 EISA - 80% E* lighting <2000 SF	109,242	\$9,520	238
2014 EISA - 80% E* lighting <850 MF	168,168	\$17,160	858
2014 EISA - 80% E* lighting >1500 MF	71,536	\$5,440	136
2014 EISA - 80% E* lighting >3500 SF	256,512	\$30,720	384
2014 EISA - 80% E* lighting 2000 to 3500 SF	426,930	\$38,520	642
2014 EISA - 80% E* lighting 850 to 1500 MF	440,450	\$34,500	1,150
2X6 R-20 Walls MF	14,308	\$8,176	2,044
2X6 R-20 Walls SF	85,360	\$44,000	880
60% E* lighting <2000 SF	3,936	\$300	12
60% E* lighting >1500 MF	6,016	\$480	16
60% E* lighting >3,500 SF	2,862	\$390	6
60% E* lighting 2000 to 3500 SF	9,025	\$855	19
60% E* lighting 850 to 1500 MF	27,300	\$2,000	100
Dishwasher EF 0.75+ MF	55,384	\$12,040	1,204
Dishwasher EF 0.75+ SF	38,686	\$8,410	841
ECM Motor in 95% AFUE Furnace SF	21,840	\$10,500	70
ENERGY STAR V3 - Whole Home Option MF	199,924	\$99,300	662
ENERGY STAR V3 - Whole Home Option SF	209,898	\$103,500	414
GSHP E* 17 EEF 3.6 COP MF	307,620	\$180,000	180
GSHP E* 17 EEF 3.6 COP SF	14,104	\$7,000	4
High Performance ESTAR v3 MF	73,080	\$36,000	180
High Performance ESTAR v3 SF	10,030	\$5,000	10
HVAC-QI Contractor cert SF	94	\$50	1
HVAC-QI Rater cert MF	70,705	\$44,750	895
HVAC-QI Rater cert SF	52,076	\$27,700	277
HVAC-QI Rater cert w ECM MF	48,480	\$24,000	120
HVAC-QI Rater cert w ECM SF	59,787	\$29,250	117
IECC 2009 Builder cert MF	3,486	\$2,075	83
IECC 2009 Builder cert SF	198	\$150	6
IECC 2009 Rater cert MF	56,322	\$33,525	1,341
IECC 2009 Rater cert SF	22,914	\$15,075	603
Refrigerator 10%> Energy Star MF	22,275	\$5,500	275
Refrigerator 10%> Energy Star SF	81	\$20	1
2014 Correction	-	-\$150	-
Total	2,908,612	844,976	13,868

Program Management

The program manager responsible for the *New Homes* program in Utah is also responsible for new home services found in the *Home Energy Savings* program in Idaho 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 recommending changes in the terms and conditions set in each state's compliance requirements.

Program Administration

The *New Homes* program is administered by Nexant, Inc. ("Nexant"). Nexant's services include design, implementation and evaluation of commercial, industrial, and residential energy efficiency program in the United States. The Company contracts with Nexant to provide coordination and application processing services for the *New Homes* program.

Specifically, Nexant is responsible for the following:

- Builder and trade ally engagement – Identifies, recruits, supports and assists builders and their sub-contractors to increase energy efficiency standards in new residential construction.
- Incentive processing and administrative support – Handles incoming inquiries as assigned, processes incentive applications, provide program design services, evaluation and regulatory support upon request.
- Inspections – Verifies on an on-going basis the installation of measures. Summary of the inspection process is in Appendix 3.
- Program specific customer communication and outreach.

The program administrator contract for *New Homes* expires at the end of 2016.

Infrastructure

The program processed 13,868 measures in 3,845 homes in 2015. In addition, the program provided training sessions and promotional support including:

- Annual builder meeting held in conjunction with Questar.
- Program staff participated on the board of directors of the Salt Lake Home Builder Associations and Utah State Home Builders Association.
- Quarterly meetings with home raters.

Program Changes

In 2015, the *New Homes* program made the following program modifications effective July 1, 2015:

- Added electronically commutated motor (ECM) for 95 percent efficient gas furnace.
- Added air source heat pump.

- Added a lighting requirement that 60 percent of lighting fixtures contain ENERGY STAR qualified lighting products.
- Extended incentive application deadline from 120 days to 180 days.

Evaluation

A process and impact evaluation was conducted by a third party evaluator in 2015. A final evaluation has not been published as of the date of this report.

Home Energy Reports

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

In 2015, the program achieved total savings of 56,615,083 kWh at site; 30,977,716 kWh for the legacy group and 25,637,367 kWh for the expansion group. The “legacy” group is defined as the 2012 initial participant wave and “expansion” group is defined as the 2014 participant expansion wave. Program cost effectiveness is provided in Table 24.

Table 24
Cost Effectiveness for Home Energy Reports

	Benefit/Cost Ratio	Net Benefits
PacifiCorp Total Resource Test plus 10%	1.29	\$748,332
Total Resource Cost Test	1.17	\$444,707
Utility Cost Test	1.17	\$444,707
Participant Cost Test	N/A	\$6,374,830
Rate Payer Impact Cost Test	0.34	(\$5,930,123)

Reports were initially provided to approximately 95,000 customers in the legacy group and an additional 220,000 customers were added to the expansion group. The number of participant’s decreased over time due to customer attrition related to general customer churn (customer move-outs) and customers requesting to be removed from the program. To date, only 1.7% of customers have requested to be removed from the program. As of December 2015, 253,700 customers were active recipients of Home Energy Reports. In 2015, 578 customers opted out of the program.

All new participants receive mailed monthly reports for the initial three months in order to build program awareness. Following this initial three month period, report frequency is reduced to a bi-monthly schedule for the remainder of the treatment period.

In 2015, reports were sent on a bi-monthly schedule until August 23rd. An analysis was performed to determine the impact on savings persistence by reducing the frequency of the reports. It was determined there was no impact to savings. As a result, the Company resumed the reports in January 2016 on a quarterly cadence.

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

Program Management

The program manager responsible for the *Home Energy Reports* program in Utah is also responsible for the program in Idaho and Wyoming as well as *Irrigation Load Control* and *Cool Keeper* programs 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 recommending changes in the terms and conditions set in each state's compliance requirements.

Program Administration

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

Opower is responsible for the following:

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

Evaluation

In 2015, a process and impact evaluation was initiated by a third party evaluator for the 2014 - 2015 program years. Both the legacy and expansion waves were evaluated. The primary objective of the evaluation report was to determine the extent to which participants in the Home Energy Reports program reduced their energy consumption due to the program. Secondary objectives are to report on customer satisfaction with the program, and on behavioral and information effects of the program. Once published, the results of the evaluation can be viewed at <http://www.pacificorp.com/es/dsm/utah.html>.

Low Income Weatherization

The *Low Income Weatherization* program provides energy efficiency services through a partnership with the Utah Department of Workforce Services, Housing and Community Development Division (“HCD”) to income-eligible households. Services are at no cost to the program participants.

In 2015, the program achieved savings of 225,327 kWh and served 306 homes. The measures installed through the *Low Income Weatherization* program are limited to those that reduce electricity use in participant’s homes. The majority of homes served are not electrically heated and do not have electric water heaters, so most of the Company funds cover lighting and refrigerator replacement costs.

Program performance results for January 1, 2015 – December 31, 2015 are provided in Table 25.

Table 25
Cost Effectiveness for Low Income

	Benefit/Cost Ratio	Net Benefits
PacifiCorp Total Resource Test plus 10 percent	2.19	\$71,472
Total Resource Cost Test	1.99	\$59,515
Utility Cost Test	1.99	\$59,515
Participant Cost Test	N/A	\$250,594
Rate Payer Impact Cost Test	0.42	(\$164,936)

Total savings, measure type and the corresponding numbers of homes that installed the measure type are provided in Table 26.

Table 26
Total Savings, Homes Served and Measure Counts

Total kWh Savings @ Site	225,327
Participation – Total number of Homes Served	306
Measure Type Installed in Each Home	#
Ceiling Insulation	2
Duct Sealing	3
Furnace Fans	61
Compact Fluorescent Light Bulbs	290
Refrigerator Testing on Models not Replaced	140
Refrigerator Replacements	58
Energy Education	1
Thermostats	9

Program Management

The program manager responsible for the *Low Income Weatherization* program in Utah is also responsible for the *Low Income Weatherization* program in California, Idaho, Washington and Wyoming; energy assistance programs in Utah, California, Idaho, Oregon, Washington and Wyoming; and bill discount programs in Utah, California and Washington. The program manager is responsible for the cost effectiveness of the weatherization program in each state, partnerships and agreements in place with 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 currently has a contract in place with HCD to provide services through the *Low Income Weatherization* program. The state agency receives federal funds and subcontracts with seven non-profit agencies that install energy efficiency measures in the homes of income eligible households throughout the Company's service area. Company funding of 50 percent of the cost of approved measures is leveraged by HCD with the federal funding they receive, allowing more homes to be served each year.

By contract with the Company, HCD and their subcontracting local agencies are responsible for the following:

- Income Verification – The local agencies determine participants are income eligible based on HCD guidelines. Household's interested in obtaining weatherization services apply through the agencies. The current income guidelines can be viewed at www.benefits.gov/benefits/benefit-details/1884.
- 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. HCD also inspects a random sample of homes. See Appendix 3 for verification summary.
- Billing Notification – HCD is required to submit a billing to Company within 60 days after job completion. They include a form indicating the measures installed and associated cost on each completed home along with their invoice.

Evaluation

No evaluation activities occurred in 2015.

NON-RESIDENTIAL ENERGY EFFICIENCY

The *Non-Residential Energy Efficiency* program is promoted to the Company's customers as *wattsmart Business*. The *wattsmart Business* Program is intended to be a "one-stop-shop" program for customers, alleviating confusion or perceptions of complexity. Calendar year 2014 was the first full year of program operation. Total savings increased by 8%, from 111,113,513 kWh in 2014 to 120,368,312 kWh in 2015.

The data below for calendar year 2015 is provided for the commercial/industrial/agricultural portfolio with results by measure group to capture all of the Non-Residential energy efficiency activities for the year. The program was cost effective in 2015 as shown in Table 27 below.

Table 27
Cost Effectiveness for Non-Residential Energy Efficiency

	Benefit/Cost Ratio	Net Benefits
PacifiCorp Total Resource Test plus 10 percent	1.24	\$10,930,191
Total Resource Cost Test	1.13	\$5,787,883
Utility Cost Test	1.80	\$22,839,072
Participant Cost Test	2.24	\$55,134,292
Rate Payer Impact Cost Test	0.55	(\$42,643,927)

Total savings, projects and incentives completed in the current period by customer sector are provided in Table 28.

Table 28
Participation by Sector

Project Sector	Total kWh Savings @ Site	Total Projects	Cash Incentive	Bill Credits
Agricultural	2,273,027	108	\$256,813	\$0
Commercial	88,189,274	3,895	\$14,519,079	\$1,059,382
Industrial	29,906,012	222	\$2,702,167	\$842,426
Total	120,368,312	4,225	\$17,478,059	\$1,901,809

Total savings, projects and incentives by measure category are provided in Table 29 below.

Table 29
Participation by Measure Category

Measure Category	Total kWh/Yr Savings @ Site	Total Cash Incentive	Total Bill Credit	Total Projects
Additional Measures	1,977,803	\$274,407	\$0	5
Building Shell	1,535,617	\$539,982	\$0	350
Compressed Air	6,275,158	\$555,839	\$333,810	22
Energy Mgmt	14,364,804	\$287,296	\$0	30
Electronics	266,433	\$21,040	\$0	9
Energy Project Mgr Co-funding	-	\$411,587	\$0	7
Farm & Dairy	353,567	\$22,506	\$0	3
Food Service Equipment	5,361,788	\$480,763	\$0	109
HVAC	11,534,467	\$1,455,778	\$301,434	212
Irrigation	2,525,907	\$297,356	\$0	107
Lighting	66,855,345	\$12,103,592	\$1,137,452	3,274
Motors	3,639,724	\$328,892	\$129,112	76
Refrigeration	5,677,699	\$699,021	\$0	21
Total	120,368,312	\$17,478,059	\$1,901,809	4,225

The *wattsmart* Business program is intended to maximize the efficient utilization of electricity for new and existing non-residential customers through the installation of energy efficiency measures and energy management protocols. Qualifying measures are any measures which, when implemented in an eligible facility, result in verifiable electric energy efficiency improvements. Services offered through the 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 Lighting:** Provides enhanced incentives for lighting retrofits installed by approved trade allies at eligible small business customer facilities (Note: this offer was suspended in July 2015 due to over participation and will be re-launched in 2016).
- **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 a energy savings of a minimum of 1,000,000 kWh/year.
- **Midstream/LED instant incentive:** Provides instant, point-of-purchase incentive for LED lamps and retrofit kits sold through qualifying participating distributors. Customers purchasing lamps from non-participating suppliers can apply for incentives after purchase.

Program Management

The program manager overseeing the *wattsmart* Business program activity in Utah is also responsible for the program in Idaho 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 includes several delivery channels, including Trade Ally, Small Business Enhanced Incentive Offer, LED Instant Incentive and Project Manager delivery.

Trade Ally

In this channel, the program is primarily marketed through local trade allies who receive support from one of two program administrators. The Company contracts with Nexant and Cascade Energy (“Cascade”) for trade ally coordination, training and application processing services for commercial measures and industrial/agricultural measures, respectively.

Nexant and Cascade are responsible for the following:

- Trade ally engagement – identify, recruit, train, support and assist trade allies to increase sales and installation of energy efficient equipment at qualifying business customer facilities.
- Incentive processing and administrative support – handle incoming inquiries as assigned, process incentive applications, develop and maintain simplified analysis tools and provide program design services, evaluation and regulatory support upon request.
- Direct customer outreach and project facilitation for smaller customer projects.
- Inspections – verify on an on-going basis the installation of measures²⁷. A summary of the inspection process is in Appendix 3.

Small Business Enhanced Incentive Offer

In this channel, the program is primarily marketed through local contractors approved specifically for this offer who receive support from the program administrator, Nexant. Nexant is responsible for the following:

- Management of approved contractors – identify, recruit, contract with, train, support, and assist contractors to increase sales and installation of energy efficient lighting equipment at qualifying small business customer facilities.

²⁷ The Company contracts with firms from the energy engineering consultant list to perform required pre- and post-installation inspections for lighting projects.

- Incentive processing and administrative support – handle incoming inquiries as assigned, process incentive applications, develop and maintain simplified analysis tool and provide program design services, evaluation and regulatory support upon request.
- Inspections – verify on an on-going basis the installation of measures. A summary of the inspection process is in Appendix 3 to this report.

Midstream/LED Instant Incentive Offer

In this channel, the program is primarily marketed through distributors approved specifically for this offer who receive support from the program administrator, Nexant. Nexant is responsible for the following:

- Management of approved distributors – identify, recruit, contract with, train, support, and assist distributors to increase sales of energy efficient lighting equipment at qualifying business customer facilities.
- Incentive processing and administrative support – handle incoming inquiries as assigned, process incentive applications, and provide program design services, evaluation and regulatory support upon request.
- Inspections – verify on an on-going basis the installation of measures at eligible customer facilities. A summary of the inspection process is in Appendix 3 to this report.

Project Manager

In this channel, the Company's project managers manage a subset of more complex projects. The project managers work directly with the customer or through the Company's regional business managers²⁸. The project manager provides customers with program services and incentives using a pre-contracted group of energy engineering consultants. A current list of these consultants is included in the Infrastructure section below. Project Managers are responsible for the following:

- Single point of contact for large customers to assist with their energy efficiency projects.
- Large customer outreach and education of energy efficiency opportunities.
- Providing custom energy efficiency analysis, quality assurance and verification of savings through a pre-contracted group of engineering firms.
- Managing engineering firms to ensure program compliance, quality of work, and customer satisfaction.
- Managing *wattsmart* business projects through the whole project lifecycle.

²⁸ Regional business managers are responsible for directly working with Utah commercial and industrial/ag customers.

The *wattsmart* Business program administration contracts expire in 2016 for all states. As a result, the Company initiated a request for proposal in 2015 and new contracts will be in place by mid-2016.

Infrastructure

To help increase and improve the supplier and installation contractor infrastructure for energy-efficient equipment and services, the Company established and developed trade ally networks for lighting, HVAC, motors/VFDs, and irrigation. 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 the trade allies who have applied and been approved as participating vendors are posted on the Company website and is included as Appendix 6 to this report. In most cases, customers are not required to select a vendor from these lists to receive an incentive²⁹.

The current counts of participating trade allies by technology are in Table 30 below.

Table 30
Participating Trade Allies³⁰

Lighting	HVAC	Motors and VFD
198	70	85

For the project manager delivery channel supporting larger customers, a pre-approved, pre-contracted group of engineering firms can be used to perform facility specific energy efficiency analysis, quality assurance and verification. Table 31 lists the engineering firms currently under contract with the Company and providing services in five states.

Table 31
Energy Engineering Firms

Energy Engineering Firm	Main Office Location
Abacus Resource Management Company	Beaverton, OR
Brendle Group	Fort Collins, CO
Cascade Energy Engineering	Cedar Hills, UT
Compression Engineering Corp	Salt Lake City, UT
Ecova	Portland, OR
EMP2, Inc	Richland, VA
Energy Resource Integration, LLC	Sausalito, CA
Energy and Resource Solutions	North Andover, MA
EnerNOC Inc.	Portland, OR
EnSave, Incorporated	Richmond, VT
ETC Group, Incorporated	Salt Lake City, UT
Evergreen Consulting Group	Beaverton, OR

²⁹ Customers receiving Small Business Lighting incentives do need to use an approved contractor selected from a competitive request for bid process.

³⁰ Some trade allies may participate in more than one technology. Therefore, the count of unique participating firms is less than the total count provided above.

Energy Engineering Firm	Main Office Location
Fazio Engineering	Weston, OR
kW Engineering, Inc.	Salt Lake City, UT
Lincus Incorporated	Tempe, AZ
Nexant, Incorporated	Salt Lake City, UT
QEI Energy Management, Inc.	Beaverton, OR
RM Energy Consulting	Pleasant Grove, UT
Rick Rumsey, LLC	Ammon, ID
SBW Consulting, Inc.	Bellevue, WA
Solarc Architecture & Engineering, Inc.	Eugene, OR
Triple Point Energy	Portland, OR

Program Changes

Effective March 18, 2015, the program was modified for new construction and major renovation projects to provide an incentive cap and 1-year simple payback for projects that are not subject to state energy code only.

The program added midstream lighting as a new delivery channel effective May 15, 2015. This offering provided an instant, point-of-purchase discount for LEDs and retrofit kits sold through qualifying local distributors.

Effective July 1, 2015, the program suspended its small business lighting delivery channel pending a program contractor re-bid and program redesign for launch in 2016.

Evaluation

Evaluations for the Energy FinAnswer, FinAnswer Express, Recommissioning, and Self-Direction were published in 2015. The results of these independent third-party process and impact evaluation of the Company's non-residential programs for program years 2012-2013 can be found on the Company's website³¹. Several key findings from this evaluation included:

- For all programs, the majority of program participants were generally satisfied with the program.
- For the Energy FinAnswer and FinAnswer Express programs, customers and trade allies were not using the website.
- For Recommissioning participants, no free-ridership or spillover was reported. Participants reported that they would not have identified many or all of the measures they pursued with the Recommissioning Investigation Report and they would not have pursued a recommissioning study on their own.
- For the Self-Direction program, participants were engaged in and seeking out further efficiency opportunities.

³¹ <http://www.pacificorp.com/es/dsm/utah.html>

COMMUNICATIONS, OUTREACH AND EDUCATION

wattsmart is an overarching energy efficiency campaign with the overall goal to engage customers in reducing their energy usage through behavioral changes, and pointing them to the programs and information to assist them. “Rocky Mountain Power wants to help you save energy and money” is the key message, and the Company utilizes earned media, customer communications, education and outreach, advertising and program specific marketing to communicate the value of energy efficiency, provide information regarding low-cost, no-cost energy efficiency measures and to educate customers on the availability of programs, services and incentives.

A summary of 2015 (Year 6) “Utah Demand-side Management Outreach and Communications Campaign” is included in 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 and associated documentation through review of documentation, surveys and/or ongoing onsite inspections.

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

Evaluation, measurement and verification tasks are segregated within the Company organization to ensure they are performed and managed by personnel who are not directly responsible for program management.

Information on evaluation activities completed or in progress during 2015 is summarized in the chart below. A summary of the recommendations are provided in Appendix 5. The evaluation report is available at www.pacificorp.com/es/dsm/utah.html

Program / Activities	Years Evaluated	Evaluator	Progress Status
FinAnswer Express	2012 – 2013	Navigant Consulting	Completed
Energy FinAnswer	2012 – 2013	Navigant Consulting	Completed
Recommissioning	2012 – 2013	Navigant Consulting	Completed
Self-Direction	2012 – 2013	Navigant Consulting	Completed
Home Energy Savings	2013 – 2014	The Cadmus Group	In progress
Home Energy Reports	8/1/2012 - 1/31/2014	Navigant Consulting	In progress
Refrigerator Recycling	2013 - 2014	The Cadmus Group	Completed Q1 2016