Washington Annual Report on Conservation Acquisition

January 1, 2017 – December 31, 2017

Filed June 1, 2018

PACIFIC POWER
A DIVISION OF PACIFICORP

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List of Abbreviations and Acronyms

BPA	Bonneville Power Administration
CFL	Compact Fluorescent Lighting
DSM	Demand-side Management
Schedule 191	Schedule 191 System Benefits Charge Adjustment
EM&V	Evaluation, Measurement & Verification
GWh	Gigawatt-hour(s)
HVAC	Heating, Ventilation and Air Conditioning
IRP	Integrated Resource Plan
kWh	Kilowatt-hour
LED	Light-emitting Diode
MW	Megawatt
MWh	Megawatt-hour
NEEA	Northwest Energy Efficiency Alliance
NEEM	Northwest Energy Efficiency Manufactured Homes
NEF	National Energy Foundation
NTG	Net-to-Gross
PCT	Participant Cost Test
PTRC	PacifiCorp Total Resource Cost test
RIM	Ratepayer Impact Measure test
TRC	Total Resource Cost test
TRL	Technical Resource Library
UCT	Utility Cost Test
VFD	Variable-Frequency Drive

Executive Summary

PacifiCorp is a multi-jurisdictional electric utility providing retail service to customers in Washington, California, Idaho, Oregon, Utah, and Wyoming. Pacific Power & Light Company (Pacific Power), a division of PacifiCorp, serves approximately 130,000 customers in Washington. Pacific Power works with its customers to reduce the need for investment in supply side resources and infrastructure by reducing energy and peak consumption through cost effective energy efficiency programs.

Pacific Power is required to comply with the requirements of the Energy Independence Act (also known as I-937) codified in RCW19.285 and WAC 480-109. This report provides information on the company's 2017 activities and expenditures related to pursuing all conservation in accordance with the I-937 framework, including Washington Utilities and Transportation Commission (Commission) orders and administrative rules.

In 2017, Pacific Power offered four energy efficiency programs in Washington approved by the Commission, and received energy savings and market transformation benefits through its affiliation with the Northwest Energy Efficiency Alliance (NEEA). The company recovers expenditures associated with these programs through the System Benefits Charge Adjustment, Schedule 191.

This report also provides details on Schedule 191 revenue for the performance period from January 1, 2017, through December 31, 2017. Pacific Power, on behalf of its customers, invested $11m in energy efficiency information, services, and incentives during the reporting period. The investment yielded approximately 54 gigawatt-hours (GWh) in first year savings[1] and approximately 7.1 megawatts (MW) of energy efficiency savings related capacity reductions.[2] Net benefits over the life of the individual measures are estimated at $15.6m.[3]

The portfolio was cost effective based on four of the five standard cost effectiveness tests for the reporting period. The ratepayer impact measure 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 cost effectiveness of the company's Washington energy efficiency program portfolio from various perspectives is provided in Table 1 below.

[1] Gross reported savings at the generation.
[2] See Energy Efficiency section for explanation on how the capacity contribution savings values are calculated.
[3] See Appendix 1 – Total Resource Cost Test plus 10% Net Benefits including NEEA and Non-Energy Impacts.

Table 1
Cost Effectiveness for the Portfolio[4]

Benefit/Cost Test	B/C Ratio with NEEA	B/C Ratio without NEEA
PacifiCorp Total Resource Cost Test ("PTRC") plus 10%[5]	1.95	2.01
Total Resource Cost ("TRC") Test[6]	1.79	1.84
Utility Cost Test ("UCT")[7]	2.60	2.76
Participant Cost Test ("PCT")[8]	3.79	3.66
Ratepayer Impact Cost Test ("RIM")[9]	0.63	0.65

All cost effectiveness calculations assume a net-to-gross (NTG) of 1.0, consistent with the Northwest Power and Conservation Council's methodology. Portfolio level cost effectiveness includes portfolio costs such as the Process and Impact Evaluations, Class 2 demand-side management (DSM) Potentials Assessment, and the DSM system database. Consistent with the Northwest Power and Conservation Council's methodology, Pacific Power includes quantifiable non-energy benefits at the portfolio and residential level, as well as the *Home Energy Savings* and *Low Income Weatherization* program levels. *Low Income Weatherization* is not included in the portfolio or sector-level cost effectiveness analysis per WAC 480-109-100(10)(b). Appendix 1 provides 2017 cost effectiveness performance.

[4] Ratios include select quantifiable and directly attributable Non-Energy Impacts, but excludes costs as outlined in the company's EM&V Framework (e.g. Class 1 & 3 of the potential study).
[5] The PTRC includes the 10 percent conservation benefit and risk adder in addition to quantifiable and directly attributable non-energy benefits. PTRC is consistent with the Northwest Power and Conservation Council's cost effectiveness methodology and complies with the cost effectiveness definition (RCW 80.52.030(7)).
[6] 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.
[7] The UCT compares the total cost incurred by the utility to the benefits associated with displacing or deferring supply side resources.
[8] The PCT compares the portion of the resource paid directly by participants to the savings realized by the participants.
[9] 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 upward pressure on rates as the remaining fixed costs are spread over fewer kilowatt-hours.

Compliance

An external conservation advisory group of stakeholders is required to be maintained and used by Pacific Power to advise it about conservation issues including program designs, incentive levels, third party evaluations, program marketing, and pilots. WAC 480-109-110 provides the scope of issues for the advisory group. The company refers to its conservation advisory group as the Washington DSM Advisory Group. Meetings are typically held at the Commission offices in Olympia and include a call in number so stakeholders can participate remotely.

In compliance with I-937, Pacific Power continuously reviews and updates, as appropriate, the conservation programs and portfolio to adapt to changing market conditions. Steps taken to adaptively manage the conservation programs during 2017 are included within program specific sections of this report. In the *Home Energy Savings* program, efforts were made to engage a local contractor to deliver duct sealing services, revise smart thermostat redemption processes and continue increasing the online mobile applications for contractors. In the *watt*smart Business program, changes were made to improve program cost-effectiveness and restructure light-emitting diode (LED) incentives for continuous improvement as lighting evolves.

Pilot projects are implemented when appropriate and are expected to be cost effective within the current or immediately subsequent biennium as long as the overall portfolio remains cost effective. Pacific Power, after consultation with its DSM Advisory Group, offers initiatives or offers within two programs: *Home Energy Savings* and *watt*smart Business. This focus is administratively efficient and uses existing program awareness—both important considerations in the company's rural territory. To further leverage other efforts, Pacific Power has linked its pilot efforts with regional work supported by NEEA whenever possible.

Regulatory Activities

During the 2017 reporting period, Pacific Power filed a number of compliance and/or informational reports, updates, and requests with the Commission in support of company DSM programs. The following is a list of those filings:

- January 6, 2017 – Supplemental Information on the Direct Benefit to Customer's in 2017 Annual Conservation Plan in Docket UE-152072.
- June 1, 2017 – Washington Annual Report on Conservation Acquisition for 2016 as set forth in Docket UE-152072. The report provided details on program results and activities, expenditures, and Schedule 191 revenue for the performance period 2016.
- June 1, 2017 - The 2017 Conservation Report (Washington Department of Commerce Report). The report detailed the company's progress in meeting the targets established in RCW 19.285.040 (EIA requirements).
- June 1, 2017 – Schedule 191-System Benefits Charge adjustment, related to WAC 480-109-130(2), to increase Schedule 191 by approximately 0.3 percent (from $12.9m to $13.9m). Docket UE- 170678. The request was approved at the July 27, 2017 per the no action agenda.
- July 28, 2017 – Revised 2016 Annual Report on Conservation Acquisition in Docket UE-152072
- November 1, 2017 – Pacific Power's 2018-2019 Biennial Conservation Plan in Docket UE-171092.
- December 13, 2017 – Substitute Biennial Conservation Plan in Docket UE-171092.
- December 18, 2017 – Joint utility comments regarding NEEA savings in 2018-2019 Biennial Conservation Plan in Docket UE-171092.

Advisory Group Activities

At least four times per year, Pacific Power seeks input regarding its energy efficiency programs from its Washington DSM Advisory Group. This group includes representatives from a variety of constituent organizations. Pacific Power collaborated with its DSM Advisory Group throughout 2017 on the following matters:

April 5, 2017

- Review of preliminary energy savings and expenditures for 2016
- Non-energy impacts/benefits
- On-bill repayment and financing

June 29, 2017

- Conservation target development process overview
- Wood smoke benefits for 2018-2019
- Review of conservation potential assessment scope of work comments
- Home Energy Reports for next biennial period

August 18, 2017

- Draft 10-year conservation forecast
- Conservation adjustments:
- Regional Technical Forum (RTF)
- Distribution efficiency
- Production efficiency
- High efficiency co-generation (as defined in WAC rules)
- NEEA forecast
- Initial conservation target

September 19, 2017

- Revisions to 2018-2019 conservation forecasts/targets
- Home Energy Reports
- Pilots
- Initial 2018-2019 cost effectiveness/budgets
- Staff areas of interest
- EM&V framework

DSM Expenditures

System Benefits Charge Balancing Account Summary

DSM activities are funded through Schedule 191, the System Benefits Charge Adjustment collections. Expenditures are charged as incurred and collected through Schedule 191. The balancing account is the mechanism used for managing the revenue collected and expenses incurred in the provision of DSM resources. The balancing account activity for 2017 is outlined in Table 2. The end of year balance in the balancing account, on an accrual basis, was an under-collection of expenses of $91,604.

Table 2
System Benefit Charge Balancing Account Summary

Month	Deferred Expenditures	Revenue Collected	Accumulative Balance	Monthly Net Accrued Costs	Accrual Basis Accumulative Balance
Dec-16			$ 1,322,816	$ 1,153,091	$ 2,475,907
Jan-17	$ 1,150,972	$ (1,523,019)	$ 950,769	$ (458,874)	$ 1,644,986
Feb-17	$ 578,637	$ (1,324,980)	$ 204,426	$ 172,695	$ 1,071,338
Mar-17	$ 751,797	$ (1,091,488)	$ (135,265)	$ (135,104)	$ 596,543
Apr-17	$ 955,357	$ (894,774)	$ (74,683)	$ 346,210	$ 1,003,335
May-17	$ 1,011,604	$ (877,103)	$ 59,819	$ (246,906)	$ 890,930
Jun-17	$ 971,755	$ (941,013)	$ 90,561	$ (166,906)	$ 754,767
Jul-17	$ 780,353	$ (1,092,621)	$ (221,707)	$ 499,362	$ 941,860
Aug-17	$ 857,569	$ (1,228,474)	$ (592,612)	$ (520,125)	$ 50,830
Sep-17	$ 853,022	$ (1,175,827)	$ (915,417)	$ 209,840	$ (62,134)
Oct-17	$ 449,405	$ (1,031,795)	$ (1,497,808)	$ 41,216	$ (603,309)
Nov-17	$ 1,005,391	$ (1,140,115)	$ (1,632,531)	$ 255,011	$ (483,021)
Dec-17	$ 1,942,431	$ (1,351,981)	$ (1,042,081)	$ (15,826)	$ 91,604
TOTAL	**$ 11,308,293**	**$ (13,673,190)**		**$ 1,133,685**	

Note: December 2017 Accrual was $1,133,685.

Column Explanations:

Deferred Expenditures: Monthly expenditures for all program activities posted in 2017, including funding for the Northwest Energy Efficiency Alliance.

Revenue Collected: Revenue collected through Schedule 191, System Benefits Charge Adjustment.

Accumulative Balance: A running total of account activities on a "cash" basis. A negative accumulative balance means cumulative revenue exceeds cumulative expenditures; positive accumulative balance means cumulative expenditures exceed cumulative revenue.

Monthly Net Accrued Costs: Two accrual entries are made each month for expenditures of energy efficiency programs. One estimates the incurred cost not yet processed, and the other reverses the estimate from the previous month. The amount shown here is the net of the two entries.

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

Planning Process

Integrated Resource Plan

The company develops a biennial integrated resource plan ("IRP") as a means of balancing cost, risk, uncertainty, supply reliability/deliverability and long-run public policy goals.[10] The plan presents a framework of future actions to ensure the company continues to provide reliable, reasonably priced service to customers. Energy efficiency and peak management opportunities are incorporated into the IRP based on their availability, characteristics and costs.

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

- **Class 1 DSM – Resources from fully dispatchable or scheduled firm capacity product offerings/programs** – After a customer agrees to participate in a Class 1 DSM program, the timing and persistence of the load reduction is involuntary on their part within the agreed upon limits and parameters of the program. Program examples include residential and small commercial central air conditioner load control programs that are dispatchable, and irrigation load management and interruptible or curtailment programs (which may be dispatchable or scheduled firm, depending on the particular program design or event noticing requirements).

- **Class 2 DSM – Resources from non-dispatchable, firm energy and capacity product offerings/programs** – Class 2 DSM programs are those for which sustainable energy and related capacity savings are achieved through facilitation of technological advancements in equipment, appliances, lighting and structures, or repeatable and predictable voluntary actions on a customer's part to manage the energy use at their facility or home. Class 2 DSM programs generally provide financial or service incentives to customers to improve the efficiency of existing or new customer-owned facilities through: (1) the installation of more efficient equipment, such as lighting, motors, air conditioners, or appliances; (2) upgrading building efficiency through improved insulation levels, windows, etc.; or (3) behavioral modifications, such as strategic energy management efforts at business facilities and home energy reports for residential customers. The savings endure (are considered firm) over the life of the improvement or customer action. Program examples include comprehensive commercial and industrial new and retrofit energy efficiency programs, comprehensive home improvement retrofit programs, strategic energy management and home energy reports.

- **Class 3 DSM – Resources from price responsive energy and capacity product offerings/programs** – Class 3 DSM programs seeks to achieve short-duration (hour by hour) energy and capacity savings from actions taken by customers voluntarily, based on a financial incentive or signal. As a result of their voluntary nature, participation tends to be low and savings are less predictable, making Class 3 DSM resources less suitable to incorporate into resource planning, at least until their size and customer behavior profile

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

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

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

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

As technical support for the IRP, the company engages a third-party consultant to conduct a DSM Potential Assessment ("Potential Assessment"). [11] 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.

The achievable technical potential of Class 2 (energy efficiency) resources for Washington by sector is shown in Table 3. The 2015 Potentials Assessment indicates that approximately nine percent of the achievable technical potential for the company, excluding Oregon,[12] is available within its Washington service area.[13]

[11] PacifiCorp's Demand-side Resource Potential Assessments can be found at http://www.pacificorp.com/es/dsm.html.
[12] Oregon energy efficiency potentials assessments are performed by the Energy Trust of Oregon.
[13] Volume 1, Page 4-2, PacifiCorp Demand-Side Resource Potential Assessment for 2015-2034.

Table 3
Washington Energy Efficiency Achievable Technical Potential by Sector

Sector	Cumulative GWh in 2034	Percent of Baseline Sales
Residential	392	21%
Commercial	395	26%
Industrial	145	13%
Irrigation	13	9%
Street Lighting	3	30%

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

Cost Effectiveness

Pacific Power 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 Stand Practice Manual (TRC, UCT, PCT and RIM) as well as an additional fifth test, PTRC. Washington observes the PTRC as the primary cost effectiveness test.

Energy Efficiency Programs

Pacific Power offered energy efficiency programs to all major customer sectors: residential, commercial, industrial, and agricultural. Pacific Power's energy efficiency portfolio included four programs: *Home Energy Savings*, Schedule 118*; Home Energy Reports; Low Income Weatherization*, Schedule 114*;* and *Non-Residential Energy Efficiency (watt*smart Business*)*, Schedule 140. Pacific Power also helps fund NEEA. 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. Results for 2017 are provided in Table 4.

Table 4
Washington Results January 1, 2017 – December 31, 2017

Program	kWh/Yr Savings (at site)	kWh/Yr Savings (at generator)	Systems Benefits Charge Expenditures
Low Income Weatherization	276,750	303,512	$ 1,098,065
Home Energy Savings	8,289,259	9,090,831	$ 2,490,647
Home Energy Reports	12,225,593	13,407,808	$ 499,806
Total Residential Programs	**20,791,602**	**22,802,150**	**$ 4,088,518**
wattsmart Business Agricultural	695,299	762,534	173,104
wattsmart Business Commercial	14,126,041	15,472,394	3,382,070
wattsmart Business Industrial	11,380,788	12,309,574	1,873,533
Total Business Programs	**26,202,128**	**28,544,503**	**$ 5,428,708**
Northwest Energy Efficiency Alliance	2,586,952	2,835,368	$ 843,255
Total	**49,580,682**	**54,182,021**	**$ 10,360,481**
		Portfolio Evaluation	$ 572,538.27
		Portfolio Potential Study	$ 9,488.36
		Portfolio System Support	$ 33,421
		Portfolio Level Expenditures (Evaluation, Potential Study, System Support)	**$ 615,447**
		School Energy Education	$ 61,509
		Outreach and Communication	$ 229,735
		Total System Benefits Charge expenditures	**$ 11,267,172**

In 2017, Pacific Power delivered preliminary results of 54,182 MWh in first year energy savings at generation against the 2017 business plan forecast savings of 44,612 MWh, a positive variance of approximately 21%. At an individual program level, the largest variances from the plan were due to the following:

- Home Energy Savings results were 23.5% less than forecast. Two primary factors contributed to the short falls: energy kits and lighting. The energy savings kit campaign

delivered fewer redemptions overall since the offer has been available for multiple years and fewer customers are now eligible as prior participants are not eligible to receive additional kits. In addition, redemptions were slower than expected which pushed some of the savings into 2018. Lighting savings were less than forecasted in part because of a sub-optimal response to the Feit national promotion at Costco stores. The end-of-the-year promotion failed to generate the sales volume the program administrator (and Costco and Feit) expected.

- Savings reported by NEEA were approximately 7% less overall than originally forecasted for 2017 developed in August 2015. NEEA initiatives with less savings are Reduced Wattage Lamp Replacement, Residential Lighting and Ductless Heat Pumps. Initiatives with additional savings include Next Step Homes and Heat Pump Water Heaters.

- Consistent with 2016-2017 biennial planning assumptions, a two year measure life is used to assess costs effectiveness. The 2017 Annual Conservation Plan included the assumption there were no incremental savings in 2017 beyond those reported in 2016. The actual Home Energy Reports savings included in the table below are the first year reported savings achieved, not incremental savings beyond 2016. Incremental savings for 2017 will be updated in the 2016-2017 Biennial Conservation Report to reflect the reconciled savings against the 2016-2017 conservation target.

Consistent with requirements under WAC 480-109-120 (3)(b)(ii) and (iii), Table 5 provides a comparison of the company's 2017 Business Plan filed on November 15, 2016, to actual 2017 program performance.

Table 5
Washington 2017 Annual Conservation Plan compared to Actual

	2017 PacifiCorp Washington Annual Conservation Plan			2017 PacifiCorp Washington DSM Actual		
Program	**kWh/Yr Savings (at site)**	**kWh/Yr Savings (at generation)**	**Estimated Systems Benefit Expenditures**	**kWh/Yr Savings (at site)**	**kWh/Yr Savings (at generation)**	**Systems Benefits Charge Expenditures**
Low Income Weatherization	243,540	267,090	$ 1,000,000	276,750	303,512	$ 1,098,065
Home Energy Savings	10,835,081	11,882,833	$ 3,397,403	8,289,259	9,090,831	$ 2,490,647
Home Energy Reports *			$ 376,907	12,225,593	13,407,808	$ 499,806
Total Residential Programs	**11,078,621**	**12,149,923**	**4,774,310**	**20,791,602**	**22,802,150**	**4,088,518**
wattsmart Business Agricultural	1,215,000	1,332,491	$ 349,076	695,299	762,534	$ 173,104
wattsmart Business Commercial	12,928,739	14,160,977	$ 3,188,791	14,126,041	15,472,394	$ 3,382,070
wattsmart Business Industrial	12,850,775	13,899,527	$ 2,993,858	11,380,788	12,309,574	$ 1,873,533
Total Business Programs	**26,994,514**	**29,392,995**	**6,531,725**	**26,202,128**	**28,544,503**	**5,428,708**
Northwest Energy Efficiency Alliance	**2,799,506**	**3,069,263**	**$ 911,483**	**2,586,952**	**2,835,368**	**$ 843,255**
TOTAL	**40,872,641**	**44,612,181**	**$ 12,217,518**	**49,580,682**	**54,182,021**	**$ 10,360,481**
Portfolio Evaluation			$ 333,667			$ 572,538
Portfolio Potential Study			$ 25,000			$ 9,488
Portfolio Support Summary			$ 44,536			$ 33,421
School Energy Education			$ 60,947			$ 61,509
Outreach and Communication			$ 250,000			$ 229,735
Total System Benefits Charge Expenditures			**$ 12,931,668**			**$ 11,267,172**

Estimated Peak Contributions

The company estimates its capacity reduction during PacifiCorp's system peak period from the 2017 energy efficiency portfolio. An energy-to-capacity conversion factor, developed from Class 2 DSM selections in the 2015 IRP, is used to translate 2017 energy savings to estimated demand reduction during the system peak. 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 2015 IRP.

Table 6
Estimated Peak Contribution

Description	Value
First year Energy Efficiency program MWh savings acquired during 2017 (@ Generation)	54,182
Conversion factor: Coincident MW/MWh	0.0001310
Estimated coincident peak MW contribution of 2017 Energy Efficiency acquisitions	7.10

Direct Benefits to Customers

Estimates of direct benefits to customers delivered from 2017 expenditures are provided in Table 7. This additional metric to assess program impacts is consistent with conversations between Commission Staff and the company that occurred during the preparation of the 2017 annual conservation plan.

Table 7
2017 Direct Benefits to Customers

Prorgam or Initiative	Expenditures	Direct Benefit to Customers	Direct Benefit to Customers
Low Income Weatherization	$ 1,098,065	$ 930,299	85%
Home Energy Savings	$ 2,490,647	$ 1,456,592	58%
Home Energy Reports	$ 499,806		
Total Residential Programs	**$ 4,088,518**		
	$ -		
wattsmart Business Agricultural	$ 173,104		
wattsmart Business Commercial	$ 3,382,070		
wattsmart Business Industrial	$ 1,873,533		
Total Business Programs	**$ 5,428,708**	$ 2,993,770	55%
	$ -		
Northwest Energy Efficiency Alliance	$ 843,255	$ 578,848	69%
TOTAL	**$ 10,360,481**		
	$ -		
Portfolio Evaluation	$ 572,538		
Portfolio Potential Study	$ 9,488		
Portfolio Support Summary	$ 33,421		
School Energy Education	$ 61,509		
Outreach and Communication	$ 229,735		
Total System Benefits Charge Expenditures	**$ 11,267,172**	**$ 5,959,508**	**53%**

Notes:

Low Income Weatherization: In 2017 payments to community action agencies for measure installation were classified as incentives. The value can be found in the cost effectiveness tables included in Appendix 1.

Home Energy Savings: Customer incentives, upstream, mid-stream and mail by request buy downs are included in the direct benefit to customer calculation. This information is provided in the Incentives column for the Home Energy Savings program in Appendix 1.

*watt*smart Business: Customer incentives and expenditures for customer site specific energy engineering and inspections s included in the direct benefit to customer calculation. Both amounts are provided in Appendix 1.

NEEA: Pacific Power subtracted $16,330 in internal management costs and then applied the 70 percent estimate provided by staff to NEEA funding to calculate the direct benefit to customers.

Pilot Projects

Pacific Power offers pilot projects to residential and nonresidential sectors. This section briefly describes the pilots underway in the biennial period and key activities that occurred in 2017.

RESIDENTIAL

Heat Pump Dryers
In partnership with NEEA, the company provided outreach and incentives to increase eligible heat pump dryer uptake at smaller independent retailers.

During 2017, Home Energy Savings program partnered with NEEA and Whirlpool to increase the availability of eligible machines at Bemis Appliance & TV. Pilot efforts centered on Whirlpool's WED7990F heat pump dryer. In addition to the existing incentive for the target product, Home Energy Savings program was prepared to provide a sales associate with an incentive from a Sales Person Incentive Fund (SPIF) for sales that occurred at Bemis. Other contributions from Home Energy Savings included paying for washer/dryer pairs to be stocked on the floor, providing a free washer and dryer set for the top salesperson, and/or paying for expedited shipping. NEEA also offered an incentive on the WED7990 dryer and planned to contribute other resources to the pilot in the form of marketing budget and design support. Whirlpool had approved special pricing on the WED7990 units ordered by Bemis through March of 2018, prior to the pilot being postponed. Bemis was committed to dedicating floor space to the WED7990, and to participating in sales associate training in order to better promote the products. The Marketing Account Manager for Bemis was also prepared to incorporate targeted promotions for the dryers into Bemis' marketing platforms.

Although there was interest from all stakeholders in moving this pilot forward, there were issues on Whirlpool's end with getting the product stocked in time for a 2017 implementation. NEEA's incentive on the WED7990 dryer ended at the end of 2017, and a new incentive was not yet in place for 2018. Without the NEEA incentive, the price on the hybrid heat pump dryers was too high for Bemis to stock them. The stakeholders will reconvene around 2nd quarter of 2018 to determine whether there is opportunity to implement this pilot in 2018.

New Manufactured Homes
In collaboration with NEEA, the company focused on increasing the sale of efficient manufactured homes using incentives available through the Home Energy Savings program and targeted outreach tactics.

The manufactured homes offer was updated in August 2017 to clarify the payment options for midstream, provide program flexibility regarding incentive splits, and retire high performance new manufactured homes. Program field staff, as part of their normal outreach, increased in-person visits to local distributors: Clayton Homes, Columbia Homes, and Valley Quality Homes to explain the changes. Initial rounds of meetings were focused on familiarizing the distributors with the program's offering and application process. Dealers were interested and thought that there was good potential for eligible customers. Once the August updates were made, dealers were excited to participate. By the end of 2017, the Program had processed 5 applications, resulting in 24,808 kWh and are poised for more aggressive engagement in 2018.

NONRESIDENTIAL

Waste Heat to Power
The waste heat to power pilot program is designed to increase the technical talent pool to assess and conduct site analyses for business customer installations of waste heat to power technologies. To promote this, incentives for waste heat to power and regenerative technologies were added to the *watt*smart Business program in January 2016. During 2017, a customer with interest in waste heat to power received a preliminary savings and incentive report for a waste heat to power measure. Pacific Power continues to screen for opportunities at customer sites as part of broader energy efficiency technical and financial assessments and to track waste heat to power projects.

Tier the wattsmart Business Trade Ally Network
The company developed a premium tier for the existing *watt*smart Business trade ally network with the intent that it will increase trade allies' technical expertise and performance. Additionally, the premium tier is intended to encourage local trade allies to engage in NEEA's advanced lighting trade ally training and achieve *NXT* Level 1 designation.

During 2017, messaging for the premium tier began in March 2017 at the *watt*smart Business vendor events in Walla Walla and Yakima. The premium tier benefits and minimum requirements for consideration for premium status were formally announced September. Throughout 2017, trade ally coordinators worked with the trade allies to encourage them to complete the minimum requirements, including achieving the NXT Level 1 designation (both an individual and their firm must be designated). Achieving the NXT Level 1 designation proved to be the most challenging requirement. Once there were two vendors who met this requirement in December 2017, the premium trade ally selection was completed and the first premium trade allies (Columbia Electric Supply and Stusser Yakima) were notified in early 2018. Since the first two Washington vendors to earn premium designation were not announced until early 2018, a comparison of 2017 projects completed by the premium vendors to projects completed by the universe of vendors was not completed.

Targeted Delivery
Pacific Power targeted businesses through customer outreach efforts to increase measure installation and program participation in a specific area where additional value, such as possible infrastructure investments, has been identified.

The targeted delivery pilot was brought before the DSM Advisory Group in September 2016 and focused on business customers. In 2016, planning for the commercial and residential efforts started with efforts being deployed in 2017. The effort is focused on geographic areas in the Yakima Valley.

The 2017 outreach efforts for business customers used utility, customer and third party data and virtual energy assessment analysis to help focus outreach activities. Outreach included "boots on the ground", direct mail and direct email. Ten projects totaling 1,041,833 kWh in annual savings were completed in 2017 with additional projects identified for potential installation in 2018.

Outreach also targeted residential customers with direct mail and program administrator field staff outreach to multi-family owners. In 2017, 84 projects totaling 58,943 kWh in annual savings were completed.

Manufactured Homes

To support regional efforts in providing information about underserved markets or hard-to-reach segments, PacifiCorp has included information about its manufactured homes participation. The information provided below shows its historical manufactured home customers who have participated in Pacific Power's Low Income Weatherization and Home Energy Savings programs.

Table 8
Participation by Manufactured Home Residents

	2014	2015	2016	2017
Low Income Weatherization homes	40	44	49	45
Home Energy Savings participants	256	1,028	403	
Appliances	34	10	10	4
Duct Sealing	197	187	12	795
Heat Pump	24	26	18	79
Heat Pump Water Heater	4	-	1	3
Kits	-	817	362	73
Lighting	12	17	1	
Lighting buy down	72,646	86,318	54,508	50,953
Weatherization	30	8	3	1

A third party contractor, Home Energy Experts was hired by the program administrator to conduct outreach and seal ducts at no cost to manufactured homes residents in the Walla Walla and Yakima

areas. Over 1,900 mailers were sent to customers to generate interest and secure appointments, and 776 homes received the direct install offering. Residents in another 19 manufactured homes had their duct sealed using a contractor they selected and paid.

Heat pump installations in manufactured homes in 2017 increased compared to the prior year. Available information on installed costs suggest a decline in installed system costs and the number of contractors actively engaged in installations has increased to 12. The manufactured home installations include upgrades to more efficient equipment and converting electric furnaces to heat pumps.

Information on all participants except the lighting buy down was compiled by matching customer identifiers (concatenated service location and agreement numbers) of participants with the same information in residential customer accounts bearing the manufactured home dwelling code flag.

Information about the portion of lighting buy down participants who reside in manufactured homes follows the same calculation used in 2016 and uses information from the general population survey from the latest evaluation.[14]

Pacific Power also analyzed manufactured home customers who are also participants in the *Home Energy Reports* program. Table 9 below provides information on current 2017 behavioral program (Home Energy Reports) participation by manufactured home residents.

Table 9
Home Energy Reports Participation by Manufactured Home Residents

	Recipient	Control	Total
Legacy	2,012	1,934	3,946
Expansion	3,785	1,189	4,974
Refill	361	385	745

Information on the behavioral program participation was compiled in 2016 in the same manner (matching customer account number information) as described above for energy efficiency program participation. For 2017, the analysis was not re-run, but the customer attrition rate (end of 2016 to end of 2017) for each wave of the overall program was applied to arrive at an updated estimate of the 2017 behavioral program participants residing in manufactured homes.

In addition, the Advisory Group agreed that income data used to help categorize participants would also be useful for the regional efforts described above. Further, providing income information is not a program participation requirement and that available third party data would be used.

[14] Lighting buy down information was compiled from survey information from the 2015-2016 Home Energy Savings evaluation. Customer prior year purchases for both CFLs and LEDs were added to arrive at a per-home purchase that was assumed to apply equally to all manufactured homes (approximately 15,300) and calculate and estimate of total purchases for manufactured homes. Manufactured home customers purchased approximately fourteen percent of the units receiving incentives in the buy down channel.

Accordingly, this information is included in Table 11. The information in Table 11 uses zip code information for all *Home Energy Savings* program participants and those participants residing in manufactured homes as well as income information from the US Census Bureau. This comparison does not illustrate a strong correlation between lower income levels and manufactured home participation. Alternately stated, it appears program participation by manufactured home residents is similar to overall program participation by zip code/income level. Similar information was included in last year's report and 2017 was added for this report.

Table 10
Manufactured Home Income Data

ZIP	Median Household Income- U.S. Census Bureau American Community Survey	Project Count - All DSM Projects 2014 - 2017	% Total DSM Projects	Project Count - MANUFACTURED Projects 2014 - 2017	% Total Manufactured Projects
98921	$ 23,636	23	0%	9	0%
98948	$ 37,191	255	2%	23	1%
98902	$ 39,653	2313	14%	88	3%
98901	$ 40,493	1164	7%	189	6%
98944	$ 40,803	839	5%	110	4%
98932	$ 41,087	203	1%	12	0%
98952	$ 42,754	26	0%	7	0%
98603	$ 43,057	2	0%	0	0%
98951	$ 43,450	349	2%	38	1%
98947	$ 44,750	158	1%	23	1%
98930	$ 45,011	711	4%	176	6%
99329	$ 45,625	8	0%	6	0%
98938	$ 46,209	63	0%	11	0%
99343	$ 46,477	0	0%	0	0%
98935	$ 46,846	62	0%	11	0%
99348	$ 47,251	52	0%	30	1%
99328	$ 47,965	330	2%	31	1%
99350	$ 49,110	5	0%	1	0%
99347	$ 49,418	157	1%	25	1%
99324	$ 49,765	794	5%	323	11%
98933	$ 50,011	38	0%	11	0%
99362	$ 51,934	2956	18%	462	16%
98903	$ 52,368	1076	6%	335	11%
98937	$ 53,665	384	2%	59	2%
98953	$ 55,329	337	2%	72	2%
98923	$ 55,566	63	0%	10	0%
99361	$ 56,690	184	1%	74	3%
98936	$ 57,561	317	2%	86	3%
99301	$ 58,016	0	0%	0	0%
98942	$ 58,840	1060	6%	147	5%
98908	$ 62,282	2240	13%	229	8%
99360	$ 66,759	101	1%	34	1%
99323	$ 68,410	393	2%	292	10%
98950	$ 68,625	0	0%	0	0%
98939	data not available	9	0%	1	0%
99363	data not available	18	0%	16	1%

Residential Programs

The residential energy efficiency portfolio is comprised of four programs: *Home Energy Savings*, *Home Energy Reports*, *Low Income Weatherization*, and *NEEA*. As shown in Table 11, the residential portfolio was cost effective based on four of the five standard cost effectiveness tests for the reporting period. The ratepayer impact test was less than 1.0 indicating that there is near term upward pressure placed on the price per kilowatt-hour given a reduction in sales.

Table 11
Cost Effectiveness for Residential Portfolio[15]

Benefit/Cost Test	B/C Ratio with NEEA	B/C Ratio without NEEA
PTRC	2.06	2.21
TRC	1.93	2.07
UCT	1.92	2.13
PCT	4.80	4.51
RIM	0.51	0.53

Individual program performance, program management and program infrastructure is provided on the following pages.

[15] Excludes *Low Income Weatherization* and includes select quantifiable and directly attributable non-energy benefits.

Home Energy Savings

The *Home Energy Savings* program provides access to and incentives for more efficient products and services installed or received by customers residing in newly constructed homes, existing homes, multi-family housing units or manufactured homes. The program was cost effective as shown in Table 12.

Table 12
Cost Effectiveness for Home Energy Savings[16]

Benefit/Cost Test	B/C Ratio
PTRC	2.20
TRC	2.06
UCT	2.14
PCT	3.76
RIM	0.58

Program participation by measure category is provided in Table 13.

Table 13
Eligible Program Measures (Units)

Measure Category	Total kWh/Yr Savings @ Site	Total Incentive	Total Quantity
Appliances	20,613	$8,200	162
Building Shell	74,057	$59,303	153,837 (sq ft)
Energy Kits	655,954	$22,438	1,957
HVAC	2,036,915	$786,464	1,354
Lighting	5,340,901	$514,269	359,958
Water Heating	90,640	$36,918	58
Whole Home	70,180	$29,000	21
Total	**8,289,259**	**$1,456,592**	

Program Management

The program manager who is responsible for the program in Washington is also responsible for the *Home Energy Savings* program in California and *Home Energy Reports* program in Washington. For each program and in each state the program manager is responsible for the cost effectiveness of the program, contracting with the program administrator monitoring program

[16] Includes quantifiable and directly attributable non-energy impacts.

performance and compliance, and recommending changes in measures, incentives, or delivery requirements as set out in the tariff and/or posted on Pacific Power's website.

Program Administration

The *Home Energy Savings* program is administered by CLEAResult. CLEAResult is 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 lighting equipment. 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 2.

- 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 or missing from the application and processes the application for payment.

- Program specific customer communication and outreach – A summary of the communication and outreach is outlined in the Communication, Outreach and Education section.

Program Changes

A new manufactured homes offer was updated on August 1, 2017. Several clarifications were incorporated to better engage dealers. One standards reference was removed since it is no longer widely used in the market.

Adaptive Management
Pacific Power made substantial changes through an adaptive management approach which included the following 2017 activities:

- In preparation for the manufactured homes duct sealing work, numerous efforts were made to engage with local contractors and recruit them to perform these services. Local contractors either did not have the resources to participate or were unsure of customer participation at the set incentive (in this case the contractor reimbursement) level. The successful contractor respondent was based in Utah and fielded local crews managed by experienced crew leaders. While these crews were cost efficient and focused, it added pressure to fill each day with work to avoid downtime. Out of area crews also presented challenges for effectively managing clean-up tasks before the crews left the area. This

reinforced the need for qualified local providers and the recruitment efforts will continue next year.

- In 2017, smart thermostat redemptions were substantially below the forecasted unit count. Subsequently, CLEAResult worked to obtain sales data from key retailers to better understand purchases. The sales data indicated higher activity than originally estimated for smart thermostats and revealed significant breakage (low incentive redemptions compared to sales). In response, CLEAResult developed new point of purchase materials to highlight the ease of participation through the online application and the redemptions increased by 30% compared to 2016.

- The Online Mobile Contractor (OMC) applications platform was expanded to include customer capability appliances, smart thermostats, and window incentive applications. The platform provides instant validation for customers, alerting them to the completeness of their application and if any required information is missing. Overall, this improvement reduced costs and improved processing times while providing an enhanced customer experience.

Infrastructure

Multiple retailers and trade allies help deliver energy efficient products on behalf of Pacific Power. The list of participating and non-participating retailers and trade allies by delivery channel and measure is provided in Appendix 3.

Evaluation

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

- For non-lighting participants, retailers were the highest source of program awareness. For the general population, bill inserts and Pacific Power's website/social media were the most commonly cited ways they learned about program offerings.
- Non-lighting participants expressed program satisfaction with the program overall, and reported high satisfaction with installed measures, their contractors and incentive amounts.
- General population survey respondents reported higher levels of satisfaction with LEDs.
- High satisfaction with energy kits participants.
- Overall realization rate was 78 percent.
- Program was cost effective with a PTRC of 1.93 over the two-year period, including non-energy impacts.

The results of the evaluation can be viewed at www.pacificorp.com/es/dsm/washington.html.

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 or make structural equipment, lighting, or appliance modifications to reduce their overall electric energy consumption.

Reports were initially provided to approximately 13,500 customers (referred to as "legacy" group). The number of participants decreased over time due to customer attrition from general customer churn (customer move-outs)[17] and customers requesting to be removed from the program. In 2014, the program was expanded to 38,500 additional customers (referred to as "expansion" group).[18] Another group of customers (referred to as "legacy refill" group) were added in January 2015 to offset attrition and lower energy savings than expected from the initial legacy group.[19]

Monthly reports are mailed to all new program participants for the initial three months to build program awareness. Following this initial three-month period, report frequency is moved to a bi-monthly schedule for the remainder of the program. All participants may request an electronic version delivered via email and have access to a web portal containing the same information about their usage and past usage provided in the report. The web portal also contains other functions 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.

Results are shown in Table 14.

Table 14
Cost Effectiveness for *Home Energy Reports*

Benefit/Cost Test	B/C Ratio Combined	B/C Ratio Legacy + Refill Groups	B/C Ratio Expansion Group
PTRC	2.31	3.81	1.65
TRC	2.10	3.46	1.50
UCT	2.10	3.46	1.50
PCT	N/A	N/A	N/A
RIM	0.39	0.42	0.36

[17] At the end of 2017 approximately 8,800 customers in the legacy group were still participating and receiving home energy reports.
[18] At the end of 2017, approximately 25,000 customers in the expansion group were still participating and receiving home energy reports.
[19] At the end of 2017, approximately 3,600 customers in the legacy refill group were still participating and receiving home energy reports.

Program savings by group is provided in Table 15.

Table 15
Program Savings

Home Energy Reports Group	Total kWh/Yr Savings @ Site
Expansion	6,090,309
Legacy + Refill	6,135,284
Grand Total	**12,225,593**

Consistent with 2016-2017 biennial planning assumptions, a two year measure life is used to assess costs effectiveness. The 2017 Annual Conservation Plan included the assumption there were no incremental savings in 2017 beyond those reported in 2016. The actual Home Energy Reports savings included in the table above are first year reported savings achieved, not incremental savings beyond 2016. Incremental savings for 2017 will be updated in the 2016-2017 Biennial Conservation Report to reflect the reconciled savings against the 2016-2017 conservation target.

Program Management

The program manager overseeing program activity in Washington is also responsible for *the Home Energy Savings* program in California and Washington. For each program in each state, the program manager is responsible for the cost effectiveness of the program, contracting with the program administrator, monitoring program performance and compliance, and recommending changes measures, incentives or delivery requirements as set in the tariff or posted on Pacific Power's website.

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. Pacific Power contracts with OPower to provide energy savings, software services, and printing and delivery of energy reports to customers.

Pacific Power's contract with OPower ended in 2017. Subsequently, a request for proposal was issued to deliver Home Energy Report services for the next three years, beginning in 2018. The successor contract is designed to initially use the same treatment and control groups used by OPower. Pacific Power will closely track the performance of program as a successor provider is brought on board to start delivery in 2018.

Evaluation

A process and impact evaluation will be published in 2018.

Low Income Weatherization

The *Low Income Weatherization* program provides energy efficiency services through a partnership between PacifiCorp and local non-profit agencies to residential customers who meet income-eligible guidelines. Services are at no cost to the program participants. Cost effectiveness for the *Low Income Weatherization* program was not included in the portfolio or sector-level analysis per WAC 480-109-100 (10)(b).

In 2017, 125 homes were treated, saving 276,750 kWh (at site). Total homes treated, as well as the type and frequency of specific energy efficiency measures installed in each home, is provided in Table 16.

Table 16
Eligible Program Measures (Units)

Participation – Total # of Completed/Treated Homes	**125**
Number of Homes Receiving Specific Measures	
Aerators	65
Attic Ventilation	111
Caulk/Weather-stripping	83
Ceiling Insulation	83
Compact Fluorescent Light Bulbs	57
Duct Insulation	74
Floor Insulation	95
LED Light Fixtures	8
LED Light Bulbs	43
Ground Cover	69
Infiltration	121
Repairs	55
Replacement Refrigerators	13
Showerheads	44
Thermal Doors	1
Timed Thermostat	4
Wall Insulation	31
Water Heater Blankets	2
Water Heater Replacement	17
Water Pipe Insulation and Sealing	97

Program Management

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

Program Administration

Pacific Power partners with three local non-profit agencies to provide weatherization services to income-qualifying households throughout its Washington service territory. These agencies include Blue Mountain Action Council located in Walla Walla, Northwest Community Action Center in Toppenish, and Opportunities Industrialization Center of Washington in Yakima. The leveraging of company funding along with Washington Match Maker Program funds allows the agencies to provide these energy efficiency services to more households at no cost to participating customers. Pacific Power provides rebates to partnering agencies for 50 percent of the cost of services while Match Maker funds are available, and will cover 100 percent of costs when these state funds are depleted. In 2017, 64 homes were funded at 50% and 61 at 100%. Match Maker funding was approved by the state legislature in mid-2017, but monies were not released until early 2018, resulting in the significant number of completions covered at the 100% level. Participants qualify if they are homeowners or renters residing in single-family homes, manufactured homes, or apartments. Over 7,600 homes have been completed with Pacific Power funding since the program's inception in the mid-1980s.

By contract with Pacific Power, the agencies are responsible for the following:

- Income Verification – Agencies determine participant income eligibility based on Washington Department of Commerce guidelines. Households interested in obtaining weatherization services apply through the agencies. The 2017 income guidelines can be viewed on the Washington Department of Commerce website[20].
- Energy Audit – Agencies use a U.S. Department of Energy approved audit tool or priority list 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. A sample of 5 -10 percent are inspected by a Pacific Power inspector. See Appendix 2 for verification summary.
- Billing Notification – Agencies are required to submit a billing to Pacific Power within 90 days after job completion. A homeowner agreement and invoice form indicating the measures installed and associated cost is submitted on each completed home.

On September 1, 2016, the Commission issued Order 12 in Docket UE-152253 and ordered:

> Pacific Power must also initiate a stakeholder collaborative to discuss changes to its low–income weatherization program. This collaborative may be conducted in concert with the LIBA collaborative; or separately, as resources permit. In addition to Staff and the Energy Project, the Company should invite Public Counsel, Boise, and NWEC to participate. Any mutually agreed-upon modifications or additions should be filed with the Commission by April 1, 2017. [21]

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http://www.commerce.wa.gov/wp-content/uploads/2017/04/HIP-Weatherization-2017-WA-Income-Eligibility-Guidelines.pdf

[21] *WUTC v. Pacific Power & Light Company*, Docket UE-152253, Order 12, ¶ 255 (Sept. 1, 2016).

Representatives from the organizations mentioned in the order as well as from our partnering weatherization agencies discussed program changes separately from the LIBA collaborative. Meetings took place on December 15, 2016 and February 2, 2017. The following program revisions were mutually agreed upon and filed in Advice 17-03 on March 16, 2017:

- Eliminate the $1 million annual funding cap. The cap has been in place since 2001 and has not been met, however there is an expectation that it will be reached in the near future based upon agency production levels and budget utilization. The program is cost-effective, so a cap is not necessary.
- Eliminate the requirement that water pipe wrap be allowed only when installed with floor insulation. The agencies find pipe wrap is often determined to be cost-effective per their energy audit results even when floor insulation is not installed.
- Add water heater blankets to the list of approved measures. This measure was eliminated as newer water heater models have greater insulation built in to the units so that wraps are not needed. Agency staff are still serving homes with older models in working condition that would benefit from the installation of a water heater blanket. The measure is installed in compliance with the Washington Department of Commerce Weatherization Manual.
- Remove references to measure life and "always considered cost-effective" throughout the Energy Efficiency Measure section in the tariff.

Revisions were approved and effective May 1, 2017.

Evaluation

The program underwent a process and impact evaluation for program years 2013 – 2015. The evaluation was published in early 2018.

Northwest Energy Efficiency Alliance

The Northwest Energy Efficiency Alliance (NEEA) is a non-profit corporation that works collaboratively with its funders and other strategic market partners to accelerate the innovation and adoption of energy-efficient products, services, and practices. NEEA is supported by BPA, Energy Trust of Oregon, and more than 100 Northwest utilities, including Pacific Power

Program performance for 2017 is being reported based on NEEA's results for Pacific Power of 2,587 MWh (at site). Consistent with the reporting convention approved in Docket UE-132047 the savings represent Pacific Power's portion of Total Regional Savings less the company's local program savings (adjustment to total movement in the market baseline for measures impacted by NEEA's efforts to account for savings already captured and reported through Pacific Power's Washington programs).

Program Administration

Pacific Power has a representative on the NEEA board of directors as well as representatives on each of the sector advisory committees, residential, commercial and industrial. Pacific Power also has representation on NEEA's broader Regional Portfolio Advisory Committee and participates in relevant Northwest Research Group meetings. Collectively the representatives work collaboratively with the other funders, advisory group members, and NEEA to direct the efforts of NEEA in the best interest of the region in the achievement of the region's market transformation objectives.

Non-Residential Program

The Non-Residential Energy Efficiency program is promoted to the company's commercial, industrial and agricultural customers as *watt*smart Business.

The *watt*smart Business program[22] is intended to maximize the efficient use of electricity for new and existing non-residential customers through the installation of energy efficiency measures and energy management protocols. Qualifying measures are any measures which, when implemented in an eligible facility, result in verifiable electric energy efficiency improvements.

The program was cost effective in 2017 as shown in Table 17 below.

Table 17
Cost Effectiveness for *watt*smart Business

Benefit/Cost Test	Benefit/Cost Ratio
PTRC	2.10
TRC	1.91
UCT	3.57
PCT	3.32
RIM	0.72

Sector level performance for 2017 is provided in Table 18.

Table 18
Program Performance by Sector

Sector	Total kWh/Yr Savings @ Site	Total Incentive	Total kW Savings @ Site	Total Projects
Commercial	14,126,041	$1,483,978	1,265	341
Industrial	11,380,788	$930,825	805	53
Irrigation	695,299	$72,963	201	32
Total	**26,202,128**	**$2,487,766**	**2,271**	**426**

[22] The program brochure is available at https://www.pacificpower.net/content/dam/pacific_power/doc/Business/Save_Energy_Money/WA_wattsmartBusiness_Brochure.pdf . Program detail (in addition to the program tariff, Schedule 140) maintained on the company website is available at https://www.pacificpower.net/content/dam/pacific_power/doc/Business/Save_Energy_Money/WA_wattsmartBusiness_Incentive_tables_information.pdf.

Program performance by measure category is provided in Table 19.

Table 19
Program Performance by Measure Category

Measure Category	Total kWh/Yr Savings @ Site	Total Incentive	Total kW Savings @ Site	Total Projects
Additional Measures	207,094	$28,647	-	3
Building Shell	16,069	$11,713	-	3
Compressed Air	473,237	$58,710	9	10
Energy Management	510,472	$10,209	36	5
Food Service Equipment	2,089	$100	0	1
HVAC	280,547	$33,506	55	11
Irrigation	578,561	$57,662	185	30
Lighting	14,040,890	$1,415,063	1,450	327
Motors	281,641	$39,767	39	9
Refrigeration	9,811,528	$832,389	497	27
Total	**26,202,128**	**$2,487,766**	**2,271**	**426**

Services and incentives offered through the *watt*smart Business program include:

- Typical Upgrades: Incentives for lighting, HVAC, compressed air and other equipment upgrades that increase electrical energy efficiency and exceed energy code requirements.
- Custom analysis: Offers energy analysis studies, services and incentives for more complex projects.
- Energy Management: Provides expert facility and process analysis and incentives to help lower energy costs by optimizing customer's energy use.
- Enhanced incentives for small businesses: Provides enhanced incentives for lighting upgrades installed by an approved *watt*smart Small Business Contractor at an eligible existing small business customer facility.
- Midstream/Lighting Instant Incentive: Provides instant, point-of-purchase incentive for qualifying LED lamps sold through participating distributors. Customers purchasing lamps from non-participating suppliers can apply for incentives after purchase.
- Energy Project Manager Co-funding: Available to customers who commit to an annual goal of completing energy projects resulting in at least 1,000,000 kWh/year in energy savings.

Program Management

The program manager overseeing program activity in Washington is also responsible for the *watt*smart Business program in California. For each state the program manager is responsible for the cost-effectiveness of the program, identifying, and contracting with the program administrators

through a competitive bid process, program marketing, establishing and monitoring program performance and compliance, and recommending changes in the terms and conditions of the program set out in the tariff and/or posted on Pacific Power's website.

Program Administration

The program includes several delivery channels, including Trade Ally, Small Business Enhanced Incentive Offer, Midstream/Lighting 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. Pacific Power contracts with Nexant, Inc. (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 measures.[23] A summary of the inspection process is in Appendix 2.

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.
- 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 2 to this report.

[23] The company contracts with firms from the energy engineering consultant list to perform required pre- and post-installation inspections for lighting retrofit and new construction/major renovation projects.

Midstream/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. The program is also marketed through installation contractors, who also receive support from 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 2 to this report.

Project Manager
In this channel, Pacific Power's project manager manages a subset of more complex projects. The project manager works directly with the customer or through the company's regional business managers.[24] 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.

Infrastructure

To help increase and improve the supplier and installation contractor infrastructure for typical energy efficient equipment and services, Pacific Power established and continues to develop and support 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.

In March 2017, Pacific Power launched the *watt*smart Business Vendor Network which replaced the Energy Efficiency Alliance. The new network elevated minimum participation requirements, moving beyond participation and reference checks to add industry training and proof of insurance requirements. Increasing participation requirements is intended to improve the quality of trade allies in the network. As a result, the number of trade allies listed with the program is about half of what it was in 2016.

The current searchable list of trade allies who have applied and been approved as participating *watt*smart Business vendors are available on Pacific Power's website[25] and is included as

[24] Regional business managers are responsible for directly working with Washington commercial and industrial/ag customers.
[25] Searchable participating vendor lists are available from the Company website. Direct link to the "Find a Vendor" search tool: http://pacificpower-tradeally.energyefficiencyalliance.net/tradeally/jspx/Contractor_Search/ContractorSearch.jspx

Appendix 4 to this report. In most cases, customers are not required to select a vendor from these lists to receive an incentive.[26]

The total number of participating trade allies is currently 40. The current count of participating trade allies by technology are in Table 20.

Table 20
Participating Trade Allies[27]

Lighting	HVAC	Motors and VFD	Irrigation	Small Business – approved contractors	LED Instant Incentive – approved distributors
33	4	16	1	4	6 distributors, 14 branch locations

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 21 lists the engineering firms currently under contract with Pacific Power.

Table 21
Energy Engineering Firms

Engineering Firm	Main Office Location
Cascade Energy	Portland, OR
Compression Engineering Corp	Beaverton, OR
EMP2, Inc.	Richland, WA
Energy 350	Portland, OR
Energy Resources Integration, LLC	Sausalito, CA
4Sight Energy Group, LLC	Post Falls, ID
Evergreen Consulting Group	Portland, OR
kW Engineering, Inc.	Oakland, CA
Lincus Inc.	Emeryville, CA
Nexant, Inc.	Portland, OR
Solarc Energy Group	Eugene, OR

Program Changes

Pacific Power made programmatic changes on three separate dates. Effective January 1, 2017, changes were made to:

- Refine and enhance measure and eligibility requirements to maintain program cost effectiveness due to the new, lower avoided costs/decrement values from the 2017 Integrated Resource Plan;

[26] For the *watt*smart Small Business enhanced incentives, customers are required to choose one of the approved contractors for this offer.
[27] Some trade allies may participate in more than one technology so the count of unique participating firms is less than the total count provided.

- Restructure lighting retrofit offerings for continuous improvement as the lighting market evolves;
- Adjust LED case lighting and other measures to align with current Regional Technical Forum (RTF) analysis;
- Restructure Enhanced Incentives for Small Business customers;
- Add new measures and revise existing measures receiving instant incentives from qualifying distributors;
- Remove measures that were not cost effective and measures with low/no participation; and
- Make other minor administrative changes.

Effective April 28, 2017, changes were made to:

- Add Street Lighting Service Schedules 51, 52, and 57 (company-owned street lighting service) to the list of applicable rate schedules in Schedule 140, Non-Residential Energy Efficiency
- Add note to program details to clarify for Rate Schedules 51, 52, and 57 Street Lighting Service, the street light owner (Pacific Power) is not eligible for incentives.

Effective May 22, 2017, changes were made to:

- Remove the sunset date for incentives for commercial refrigerator and freezer measures (except the smallest size categories) and reduce incentives for the larger size categories in alignment with federal standards and the aligning Energy Star specification that was effective March 27, 2017.
- Revise the maximum incentive for one small business lighting measure to align with recent market cost data.
- Revise small business lighting LED Relamp measure name and eligibility requirements
- Add two small business lighting LED measures: LED Delamp and LED Fixture Replacement – High Bay.

Adaptive Management

Pacific Power made substantial changes through an adaptive management approach. The following bullets summarize the changes.

- *Increase wattsmart Business program results*
  The program forecast was monitored throughout 2017 to track performance targets. When the *watt*smart Business 2017 forecast fell below 100% in August, the company leveraged its program administrators to increase savings. This resulted in delivery teams revisiting their pipelines and increasing follow-up on projects underway. The program fell 3% short of its 2017 forecast and developed a pipeline of projects for 2018.

- *Cost-effectiveness improvement*
  Due to the 2017 IRP's new lower decrement values, work began in June to identify ways to improve program cost-effectiveness. Several improvements went into the Business Plan for 2018-2019 and were effective January 1, 2018:

1. Add a maximum simple payback threshold at the project level to incentive eligibility requirements. Allow projects that exceed the threshold to be eligible for incentives if the project passes the Commission approved test (i.e., the TRC Test as modified by the Northwest Power and Conservation Council).
2. Remove TLED, T8 and T5 Relamp measures and add Lamp Replacement category at the same incentive levels as the mid-market offer. This improves cost-effectiveness by moving most lamp replacement-only measures to mid-market, which has lower administrative costs.
3. Remove some measures from the program that were not cost-effective, had low participation, or both.

Trade Ally Network Improvements

- Increased network requirements - In March 2017, Pacific Power launched the *watt*smart Business Vendor Network which replaced the Energy Efficiency Alliance. The new network elevated minimum participation requirements, moving beyond participation and reference checks to add industry training and proof of insurance requirements. Increasing participation requirements is intended to improve the quality of trade allies in the network.

    - Added a Premium Tier – Added a premium tier to the lighting vendor network to increase the overall performance of the network. To be considered for Premium status, an approved *watt*smart Business Vendor has to install a minimum number of projects in the past twelve months and hold a lighting credential such as the NEEA's NXT Level 1 Designation for both the company and an employee. Pacific Power established the following performance categories that align with program objectives to assess and rank lighting trade ally performance. Top ranked firms meeting the minimum requirements are selected for the Premium tier, such as participation levels (project count and savings), customer satisfaction, program satisfaction, project submission quality, and experience/training.

- Added formal feedback - A trade ally performance snapshot was introduced to provide feedback on a quarterly basis to each approved lighting vendor on the above categories. The main purpose is to provide each vendor with a summary of their performance and help them with continuous improvement. The first scorecards were provided to approved lighting vendors in October 2017 and trade ally coordinators followed up to review the snapshots with vendors individually.

Trade Ally Portal

An updated trade ally portal went live on March 17, 2017. The new portal is linked to Nexant's instance of DSM Central allowing approved *watt*smart Business Vendors to now see the status of their projects online. In July 2017, the portal was updated so approved vendors can download current marketing materials, insert their contact information on materials set up for co-branding, and order printed materials (for co-branded materials, printing can commence once approved by Nexant).

- *Financing*

Nexant operates optional financing and the full launch occurred in 2017. The launch included completion of the following:

- Financing handout and web page[28]
- Trade ally webinars on the financing offer and how to integrate it into their sales process
- Customer webinar

Three Washington trade allies, including two small business contractors, leveraged the financing offer as a sales tool. Sixteen indicative offers were issued and four *watt*smart Business projects were completed with financing in 2017.

- *Lighting Tool*
  The contract signed in 2016 with Nexant included provisions to move the current Excel based lighting tool to an iPad-based assessment platform (iEnergy Onsite). In 2017, an adaptive management decision was made to modify the Excel-based tool with improvements and additional functionality. Examples of additional functionality include:

  - Revised the energy savings calculation methodology to include an adjustment for HVAC interaction resulting from the lighting upgrade to align with the RTF's Standard Protocol for Estimating Energy Savings of Non-Residential Lighting Retrofits.
  - Improved and streamlined fixture selection
  - Customer eligibility functionality

  The upgraded tool was launched for the program changes effective in January 2018.

Evaluation

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

- A high percentage of participants in small business lighting, typical upgrades and custom analysis reported being very satisfied with the work provided by their vendor/contractor.
- Participants in the Small business lighting and typical upgrades channels reported low awareness levels of the *watt*smart Business Program name. Participants in the custom delivery channel reported high name recognition.
- The program was cost effective over the two-year period with a PTRC of 1.53 and an overall realization rate of 99%.

The results of the evaluation can be viewed at www.pacificorp.com/es/dsm/washington.html.

[28] https://www.pacificpower.net/bus/se/washington/project_financing.html

Communications, Outreach and Education

Pacific Power uses earned media, customer communications, paid media, and program specific media to communicate the value of energy efficiency, and provide information regarding low-cost and no-cost energy efficiency measures. Pacific Power endeavors to educate customers on the availability of technical assistance, services, and incentives with the overall goal to engage customers in reducing their energy usage.

Earned Media

Earned media is managed by Pacific Power's external communications department in cooperation with the regional business managers located in Washington. "Earned media" generally refers to favorable television, radio, newspaper, or internet news coverage gained through press releases, media events, opinion pieces, story pitches, or other communication with news editors and reporters.

Customer Communications

As part of the company's regular communications to its customers, newsletters promote energy efficiency initiatives. Inserts and outer envelopes featuring energy efficiency messages have also been used on a consistent basis. Pacific Power uses its website and social media, such as Twitter and Facebook, to communicate and engage customers on DSM offers and incentives.

Paid Media/wattsmart campaign

In 2017 the company developed a new *watt*smart advertising campaign in English and Spanish 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 objective is to effectively reach our customers through a multi-faceted campaign with programs aimed at specific customer groups and the unifying theme "Being wattsmart saves me money, and it's good for Washington." This communication campaign aims to create awareness of the importance and benefits of being energy efficient, and to help increase participation in Pacific Power's DSM programs.

The Company's 2017 research showed that among Pacific Power customers:

- Seventy-three percent of respondents think Pacific Power is doing a good job offering solutions to help customers use energy efficiently and providing information on how to control electricity costs.
- Sixty-five percent of the respondents report taking action to save energy in the past year.
- The main reason for taking action is to save money (79 percent) and to help protect the environment (23 percent).

Of those taking action, the most common actions are installing energy-efficient lights, shutting off lights when not in use, and lowering heating thermostat settings. Key strategies included:

- Implementing an advertising campaign that features *watt*smart energy efficiency messaging and connects it to saving money and the benefits for Washington.
- Promoting customer conservation (behavioral changes) and increasing participation and savings through Pacific Power's *watt*smart DSM programs.
- Motivating customers to reduce consumption independently or to do so by participating in at least one of Pacific Power's *watt*smart DSM programs.
- Educating customers on how these programs can help them save money on their utility bills and reduce energy consumption to help Washington thrive.

The *watt*smart advertising campaign is comprised of a multi-media mix designed to reach as many customers as possible with the greatest frequency. Various communication channels were used to optimize effectiveness, frequency and coverage and to build on the messages. Table 22 outlines the Washington media channels used, the value of each channel, and the impressions achieved.

Table 22
2017 Media Channels

Communication Channel	Value to Communication Portfolio	2017 Placements
Television	Television has the broadest reach and works as the most effective media channel	1,527,319 residential impressions 601,671 business impressions
Radio	Given the cost relative to television, radio builds on communications delivered via television while providing for increased frequency of messages	641,280 residential impressions 200,400 business impressions
Newspaper/Magazine	Supports broadcast messages and guarantees coverage in areas harder to reach with broadcast	262,600 residential impressions 144,800 business impressions
Online advertising	Digital display and Google Search	3,387,573 residential impressions 1,211,047 business impressions and 25,178 search impressions
Social Advertising	Advertising on Facebook	941,332 residential impressions 57,549 business impressions
Twitter @PacificPower_WA	Awareness for early adopters regarding energy efficiency tips Tweets posted on a weekly basis	837 followers through December 2017
Facebook www.facebook.com/pacificpower	Awareness for early adopters regarding energy efficiency tips and a location to share information	19,235 fans through December 2017 (for all Pacific Power states)

The total number of impressions for the campaign in 2017 was 9,000,749.

Links to Pacific Power's current portfolio of advertisements are included in Appendix 5. The audiences for these messages were prioritized as follows:

- Primary - Households in Pacific Power's service area.
- Secondary - Small and large business in Pacific Power's service area.

Program Specific

All energy efficiency program communications are branded under the *watt*smart umbrella to reinforce the campaign and to link changes in behavior to actions customers can take by participating in specific programs. Separate marketing activities administered by and specific to the programs ran in conjunction with the *watt*smart campaign in 2017.

Home Energy Savings

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

Using a strategic approach, Pacific Power communicates select program measures during key selling seasons and promotes *watt*smart Starter Kits to targeted customers throughout the year to achieve savings goals.

In January 2017, the company sent a bill insert to customers promoting its online Home Energy Advisor tool for customers to get personalized energy-saving recommendations.

Program communications from June through October promoted free *watt*smart Starter Kits through a direct mail piece and emails to targeted Washington residents.

A summary of outreach is displayed in Table 23.

Table 23
Home Energy Savings Communication Impressions

Communications Channel	2017
Bill insert	106,000
Direct mail	4,800
Email #1	15,401
Email #2	6,306
Total	**132,507**

In addition, a flyer for the *watt*smart Starter Kits was included in packets distributed to students through the Washington school education program.

Home Energy Reports

Home Energy Reports were mailed to about 40,000 customers several times throughout 2017. Many of these customers also received email reports with customized energy-saving tips. In addition, customers could access the program web portal with additional tools, insights and ways to save energy.

*watt*smart Business

In 2017, customer communications and outreach supported *watt*smart Business using radio, print, paid digital display and search advertising, direct mail, email and social media. This was in addition to customer direct contact by Pacific Power project managers and regional community managers, as well as trade ally partners; articles in the company newsletters and content on Pacific Power's website.

During 2017, radio communications encouraged business customers to make energy efficiency upgrades and print ads featured case study examples from program participants. Eblasts and digital search ads directed viewers to Pacific Power's website[29]. Targeted direct mail was also sent to irrigation customers in the spring and fall to encourage energy-saving retrofits. Emails were sent to let customers know about available incentives, including one targeted to reach grocery/convenience stores. Repeated email communications focused on the benefits and incentives for HVAC assessments. Customers were also invited via email to a free webinar regarding a new optional finance tool available for energy efficiency projects.

Two customers were recognized as *watt*smart Business Partners of the year, presented with a trophy, one of which was announced in a press release. In 2017, the program garnered 2,194,911 impressions. A breakdown of impressions by media type is shown in Table 24.

Table 24
*watt*smart Business

Communications Channel	2017 Impressions
Radio	1,442,880
Newspaper	201,125
Magazine	137,900
Digital Display	359,845
Google Search	39,261
Eblasts	8,884
Direct Mail	5,016

Energy Education in Schools

Pacific Power 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

[29] www.pacificpower.net/wasave

teachers, students, and families. The centerpiece is a series of one hour presentations with hands-on, large group activities for 4th and 5th 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.

In 2017, NEF conducted presentations in Washington schools in the fall. Between October 9 and November 10, 2017, the program met its outreach goals of reaching 4,040 students and 157 teachers with 55 school presentations with 67 percent of "Household Report Cards", which are used as part of a home energy audit activity, completed, and returned. The NEF 2017 Report can be found in Appendix 5.

Evaluations

Evaluations are performed by independent external evaluators to validate energy and demand savings derived from Pacific Power'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 effort 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. Pacific Power 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 2.

Evaluation, measurement and verification tasks are segregated within the company 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 2017 is summarized in the chart below. Summary of the recommendations are provided in Appendix 6. The evaluation reports are available at www.pacificorp.com/es/dsm/washington.html.

Program / Activities	Years Evaluated	Evaluator	Progress Status
Home Energy Savings	2015-2016	Cadmus	Completed
*watt*smart Business	2014-2015	Cadmus	Completed
Low Income Weatherization	2013-2015	Opinion Dynamics	Completed early 2018
Home Energy Reports	2016-2017	ADM	Completed in 2018
*watt*smart Business	2016-2017	Cadmus	In Progress