PACIFIC POWER
A DIVISION OF PACIFICORP

825 NE Multnomah, Suite 2000
Portland, Oregon 97232

October 31, 2014

VIA ELECTRONIC FILING
AND OVERNIGHT DELIVERY

Washington Utilities and Transportation Commission
1300 S. Evergreen Park Drive SW
P.O. Box 47250
Olympia, WA 98504-7250

Attention: Steven V. King
Executive Director and Secretary

RE: **Docket UE-132047 – PacifiCorp's Demand Side Management Business Plan Revisions**

Pursuant to Docket UE-132047, Order 01, Conditions List item (8)(a), Pacific Power & Light Company (Pacific Power or Company) submits to the Washington Utilities and Transportation Commission (Commission) revisions to its Demand Side Management (DSM) Business Plan. The DSM Business Plan was provided as Appendix 7, in the Ten-Year Achievable Conservation Potential and Biennial Conservation Target for 2014 and 2015, filed with the Commission on November 1, 2013, and updated with the Commission on March 18, 2014. Attached please find one original and two (2) copies of the Company's Revised DSM Business Plan.

As outlined in Condition (8)(a) of Order 01, Docket UE-132047, PacifiCorp is required to file any proposed revisions to the 2015 DSM Business Plan by November 1, 2014. The enclosed revised DSM Business Plan reflects program and participation changes to Refrigerator Recycling – Schedule 107, Low Income Weatherization – Schedule 114, Home Energy Savings – Schedule 118, ***watt***smart Business – Schedule 140, and Home Energy Reports.

Schedule 107 – Refrigerator Recycling changes expanded program participation to business customers with residential-sized refrigerators and to retailer pick-ups for retailers who meet program requirements. These changes should partially offset lower volumes of refrigerator recycling by the Company's residential customers.

Schedule 114 – Low Income Weatherization participation levels will be lower than planned due to agency matching funds being depleted. Company funds will be used for 100% of measures versus the typical 50%.

Schedule 118 – Home Energy Savings changes were implemented for ***watt***smart starter kits and duct sealing for manufactured and multi-family homes. Forecast savings were increased due to residential lighting participation.

Schedule 140 – ***watt***smart Business changes include an energy management offer effective January 1, 2014, small to mid-market customer projects with targeted outreach, and a new small business direct install lighting offer.

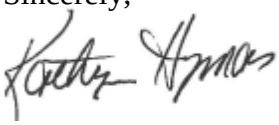
The Home Energy Reports program was expanded to 35,000 additional residential households in October 2014.

The impacts of these changes in energy savings and program costs are included in the forecast provided in Table 1 and Table 2 of the Demand-side Management 2014-2015 Business Plan - Washington, Revision 3 - November 1, 2014.

Overall, the Conservation portfolio level costs are up $150,707 from the November 2013 forecast expenses. The Company's conservation savings are up by 18% with only a ten percent increase in costs when compared to the last business plan. Since the benefits (energy savings) have increased by a higher percentage than the costs, impacts on portfolio economics should be slightly positive.

Please direct any informal inquiries regarding this filing to Michael Snow, DSM Regulatory Projects Manager at (801) 220-4214.

Sincerely,



Kathryn Hymas
Vice President, Demand Side Management

Enclosures

Demand-side Management 2014-2015 Business Plan - Washington

Revision 3 - November 1, 2014

PACIFIC POWER
A DIVISION OF PACIFICORP

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Executive Summary

As required by Order 03 of Docket UE-111880 (amending Order 01 in the same docket), dated April 25, 2013, Pacific Power and Light Company ("Pacific Power" or the "Company") filed a Biennial Conservation Plan November 1, 2013.

In compliance with the Commission's direction (Order 01 of Docket UE-132047 Condition List Item 5) to include revised program details and program tariffs as part of the Company's Biennial Conservation Plan, the Company filed the first revision to Demand-side Management 2014-2015 Business Plan (the "Business Plan") on March 18, 2014 and a second revision on August 20, 2014 to extend and expand the Home Energy Report program.

Pursuant to the Commission's direction to include revised program details and an annual budget by November 1, 2014, as required by Order 01 of Docket UE-132047 Condition List Item 8, dated December 19, 2013, the Company is providing this third revision to the Business Plan for 2014-2015.

The Company's Business Plan update for 2014-2015 reflects updated savings projections and budgets by program or initiative for years 2014-2015. The updates reflect the Company's current projections based on the best available information at the time of filing (October 31, 2014). The Company will add, delete and/or modify programs, measures, initiatives or specific projects described in this Business Plan going forward as appropriate and as circumstances warrant.

In compliance with this requirement the Company makes the following third revision to the 2014-2015 Business Plan. This revision reflects the following:

1) Updated savings projections and budgets by program for 2014 and 2015. Table 1 provides the Company's current savings and cost projections based on year-to-date activity through September 2014, and forecasts based on the best available information for the remainder of 2014 and for the entirety of 2015.
2) Information (description, savings and costs) for the Company's recent extension and expansion of the Home Energy Report program. While this information was provided in a letter to the Commission on August 20, 2014, this third revision incorporates the revised information in the overall Business Plan.

The Business Plan also includes a section for each DSM program with the following information:

- Program, initiative and/or project descriptions
- Description of planned program changes
- Program evaluation update[1]
- Program details including specific measures, incentives, and eligibility requirements

[1] Final evaluation reports are available on the Company's website at: http://www.pacificorp.com/es/dsm/washington.html.

2014-2015 Budget and Savings by Program

Table 1 below provides the projected savings and expenditures by program, initiative, and sector to achieve the 74,703 MWh (including line losses) biennial conservation target ("BCT") for 2014 and 2015 described in the Company's 2014-2015 Biennial Conservation Plan, dated November 1, 2013 and approved by Washington Utilities and Transportation Commission on December 19, 2013. The "Total Pacific Power Conservation" row, which excludes costs and savings associated with Northwest Energy Efficiency Alliance (NEEA) initiatives, is directly comparable to the BCT noted above. As shown, the Company is projecting 93,102, MWh in savings over the biennial period, roughly twenty five percent more than the BCT target.

Table 1
2014 - 2015 Biennial Target Savings and Budget Projections by Program

	2014 PacifiCorp Washington Conservation Estimates				2015 PacifiCorp Washington Conservation Estimates				2014 + 2015	
Program or Initiative	**Gross kWh/Yr Savings @site**	**Gross kWh/Yr Savings @gen**	**aMW Savings**	**Estimated Expenditures**	**Gross kWh/Yr Savings @site**	**kWh/Yr Savings @gen**	**aMW Savings**	**Estimated Expenditures**	**Gross MWh Savings @gen**	**aMW Savings**
Low Income Weatherization (114)	150,451	165,000	0.02	$ 900,000	150,000	164,505	0.02	$ 900,000	330	0.04
Refrigerator Recycling (107)	608,260	667,079	0.08	$ 216,323	930,863	1,020,877	0.12	$ 254,310	1,688	0.19
Home Energy Savings (118)	10,205,527	11,192,401	1.28	$ 2,095,791	11,877,460	13,026,010	1.49	$ 2,305,015	24,218	2.76
Home Energy Reports (N/A)	4,836,397	5,304,077	0.61	$ 298,236	10,931,580	11,988,664	1.37	$ 478,288	17,293	1.97
Total Residential Programs	**15,800,635**	**17,328,557**	**1.98**	**$ 3,510,350**	**23,889,903**	**26,200,057**	**2.99**	**$ 3,937,613**	**43,529**	**4.97**
wattSmart Business (140) - Commercial	10,451,268	11,447,378	1.31	$ 2,352,790	11,277,055	12,351,871	1.41	$ 2,856,020	23,799	2.72
wattSmart Business (140) - Industrial	11,174,687	12,086,653	1.38	$ 2,484,180	12,370,955	13,380,549	1.53	$ 3,133,060	25,467	2.91
wattSmart Business (140) - Agricultural	129,065	141,546	0.02	$ 29,092	135,990	149,140	0.02	$ 34,441	291	0.03
Total Business Programs	**21,755,020**	**23,675,577**	**2.70**	**$ 4,866,062**	**23,784,000**	**25,881,560**	**2.95**	**$ 6,023,521**	**49,557**	**5.66**
Production efficiency	16,000	16,000	0.00	$ 2,947	-	-	-	$ -	16	0.002
Northwest Energy Efficiency Alliance	6,468,181	7,088,896	0.81	$ 1,249,843	6,587,939	7,224,424	0.82	$ 881,334	14,313	1.63
Total Other Conservation Initiatives	**6,484,181**	**7,104,896**	**0.81**	**$ 1,252,790**	**6,587,939**	**7,224,424**	**0.82**	**$ 881,334**	**14,329**	**1.64**
Be wattsmart, Begin at Home	-	-	-	$ 60,000	-	-	-	$ 59,000	-	-
Customer outreach/communication	-	-	-	$ 250,000	-	-	-	$ 250,000	-	-
Program Evaluations	-	-	-	$ 733,814	-	-	-	$ 302,000	-	-
Potential study update/analysis	-	-	-	$ 67,000	-	-	-	$ 75,000	-	-
Measure data documentation	-	-	-	$ 62,828	-	-	-	$ 42,465	-	-
Admin. of prior programs	-	-	-	$ -	-	-	-	$ -	-	-
Total Portfolio-Level Expenses	-	-	-	**$ 1,173,642**	-	-	-	**$ 728,465**	-	-
Total PacifiCorp Conservation	**37,571,655**	**41,020,134**	**4.68**	**$ 9,553,001**	**47,673,903**	**52,081,617**	**5.95**	**$ 10,689,599**	**93,102**	**10.63**
Total System Benefit Charge Conservation	**44,023,836**	**48,093,030**	**5.49**	**$ 10,799,897**	**54,261,842**	**59,306,041**	**6.77**	**$ 11,570,933**	**107,399**	**12.26**
Total Conservation	**44,039,836**	**48,109,030**	**5.49**	**$ 10,802,844**	**54,261,842**	**59,306,041**	**6.77**	**$ 11,570,933**	**107,415**	**12.26**

Notes:

1. Low income forecasts for 2014 and 2015 are based on forecasts from the community action agencies. The per-home savings are from the 2009-2011 program evaluation and are lower than those used in the 2012-2013 biennial period. The Company maintains $1 million annually available for matching commitments.

2. Refrigeration recycling unit energy savings by appliance type (refrigerators and freezers) have been adjusted for the 2014-2015 reporting period based on new information from the program's 2011-2012 Washington impact evaluation using RTF methodology (as modified in December 2012). Updated unit savings values are lower than those used in the 2013 Conservation Potential Assessment and for savings reporting in the 2012-2013 biennium, both of which came from the 2009-2010 program evaluation. The adjustment is further explained in "Appendix 4, Additional Detail – Forecast Adjustments" to the Company's Biennial Conservation Plan.

3. The forecast for Home Energy Savings includes the impacts of adjustments for updated cost and savings information for certain appliances, lighting, building shell and HVAC measures. Updated information becomes available as the RTF updates deemed measures, Pacific Power program evaluations are completed and changes to the Washington State Energy Code (WSEC) take effect. Updates are further explained in "Appendix 4, Additional Detail – Forecast Adjustments" to the Company's Biennial Conservation Plan.

4. Forecasted savings for the extended and expanded Home Energy Reports program are reduced by the amount of savings estimated to be attributable to capital measures counted in other Company programs.

5. Expenditures on production efficiency will be recovered through a general rate case rather than through the System Benefit Charge, as specified in section 11(d) of Order 01 in docket UE-132047.

6. Includes both Pacific Power's direct funding of NEEA and the Company's internal management costs. NEEA 2014 and 2015 expenditures are based on Pacific Power's percent of regional savings applied to NEEA's 2014 budget (presented at the October 2013 Regional Portfolio Advisory Committee meeting) and NEEA's 2015 budget (from the draft 2015-2019 Business Plan), respectively. Forecasted savings were provided by NEEA on October 14, 2013 utilizing technical assumptions as of August 27, 2013. See Appendix 9 to the Biennial Conservation Plan for more detail on NEEA's forecast and savings calculation methodology and Pacific Power's regional savings share. See the Biennial (2014-2015) Conservation Target section of the Biennial Conservation Plan for Pacific Power treatment of NEEA savings consistent with the order received in docket UE-100170.

7. For detail on the planned evaluations, see the program detail sections in this Business Plan.

8. Potential study update and analysis costs represent an estimate of the costs necessary to prepare for the 2016-2025 ten-year conservation forecast and 2016-2017 biennial target. These costs are subject to change as new requirements become effective. Per Pacific Power's Evaluation, Measurement & Verification (EM&V) framework, these costs are not included in program- or portfolio-level cost-effectiveness analysis.

9. Technical Reference Library (TRL) costs are the costs necessary for on-going maintenance and updates to the system. Per Pacific Power's EM&V framework, these costs are not included in program- or portfolio-level cost-effectiveness analysis.

10. Residual administration related to prior program expense represents the ongoing management of conservation loans associated with legacy programs i.e. Energy FinAnswer, Home Comfort, etc.

11. Excludes costs and savings associated with NEEA initiatives. Savings in this row are directly comparable to the Company's Biennial Conservation Target.

12. Excludes costs and savings associated with production efficiency, as those costs will be recovered through a general rate case, rather than the SBC, as specified in section 11(d) of Order 01 in docket UE-111880.

Table 2
March 2014 Business Plan Savings Forecast compared to Current Forecast

	Business Plan March 2014 (and Nov 2013)	Business Plan Update Nov 1 2014	
	2014-2015	2014-2015	Variance
Program or Initiative	**Gross MWh Savings @gen**		
Low Income Weatherization (114)	521	330	(191)
Refrigerator Recycling (107)	1,976	1,688	(288)
Home Energy Savings (118)	17,536	24,218	6,682
Home Energy Reports (N/A)	10,885	17,293	6,408
Total Residential Programs	**30,918**	**43,529**	**12,611**
wattSmart Business (140) - Commercial	23,096	23,799	703
wattSmart Business (140) - Industrial	24,565	25,467	902
wattSmart Business (140) - Agricultural	282	291	9
Total Business Programs	**47,944**	**49,557**	**1,613**
Production efficiency	**17**	**16**	(1)
Northwest Energy Efficiency Alliance	**14,313**	**14,313**	0
Total Other Conservation Initiatives	**14,330**	**14,329**	(1)
Total PacifiCorp Conservation	**78,879**	**93,102**	**14,223**
Total System Benefit Charge Conservation	**93,176**	**107,399**	**14,223**
Total Conservation	**93,193**	**107,415**	**14,222**

Notable DSM Business Plan Savings Changes

Highlights of notable change from the savings projections included in the Business Plan filed on March 18, 2014 include:

- Low Income Weatherization – the number of treated homes are expected to be lower than the original forecast even though expenditures are not significantly revised. This is driven by the partnering weatherization agencies depleting their matching funds. The Company has provisions to fund 100% (vs. 50%) of approved energy efficiency measures when the agency's matching funds are exhausted. The Company will incur a greater expenditure per home and this will result in fewer homes completed in 2015 than originally anticipated. Two of the three partnering agencies believe they will reach their annual funding cap in 2015. Match Maker program funds will be allocated to the agencies again in July 2015 which they will then be able to leverage with Company funds.

- Refrigerator Recycling – revised forecast based on 2014 year to date activity, program updates to expand program to business customers, and program implementation contractor re-forecast for 2015.

- Home Energy Savings – savings are higher than originally forecast driven primarily strong customer uptake of lighting measures, ***watt***smart Starter Kits, and the duct sealing offer for manufactured and multi-family homes.

- Home Energy Reports – increased savings reflect the 2014 expansion of the program to a second treatment group of 35,000 households.

- ***watt***smart Business – higher savings from increased customer uptake of the energy management offer added in January 2014 as well as increased mid-market customer project completions driven by targeted outreach. Estimated savings from small business lighting offer is also contributing to higher forecast for the biennial period.

- Production efficiency – small changes in savings reflect a) current estimates for the Hermiston plant HVAC and compressed air projects scheduled for completion in 2014, and b) deferral of the lighting project at the Jim Bridger plant based on joint owner's intention to defer the project until an upgrade to LED lights passes the plant cost effectiveness test.

Table 3

March 2014 Business Plan Expenditure Forecast compared to Current Forecast

	Business Plan March 2014 (Nov 1 2013)	Business Plan Nov 2014	
	2014-2015	2014-2015	Variance
Program or Initiative	**Estimated Expenditures**		
Low Income Weatherization (114)	$ 1,840,000	$ 1,800,000	$ (40,000)
Refrigerator Recycling (107)	$ 476,764	$ 470,633	$ (6,131)
Home Energy Savings (118)	$ 3,868,593	$ 4,400,806	$ 532,213
Home Energy Reports (N/A)	$ 288,000	$ 776,524	$ 488,524
Total Residential Programs	**$ 6,473,357**	**$ 7,447,963**	**$ 974,606**
wattSmart Business (140) - Commercial	$ 4,837,685	$ 5,208,810	$ 371,125
wattSmart Business (140) - Industrial	$ 5,210,116	$ 5,617,241	$ 407,125
wattSmart Business (140) - Agricultural	$ 59,057	$ 63,533	$ 4,476
Total Business Programs	**$ 10,106,858**	**$ 10,889,583**	**$ 782,725**
Production efficiency	$ 3,942	$ 2,947	$ (995)
Northwest Energy Efficiency Alliance	$ 2,389,099	$ 2,131,177	$ (257,922)
Total Other Conservation Initiatives	**$ 2,393,041**	**$ 2,134,124**	**$ (258,917)**
Be wattsmart, Begin at Home	$ 120,000	$ 119,000	$ (1,000)
Customer outreach/communication	$ 500,000	$ 500,000	$ -
Program Evaluations	$ 968,000	$ 1,035,814	$ 67,814
Potential study update/analysis	$ 150,000	$ 142,000	$ (8,000)
Measure data documentation	$ 10,400	$ 105,293	$ 94,893
Admin. of prior programs	$ 3,000	$ -	$ (3,000)
Total Portfolio-Level Expenses	**$ 1,751,400**	**$ 1,902,107**	**$ 150,707**
Total PacifiCorp Conservation	**$ 18,335,557**	**$ 20,242,600**	**$ 1,907,043**
Total System Benefit Charge Conservati	**$ 20,720,714**	**$ 22,370,830**	**$ 1,650,116**
Total Conservation	**$ 20,724,656**	**$ 22,373,777**	**$ 1,649,121**

Notable DSM Business Plan Budget Changes

Highlights of notable change from the budget projections included in the Business Plan filed on March 18, 2014 include:

- Home Energy Savings – added program delivery costs associated with added savings from starter kits, and customer participation in the duct sealing offers.

- Home Energy Reports – increased third party delivery contractor costs for expanding the treatment group

- wattsmart Business –increased expenditures tied to increased savings from energy management projects, mid-market activities and forecasted customer participation in the small business lighting offer.

- Production Efficiency – updated cost forecasts for projects scheduled for completion in this biennial period.

- Program evaluations- original estimate based on evaluation estimates. The revised forecast is based on contract pricing for low income and business program evaluation currently underway and forecast of expenses expected for evaluations scheduled to be underway between now and the end of 2015.

- Measure data documentation – re-forecast based on actual expenses to maintain Technical Reference Library (TRL) for current programs and to implement data base changes to align with approved program changes including small business lighting offer and refrigerator recycling. Expenditures for implementing the consolidated tracking system, DSM Central, are also included in this category and are primarily responsible for the variance.

- Administration of prior programs – no charges have been incurred in 2014 and indications are none are likely for the balance of the biennial period. The biennial estimate was set to zero and the Company will consider removing this line item from the next (2016-2017) Business Plan.

- During preparation of this update, the Company identified an addition error the 2015 portfolio expenses in the November 1, 2013 business plan. As a result, the Total Portfolio-Level Expenses were understated by $60,000. The 2015 total was listed as $659,700. The total should have been $719,700. The total (2014-2015) portfolio expenses were listed as $1,691,400. They should have been listed as $1,751,400. Variance reporting is from the correct amount.

Residential Program Details

The Company's residential programs in Washington include Refrigerator Recycling (Schedule 107), Home Energy Savings (Schedule 118), and Home Energy Reports.

Refrigerator Recycling (Schedule 107)

Years of Implementation

Pacific Power Electric Service Schedule No. 107 for the Residential Refrigerator Recycling Program was submitted under Advice Letter No. 05-004 on March 1, 2005. The program was originally approved with an effective date April 1, 2005.

Program Description

This program, operating as the See ya later, refrigerator® program, aims to decrease residential and business refrigeration loads by reducing the number of inefficient secondary and primary refrigerator and freezer models in operation. With this program, the Company offers residential and business customers in Washington with qualifying residential refrigerators the opportunity to receive an incentive (by check mailed within 30 days after collection of the unit to be recycled) in exchange for turning in their old but working refrigerators and/or freezers for recycling. Each customer can recycle up to two units, refrigerators and/or freezers, per household per year. In addition, a kit with instant energy-saving measures is provided to each participating residential customer. Customers can schedule a free pick-up online at:

https://www.pacificpower.net/res/sem/washington/roa.html

Program Updates

Deemed values for refrigerator, freezer and kit savings have been updated for the 2014 and 2015 period based on the latest Regional Technical Forum ("RTF") methodology and draft 2011-2012 impact evaluation results. Per unit refrigerator savings changed from 724 kWh to 583 kWh. Freezer savings also were lowered from 542 kWh to 495 kWh. Savings from kits, which include two 13W CFLs, were updated to 28 kWh (per kit) utilizing an EISA compliant wattage for the 60 watt incandescent baseline lamp(s). These values are lower than those reported in the 2012-2013 biennial period.

The program was expanded in April 2014 to include all customer classes, which now allows pick-ups from commercial and industrial customers with qualifying residential refrigerators to participate in the program. Energy efficiency kits will not be provided to the commercial and industrial customers.

Planned Program Changes

The Company is evaluating a program change to pick up qualifying appliances from selected retailers operating in the Pacific Power territory to further increase the reach of the program. In addition, the Company will review evaluations findings and monitor appliance recycling cost-effectiveness to determine if there are revisions that will improve participation or program results.

Evaluation Update

Last Evaluation Report:

Program Years	Evaluation Report Date	Completed by
2011-2012	October 23, 2013	The Cadmus Group

Future Evaluation Report(s):

Program Years	Evaluation Report Date	To be Completed by
2013-2014	By Year-end 2015	To be determined

Program Details

Details for this program are contained in the program tariff. Any changes to the details included in the program tariff must be filed and approved by the Commission prior to becoming effective.

PACIFIC POWER & LIGHT COMPANY

WN U-75

First Revision to Sheet No. 107.1
Canceling Original Sheet No. 107.1

Schedule 107
REFRIGERATOR RECYCLING PROGRAM
SERVICE OPTIONAL FOR QUALIFYING CUSTOMERS

PURPOSE:

Service under this tariff is intended to residential refrigeration loads through the removal and recycling of inefficient models.

AVAILABLE:

In all territory served by Pacific Power (Company) in the State of Washington.

APPLICABLE:

To customers, or property owners, landlords, property management companies and homeowner associations not listed as the primary account holder, in all service territory served by the Company in Washington.

CUSTOMER PARTICIPATION:

Customer participation is voluntary and is initiated by contacting a specified toll-free number or website.

DESCRIPTION:

Customers receive a $30 incentive to discontinue use of their working second refrigerators and/or freezers or to replace their working primary refrigerators and freezers with new more efficient models. To qualify for the incentive, customers must give up their appliances for recycling. Appliances will be collected and recycled to ensure they are not resold on the secondary market. Company may offer a packet with written energy efficiency information, and instant savings measures.

QUALIFYING EQUIPMENT:

Working residential refrigerators and freezers that are a minimum of 10 cubic feet and a maximum of 32 cubic feet in size, utilizing inside measurements.

PROVISIONS OF SERVICE:

Incentives will be available on a maximum of two appliances per qualifying customer per year. Incentive checks will be mailed within 30 days of the appliance collection date.

Company and/or Program Administrator may employ a variety of quality assurance techniques during the delivery of the program. Verification or evaluation may include, but is not limited to, telephone survey, site visit, billing analysis, and pre- and post-installation of monitoring equipment as necessary to quantify actual energy savings.

RULES AND REGULATIONS:

Service under this Schedule is subject to the General Rules and Regulations contained in the tariff of which this Schedule is a part, and to those prescribed by regulatory authorities.

Home Energy Savings (Schedule 118)

Years of Implementation

Pacific Power Electric Service Schedule No. 118 for the Home Energy Savings Program was submitted under Advice Letter No. 06-004 on August 11, 2006. The program was initially approved with an effective date of September 14, 2006.

Program Description

The program provides a broad framework to deliver incentives for more efficient products and services for Washington residential customers with a new or existing home, multi-family unit or manufactured home. A third party administrator hired by the Company delivers the savings and incentives of the program. Operating in tandem, Schedule 118 and the program website (http://www.homeenergysavings.net/Washington/washington_home.html) inform customers and contractors of the offerings and qualifications for incentives.

Measures eligible for incentives include clothes washers, refrigerators, freezers, water heaters, heat pump water heaters, dishwashers, compact fluorescent lights ("CFL") and light emitting diode ("LED") lighting, lighting fixtures (CFL and LED), heating and cooling equipment, insulation and windows. The program offers mail-by request ***watt***smart Starter Kits containing free CFLs and customers with electric water heat also receive a free showerhead and aerators. At a discounted cost, customers can pay to upgrade the kit to contain LEDs and a higher quality showerhead. In addition, the program includes a Builder Option Package as well as stand-alone measures for new homes.

Incentives are provided in three ways: post-purchase delivery to the customer for the majority of measures, through a retailer and/or manufacturer buy-down for CFLs, LEDs and fixtures, and direct installation of a measure where the program pays all of the measure and installation cost so there is no cost to the customer. Buy-downs result in lower retail prices for customers at the point of purchase as opposed to post-purchase incentives that customers must submit an application to receive.

Complete details on incentives and services are on the program website and in the tables and copy of the program tariff below.

Program Updates

Program changes effective January 1, 2014 were made to improve participation, comply with code and standard changes, align incentives with revised measure costs and savings estimates, add delivery channels such as mail-by request kits and direct install, and improve cost effectiveness. As part of the changes, additional measures were added to the program and measures impacted by changing codes were retired.

Planned Program Changes

Future changes including measure additions, deletions, and changes in qualifying standards will be based on cost-effectiveness, participation and evolving codes and standards.

Evaluation Update

Last Evaluation Report:

Program Years	Evaluation Report Date	Completed by
2011-2012	January 20, 2014	The Cadmus Group

Future Evaluation Report(s):

Program Years	Evaluation Report Date	To be Completed by
2013-2014	By Year-end 2015	To be determined

Program Details

General program details for this program are contained in the program tariff; additional program detail is available on the program website. Any changes to the details included in the program tariff must be filed and approved by the Commission prior to becoming effective. In addition, there are program details managed outside of the program tariff. The program tariff and the text below from the Advice Letter (Docket UE-061297), filed August 11, 2006, describe the information that is managed outside of the tariff and the process for changes.

> The comprehensive nature of the program and changing equipment standards indicate a flexible and market-driven program delivery is required. The Company is proposing that Schedule 118 outline the basic program elements including customer eligibility, use of a program administrator for delivery, the seasonal nature of selected incentive offers, and that current incentive levels may change. Specific details such as incentive levels, eligible equipment specifications and dates for incentive availability would be managed by the program administrator using a dedicated program Web site with easy links from the Company web site.
>
> Changes in equipment eligibility or minimum efficiency levels would be driven by program and market data. The Company and program administrator will be assessing program performance on an on-going basis and proposing changes at least once per year. Changes may be proposed more frequently if there is compelling market feedback that changes need to occur ahead of the annual changes. Similar to the filing process, the Company would present information on proposed changes to its Advisory Group and seek comments prior to making changes. Changes in equipment specifications or incentive levels would be clearly posted on the Web site and emailed to the appropriate Commission staff person with at least 45 days advance notice.

The incentive tables, program definitions and custom incentives offered are managed outside of the program tariff on the Company website via the process described above.

The following program information is contained either on the Company's website referenced above or in the program tariff as provided beginning on page 22:

Washington Home Energy Savings

Definitions

British Thermal Unit (Btu): It is approximately the amount of energy needed to heat 1 pound of water from 39° to 40° Fahrenheit.

Compact Fluorescent Lamp (CFL): Light bulbs that produce light much more efficiently than traditional incandescent light bulbs.

Consortium for Energy Efficiency (CEE): CEE is a consortium of US and Canadian gas and electric efficiency program administrators. Members work to unify program approaches across jurisdictions to increase the success of efficiency in markets. CEE members define one or more tiers of energy performance for a particular product or service. A specification is an advanced level of energy performance, higher than is normal in a market, for a residential, commercial, or industrial product or service.

Cubic Feet per Minute (CFM): A measurement of the velocity at which air flows into or out of a space.

Customer: Any party who has applied for, been accepted and receives service at the real property, or is the electricity user at the real property.

Direct Install: Installation of an Energy Efficiency Measure directly by the Company, Program, or a Program-approved contractor or other 3rd party.

Downstream: Payment of incentive made by the Company to a customer, owner, contractor or other approved third party for the purchase or installation of an Energy Efficiency Measure pursuant to an approved energy efficiency incentive application.

Energy Efficiency Incentive: Payments of money made by Company to Owner or Customer or other approved party for installation of an Energy Efficiency Measure pursuant to an approved Energy Efficiency Incentive Application.

Energy Efficiency Measure (EEM): A permanently installed measure which can improve the efficiency of the Customer's electric energy use.

Energy Efficiency Ratio (EER): The EER is the ratio of the cooling capacity Btu per hour to the power input (in watts). The higher the EER rating, the more efficient the air conditioner.

Energy Factor (EF): Indicates a water heater's overall energy efficiency based on the amount of hot water produced per unit of fuel consumed over a typical day. The higher the energy factor, the more efficient the water heater.

Heating Seasonal Performance Factor (HSPF): Is the efficiency of heat pumps measured by the ratio of Btu heat output over the heating season to watt-hours of electricity used. The higher the number, the greater the efficiency.

Heating, Ventilation and Air Conditioning (HVAC): Refers to technology of indoor environmental comfort.

Light-emitting Diode (LED): A semiconductor light source.

Manual J: Manual J, "Residential Load Calculation," published by the Air Conditioning Contractors of America (ACCA), is the recommended method for sizing heating and cooling systems for use in the United States**.**

Manufactured Homes (mobile homes): A type of prefabricated housing that is largely assembled in factories and transported to the site of use. Units are at least 320 square feet and installed with a permanent chassis to assure the initial and continued transportability of the home.

Mid-Market: An approved third party (typically a contractor, retailer or manufacturer) who installs Energy Efficiency Measures at the real property or sells Energy Efficiency Measures to a Customer.

Modified Energy Factor (MEF): Measures energy consumption of the total laundry cycle (washing and drying). It indicates how many cubic feet of laundry can be washed and dried with one kWh of electricity; the higher the number, the greater the efficiency.

New Home: A newly constructed residence.

Owner: The person who has both legal and beneficial title to the real property, and is the mortgager under a duly recorded mortgage of real property, the trustor under a duly recorded deed of trust.

Prescriptive incentives: Per unit incentives are listed in the program incentive tables for specific EEMs. Incentives are subject to change.

RTF: Regional Technical Forum

R-Value: Indicates insulation’s resistance to heat flow. The higher the R-value, the greater the insulating effectiveness.

Seasonal Energy Efficiency Ratio (SEER): Is the efficiency of air conditioners measured by the cooling output in Btu during a typical cooling-season divided by the total electric energy input in watt-hours during the same period. The higher the unit's SEER rating the more energy efficient it is.

Solar Heat Gain Coefficient (SHGC): Measures the fraction of solar energy transmitted and tells how well the product blocks heat caused by sunlight. SHGC is measured on a scale of 0 to 1. The lower the SHGC, the less solar heat the window transmits.

Thermal Expansion Valve (TXV): Is a component in refrigeration and air conditioning systems that controls the amount of refrigerant flow into the evaporator thereby controlling the superheating at the outlet of the evaporator.

U-Factor: Measures the rate of heat transfer and indicates how well the window insulates. U-factor values generally range from 0.25 to 1.25 and are measured in Btu/h·ft²·°F. The lower the U-factor, the better the window insulates.

Upstream: Payment of incentive made by the Company directly to a manufacturer, retailer, or other pre-approved vendor to apply a pre-purchase discount for customers.

Water Factor (WF): Measures water efficiency in gallons of water consumed per cubic foot of capacity.

Incentives

Home Energy Savings Incentive Table

Measure	Qualifications	Customer Incentive	Mid-Market Incentive
Clothes Washers	MEF ≥ 3.2	$50	$0
Clothes Washer Recycling	Decommission and recycle an existing clothes washer. The recycled unit must be operable.	$0	Up to $25
Refrigerators	CEE Tier 2 and above	$35	$0
Electric Water Heaters	25-44.9 gal units: EF > 0.94 45-54.9 gal units: EF > 0.95 55-74.9 gal units: EF > 0.93 75-99.9 gal units: EF > 0.92 100-120 gal units: EF > 0.85 Due to April 16, 2015 federal standard incentives will be provided only for units purchased or installed on or before April 15, 2015.	$50	$0
Evaporative Coolers (Tier 1)	2,000-3,499 CFM	$50	$0
Evaporative Coolers (Tier 2)	Minimum 3,500 CFM (must be the primary cooling source)	$250	$0
Room Air Conditioner	ENERGY STAR qualified	$0	Up to $20
Freezer	ENERGY STAR qualified	$20	$0
Heat Pump Water Heater	Northern Climate Specification qualified Due to April 16, 2015 federal standard units that do not meet the new standard will no longer be offered	Up to $600	$200

Measure	Qualifications	Customer Incentive	Mid-Market Incentive
	incentives after April 15, 2015.		
CFL Bulbs (General Purpose)	ENERGY STAR qualified	$0	Up to $1.50
CFL Bulbs (Specialty)	ENERGY STAR qualified	$0	Up to $3.00
LED Bulbs (General Purpose)	ENERGY STAR qualified	$0	Up to $10.00
LED Bulbs (Specialty)	ENERGY STAR qualified	$0	Up to $10.00
CFL and LED Fixtures	ENERGY STAR qualified. Torchiere and portable products are not qualified	Up to $10.00	
Central Air Conditioner	$\geq$ 15 SEER	$50	$50
Central Air Conditioner Best Practice Installation and Sizing	$\geq$ 13 SEER Meet airflow/refrigerant requirements 350 CFM/ton of airflow Refrigerant charge within +/- 3 degrees of target subcooling. Equipment properly sized per program requirements	$50	$75
Heat Pump Performance Tested Comfort Systems, Commissioning Controls Sizing	Complete RTF prescriptive checklist	$200	$200
Duct Sealing and Insulation	$R_{existing} \leq 2$ or replace all existing insulation with at least R-8 Must add at least R-8 to ducts 80% of home served by electric heat or cooling	$100 for electrically cooled homes $600 for electrically heated homes	$50 for electrically cooled homes $200 for electrically heated homes
Duct Sealing	Must have ducted electric heating or cooling system serving at least 80% of the home's floor area. Existing insulation should only be removed if it is being replaced.	$100 for electrically cooled homes $300 for electrically heated homes	$0
Ductless Heat Pump	$\geq$ 10 HSPF, single-head or multi-head unit	$1,000	$300
Heat Pump Upgrade	For upgrade of existing heat pump to new high efficiency heat pump. $\geq$ 9.5 HSPF	$150	$100
Heat Pump Conversion	For replacement of existing electric resistance heat or electric furnace with new high efficiency heat pump. $\geq$ 9.5 HSPF	$1,250	$500
Insulation - Attic	$R_{initial} \leq 19$ $R_{final} \geq 49$	$0.10/sf. for electrically cooled home $0.35/sf. for electrically heated	$0/sf.

Measure	Qualifications	Customer Incentive	Mid-Market Incentive
		home	
Insulation - Floor	$R_{initial} \leq 11$ $R_{final} \geq 30$ Home's primary heat source must be electric	$0.30/sf.	$0/sf.
Insulation - Wall	Wall cavity lack effective insulation Must add R-11 or fill cavity Home's primary heat source must be electric	$0.40/sf.	$0/sf.
Air Sealing	Air seal entire home per program requirements	$0.15/sf	$0/sf
Windows	Tier 1: U-factor of 0.30 or lower. Electrically heated home only. Tier 2: U-factor of 0.22 or lower.	Tier 1: • $0.25/sf. for electrically heated homes only Tier 2: • $0.50/sf. for electrically cooled home •$1.50/sf. for electrically heated home	$0/sf.
Whole-Home Upgrade Package	Install all of the following per Program requirements: • Heat Pump or Ductless Heat Pump • Whole-Home Attic Insulation • Whole-Home Wall Insulation • Duct Sealing & Insulation if main heat or cooling source is ducted • Air Sealing	$1,000 bonus	$0
New Homes Whole Home Performance Path	To align with regional New Homes offerings, the Program will offer incentives to builders based on the new homes' percentage improvement beyond code, beginning at 15% better than code and increasing. The home's performance will be modeled and verified by independent third-parties and the models will be delivered to the program for final savings and incentives calculations. See program website details.	Up to $5,000	$0
New Homes Refrigerators	CEE Tier 2 and above	$35	$0
New Homes Heat Pump Water Heater	Northern Climate Specification Qualified Due to April 16, 2015 federal standard units that do not meet the new standard will no longer be offered incentives after April 15, 2015.	Up to $800	$0

Measure	Qualifications	Customer Incentive	Mid-Market Incentive
New Homes Central Air Conditioner	≥ 18 SEER	$100	$0
New Homes Heat Pump	≥ 9.5 HSPF	$250	$0
New Homes Windows	Install windows with a U-Factor ≤ 0.22 Home must have electric heat pump.	$1.00/sf.	$0
New Homes Ductless Heat Pump	≥ 10 HSPF, single-head or multi-head unit	$1,300	$0
Low-Flow Showerheads	Flow rate ≤ 2.00 GPM	$0	Up to $15.00
Low-Flow Aerators	Flow rate ≤ 1.50 GPM	$0	Up to $5.00
Manufactured Homes, Duct Sealing	Must have ducted electric heating system serving at least 80% of the home's floor area. Existing insulation should only be removed if it is being replaced.	$0	Up to $500
Manufactured Homes, Air Sealing	Air seal entire home per program requirements	$0.30/sf	$0/sf
New Manufactured Homes, High Performance	Home must receive High Performance certification.	$0	$2,000
New Manufactured Homes, ENERGY STAR	Home must receive ENERGY STAR certification.	$0	$1,000
New Manufactured Homes, Eco-rated Homes	Home must receive Eco-rated certification.	$0	$1,250

Notes for lighting incentives:

- Mid-market incentives for CFL and LED bulbs apply to upstream, mail by request and direct install.
- See product list on program website.
- Reduced price CFL, LED, or fixture offer may end early if entire allocation is sold.

Notes for HVAC incentives:

- See additional installation requirements on program website.

Notes for weatherization incentives:

- See additional installation requirements on program website.
- Windows and Attic Insulation - homes must have electric heating and/or ducted unitary air conditioning serving at least 80% of conditioned floor area in order to qualify.
- Customers with both electric heat and electric cooling are only eligible for incentives for electrically heated homes

Notes for new homes incentives:

- Currently enrolled projects as of December 31, 2013 for the New Homes ENERGY STAR Builders Option Package will be offered the incentive through to project completion
- See additional installation requirements on program website
- Customers with both electric heat and electric cooling are eligible for the incentives for electrically heated homes only.

Notes for plumbing and manufactured homes incentives:

- Mid-market incentives for low-flow showerheads and low-flow aerators apply to upstream, mail by request and direct install.

- See additional installation requirements on program website.
- Manufactured Homes, Duct Sealing - Contractor will be reimbursed for actual job costs, at no cost to the customer. Costs may include surcharge for mileage, duct testing and other job expenses.
- Acronyms:
  GPM: Gallons per minute

Schedule 118
HOME ENERGY SAVINGS INCENTIVE PROGRAM

PURPOSE:

Service under this tariff is intended to maximize the efficient utilization of the electricity requirements of new and existing loads in new and existing residences including manufactured housing and multi-family dwellings.

APPLICABLE:

To new and existing residential customers in all territory served by the Company in the state of Washington billed on Schedules 16, 17 and 18. Landlords who own rental properties served by the company in the state of Washington where the tenant is billed on Schedules 16, 17 and 18 also qualify for this program.

CUSTOMER PARTICIPATION:

Customer participation is voluntary and is initiated by following the participation procedures listed on the program web site.

DESCRIPTION:

On-going program to deliver incentives for a variety of equipment and services intended for and located in residential dwellings. Home Energy Savings Incentive Program will be delivered by the Program Administrator and periodic changes will be made to insure or enhance program cost effectiveness as defined by the Company.

QUALIFYING EQUIPMENT OR SERVICES:

Equipment or services for residential dwellings, which when correctly installed or performed, result in verifiable electric energy usage reductions where such usage is compared to the existing equipment or baseline equipment as determined by the Company.

PROGRAM ADMINISTRATOR:

Qualified person or entity hired by the Company to administer this program.

PROVISIONS OF SERVICE**:**

1. Qualifying Equipment or Services, incentive amounts, and participation procedures will be listed on the program Web site.

2. Incentive delivery may vary by technology and may include any or all of the following; post purchase mail-in, point-of-purchase buy-down, manufacturer buy-down or pre- purchase offer and approval.

3. Incentives may be offered for year-round or for selected time periods.

4. Incentive offer availability, incentive levels and Qualifying Equipment or Services may be changed by the Program Administrator after consultation with the Company to reflect changing codes and standards, sales volumes, quality assurance data or to enhance program cost effectiveness.

(continued)

Schedule 118
HOME ENERGY SAVINGS INCENTIVE PROGRAM

PROVISIONS OF SERVICE**:** (continued)

5. All changes will occur with a minimum of 45 days notice, be prominently displayed as a change, include a minimum 45 day grace period for processing prior offers (except for manufacturer buy-down incentive delivery) and be communicated at least once to retailers who have participated within the last year.

6. Except for manufacturer buy-downs, incentives paid directly to participants will be in the form of a check issued within 45 days of Program Administrator's receipt of a complete and approved incentive application.

7. Equipment and services receiving an incentive under this program are not eligible for incentives under other Company programs.

8. Company and/or Program Administrator will employ a variety of quality assurance techniques during the delivery of the program. They may differ by equipment or service type and may include, but are not limited to, pre and post installation inspections, phone surveys, retailer invoice reconciliations and confirmation of customer and equipment eligibility.

9. Company may verify or evaluate the energy savings of installed equipment or services. Verification or evaluation may include, but are not limited to, telephone survey, site visit, billing analysis, pre- and post-installation of monitoring equipment as necessary to quantify actual energy savings.

ELECTRIC SERVICE REGULATIONS:

Service under this schedule will be in accordance with the terms of the electric service Agreement between the Customer and the Company. The Electric Service Regulations of the Company on file with and approved by the Washington Utilities and Transportation Commission, including future applicable amendments, will be considered as forming a part of and incorporated in said Agreement.

Home Energy Reports

Years of Implementation

The Home Energy Report program was implemented in August 2012 with a treatment group of 13,500 customers and was scheduled to run through December 2015 (41 months). In September 2014, based on the solid results of the initial 18 month evaluation results, the program was extended to run through December 2017. The program was also expanded to include a second treatment group of 35,000 households.

Program Description

The Home Energy Report program is designed to better inform residential customers about their energy usage by providing comparative energy usage data for similar homes located in the same geographical area. In addition, the report provides the customer with information on how to modify their energy usage. Equipped with this information, customers can modify behavior and/or make structural, equipment, lighting or appliance changes to reduce their overall electric energy consumption.

Evaluation Results

On June 18, 2014, Navigant Consulting, Inc. completed an initial 18 month evaluation of the pilot program for the period from August 1, 2012 through January 31, 2014. The evaluation found that participating customers reduced their energy consumption by 1.80%. The PacifiCorp Total Resource Cost test (PTRC) benefit - cost ratio for the 18 month pilot is 2.46. The PTRC results includes the 10% Northwest Regional Credit as an additional benefit. .

Evaluation Update

Last Evaluation Report:

Program Years	Evaluation Report Date	Completed by
8/1/2012 – 1/31/2014	June 18, 2014	Navigant Consulting

Future Evaluation Report(s):

Program Years	Evaluation Report Date	To be Completed by
2/1/2014 – 7/31/2015	By Year-end 2015	Navigant Consulting

Program Details

Reports for the pilot program were initially provided to approximately 13,500 customers, which as expected has decreased over the initial 18 month pilot period related to normal attrition for customer opt-outs and move-outs. Over the initial 18 months of the pilot program, participation reductions from customer opts outs were just over 1%. The low number of opt outs suggests there is high satisfaction among the customers currently receiving the reports. The initial pilot program consisted of a customer population made up of customers with an annual average electrical energy usage of 20,000 kilowatt hours. To achieve this, the upper bound annual average is approximately 29,000 kilowatt hours and the lower bound annual average is 13,500 kilowatt hours.

The 11,500 households currently participating in the program will continue to receive bi-monthly home energy reports until December 31, 2017. Each participating household will receive an additional 12 reports over the term of the program extension (2016-2017). The 35,000 households in

the expansion group will receive monthly reports for the initial three months of the expansion period in order to familiarize customers with the reports and information and then move to a bi-monthly schedule. Each participating household in the expansion group will receive a total of 21 reports between October 2014 and December 2017. The randomization of the treatment and control group was performed by Navigant Consulting Inc. Customers may also request an electronic version delivered via email.

As part of the expansion offer, all households will have access to a web portal containing the same information about their usage and past usage as those receiving program reports. The web portal will have other functions to assist customers such as a home energy audit tool and suggestions to improve energy conservation and efficiency in their home.

Savings are being tracked and reported annually based on reporting from the vendor. Savings reported against the I-937 target will be based on an ex-post evaluation of the program performance.

Planned Program Changes

With the October 2014 expansion to an additional 35,000 customers, no further program changes are planned at this time. The content of the bi-monthly home energy reports is refreshed with updated energy efficiency tips and ideas to maintain customer interest and participation.

Low Income Residential Program Details

The Company offers a Low Income Weatherization program (Schedule 114) to its income-eligible residential customers.

Low Income Weatherization (Schedule 114)

Years of Implementation

The Low Income Weatherization program has been in effect since the mid-1980's and has successfully assisted in the weatherization of over 7,200 homes in the state of Washington.

Program Description

Pacific Power partners with three local non-profit agencies, Blue Mountain Action Council in Walla Walla, Northwest Community Action Center in Toppenish and Opportunities Industrialization Center of Washington in Yakima to provide weatherization services to income qualifying households throughout its Washington service area. The leveraging of Pacific Power funding along with Washington MatchMaker Program funds allows the agencies to provide these energy efficiency services at no cost to participating customers. The Company provides rebates to partnering agencies for 50 percent of the cost of services while MatchMaker funds are available, and covers 100 percent of costs when these state funds are depleted. Participants qualify whether they are homeowners or renters residing in single-family homes, manufactured homes or apartments.

Planned Program Changes

No program changes are planned at this time, but the Company will review evaluation findings with the partnering agencies to determine if there are revisions that will improve the services provided and program results. In addition, agency staff is reporting that their MatchMaker funding is depleting and they will be billing the Company 100 percent (instead of the typical 50 percent) for a portion of 2014 and the first six months of 2015.

Evaluation Update

The next program evaluation will be completed by the end of 2015.

Last Evaluation Report:

Program Years	Evaluation Report Date	Completed by
March 2009 – February 2011	September 7, 2012	The Cadmus Group

Future Evaluation Report(s):

Program Years	Evaluation Report Date	To be Completed by
2011 - 2012	By year end 2014	Smith & Lehmann Consulting

Program Details

Details for this program are contained in the program tariff. Any changes to the details included in the program tariff must be filed and approved by the Commission prior to becoming effective.

Schedule 114
RESIDENTIAL ENERGY EFFICIENCY RIDER – OPTIONAL FOR QUALIFYING LOW INCOME CUSTOMERS

PURPOSE:

Service under this schedule is intended to maximize the efficient utilization of the electricity requirement of existing residential dwellings inhabited by customers that meet income guidelines through the installation of permanent energy efficient materials.

APPLICABLE:

To residential Customers residing in single family, multi-family and manufactured home dwellings billed under Schedule 16 or Schedule 17 in all territory served by the Company in the State of Washington. This schedule is applicable to existing dwellings built before July 1, 1991 with permanently installed operable electric space heating designed to heat the living space of the dwelling, except as noted under the energy efficient measures section of this tariff.

DESCRIPTION:

Service under this program is available to improve the energy efficiency of applicable residential dwellings connected to Company's system. The decision to extend service under this schedule shall be based on eligibility requirements contained herein.

DEFINITIONS:

(1) "Dwelling" means real or personal property within the state inhabited as the principal residence of a dwelling owner or a tenant. "Dwelling" includes a manufactured home, a single-family home, duplex or multi-unit residential housing. "Dwelling" does not include a recreational vehicle.

(a) Duplexes and four-plexes are eligible if at least one half of the dwelling is occupied by low income tenants.

(b) Triplexes and multi-family dwellings are eligible if at least 66% of the units are occupied by low income tenants.

(2) "Agency" means a non-profit group, Municipality or County authorized to receive funds for installation of weatherization materials in low income properties.

(3) "Energy Audit" means a service provided by the Agency that includes the measurement and analysis of the energy efficiency of a dwelling including energy savings potential that would result from installing energy efficient measures that are determined to be cost effective.

(4) “Low Income” means households qualifying under the federal low income guidelines and certified for eligibility according to agency procedure.

(5) “Major Measures” means ceiling insulation, wall insulation and floor insulation applicable in dwellings with permanently installed electric space heating systems. If physical barriers exist that prohibit the installation of a measure, then the measure is not required as a condition for financial assistance under this schedule.

(continued)

Schedule 114
RESIDENTIAL ENERGY EFFICIENCY RIDER – OPTIONAL FOR QUALIFYING LOW INCOME CUSTOMERS

DEFINITIONS: (Continued)

(6) "Supplemental Measures" are not required measures under this schedule, but may qualify for a Company reimbursement based on audit results or a U.S. Department of Energy approved priority list.

(7) The "Energy Matchmaker Program" in the State of Washington is designed to increase resources for low-income weatherization by leveraging local matching dollars. A community based agency can access the Energy Matchmaker funds by providing a dollar-for-dollar match. Anticipated match providers include utilities, local governments, service organizations and rental housing owners. All measures installed under the Pacific Power Program must also be eligible under the Energy Matchmaker Program.

FINANCIAL ASSISTANCE:

(1) The Company will reimburse the "Agency" 50% of the installed cost of all eligible Energy Efficient Measures listed in this tariff. If Matchmaker Program participating Agencies exhaust Matchmaker Funds, Company will fund "Agency" 100% of costs associated with the installation of eligible Energy Efficient Measures. Measures will be determined to be cost effective (Savings to Investment Ratio of 1.0 or greater) through the results of an U.S. Department of Energy (DOE) approved audit or priority list. Financial assistance will be provided one time only on any individual major or supplemental measure, and up to two times per dwelling.

(2) The Company will reimburse the "Agency" for administrative costs when all major measures determined to be cost effective have been installed. The administrative reimbursement will be calculated as: 15% of the Pacific Power rebate.

(3) The Company will reimburse the "Agency" 50% of the installed cost of repairs necessary to make the installation of the energy efficient measures included in this effective tariff. When matching funds are exhausted funding will be at 100%. The total reimbursement on repairs available to the "Agency" is limited to 15% of the annual reimbursement on energy efficient measures received.

(4) Agencies must notify Company when matching funds are depleted, no less than 30 days prior to billing at 100% funding levels.

(5) Total funding for all program components will not exceed $1,000,000 per calendar year.

(6) Agencies must invoice the Company within ninety days of job completion.

(continued)

Schedule 114
RESIDENTIAL ENERGY EFFICIENCY RIDER – OPTIONAL FOR QUALIFYING LOW INCOME CUSTOMERS

ENERGY EFFICIENT MEASURES:

Financial assistance will be provided based on the results of a cost-effective analysis (Savings to Investment Ratio of 1.0 or greater) through the use of a U.S Department of Energy approved energy audit or priority list. The energy efficient measures eligible for funding must be installed in dwellings with permanently installed operable electric space heat except where noted. The installation of measures listed as "Always considered cost effective" under Major and Supplemental Measures are not dependent on audit results. The energy efficient measures that may be eligible for funding are listed as follows along with their estimated measure life where applicable:

Major Measures:

(1) Ceiling insulation up to R-49 for ceilings with less than R-30 in place. R-30 or better attics will not be further insulated: 30 years.

(2) Floor insulation over unheated spaces up to R-30: 30 years.

(3) Wall insulation or exterior insulation sheathing up to R-26 for walls with no insulation installed (financing will not be available for the installation of urea-formaldehyde wall insulation): 30 years.

Nothing shall preclude the Company from providing a reimbursement for the installation of a greater R value of insulation for the above items that are determined to be cost effective (Savings to Investment Ratio of 1.0 or greater) through the audit process.

Supplemental Measures:

(1) Attic ventilation, excluding power ventilators when installed with ceiling insulation (required if needed at the time ceiling insulation is installed). Whole house mechanical ventilation, and spot ventilation for kitchen and baths at time ceiling insulation is installed: Always considered cost effective.

(2) Ground cover and water pipe wrap when installed with floor insulation; other vapor barrier materials as required when installed with floor or ceiling insulation: Always considered cost effective.

(3) Forced air electric space heating duct insulation and sealing in unheated spaces: 30 years.

(4) Weather stripping and/or caulking, including blower door assisted air sealing and duct sealing: Always considered cost effective.

(5) Thermal doors: 30 years.

(continued)

Schedule 114
RESIDENTIAL ENERGY EFFICIENCY RIDER – OPTIONAL FOR QUALIFYING LOW INCOME CUSTOMERS

ENERGY EFFICIENT MEASURES: (continued)
Supplemental Measures:

(6) Dehumidifiers: Always considered cost effective.

(7) Timed thermostats on centrally controlled multi-room heating systems except when used with heat pumps. Heat anticipating type thermostats for zonal electric resistance heating systems. Zonal thermostats must be separate from the heating unit and must be calibrated at the site to within 2°F of actual room temperature in the range of 65°F-75°F: Always considered cost effective.

(8) Energy efficient showerheads and aerators where electric water heaters are present. Showerheads with a visible flow rating greater than 2.5 gallons per minute (gpm) will be replaced, and showerheads without a gpm marking may be replaced at the discretion of agency staff: Always considered cost effective.

(9) Water heaters: Tank replacement of existing electric water heaters when audit indicates a Savings to Investment Ratio of 1.0 or greater. Replacement will be an Energy Star certified model with an EF rating as follows: 40-49 gallon capacity = 0.94 or greater, 50-65 gallon capacity = 0.95 or greater, 66+ gallon capacity = 0.93 or greater. 13 years.

(10) Fluorescent light fixtures applicable in all homes: 15 years.

(11) Compact fluorescent light bulbs applicable in all homes - limit 10 Energy Star certified bulbs per home placed in fixtures that are on 2 or more hours per day: Always considered cost effective, 7 years.

(12) Refrigerators applicable in all homes: Refrigerators with monitored results or listed in the Weatherization Assistance Program Technical Assistance Center database showing annual usage of 1,500 kWh or greater may be replaced with an Energy Star model with an estimated annual consumption of 600 kWh or less. Replaced refrigerators must be removed and recycled in accordance with EPA guidelines: Always considered cost effective, 15 years.

(13) Class 40 Replacement windows: 25 years.

(continued)

PACIFIC POWER & LIGHT COMPANY

WN U-75

First Revision of Sheet No. 114.5
Canceling Original Sheet No. 114.5

Schedule 114

RESIDENTIAL ENERGY EFFICIENCY RIDER – OPTIONAL FOR QUALIFYING LOW INCOME CUSTOMERS

PROVISIONS OF SERVICE:

(1) A Department of Energy approved Energy Audit must be completed or an approved priority list used by the Agency prior to installation of the measures by the Agency.

(2) Agency must qualify residential customers for assistance using the Federal Low Income Guidelines.

(3) Measures installed under this schedule shall not receive financial incentives from other Company programs.

(4) Agency shall inspect the installation to ensure that the weatherization meets or exceeds required specifications.

(5) Company may audit Agency weatherization and financial records and inspect the installations in dwellings of customers receiving weatherization under this program. Records will include audit and/or priority list results.

(6) Company shall pay the Agency the amount established under the terms of their contract when provisions of this schedule have been met.

RULES AND REGULATIONS:

Service under this schedule is subject to the General Rules and Regulations contained in the tariff of which this schedule is a part, and to those prescribed by regulatory authorities.

Non-Residential Program Details

The Company offers ***watt***smart Business (Non-Residential Energy Efficiency - Schedule 140) to non-residential customers in the State of Washington. The program provides a comprehensive set of financial and service incentives to assist the Company's non-residential customers in improving the energy efficiency of their facilities.

***watt*smart Business (Schedule 140)**

Years of Implementation

The ***watt***smart Business program (Schedule 140) was created in 2014 by the consolidation of two existing programs: Energy FinAnswer and FinAnswer Express. The Energy FinAnswer program was originally implemented in the 1990s as an energy efficiency improvement financing program. Customer loan payments were calculated to equal expected monthly savings from the energy efficiency improvements made until the loan was satisfied. The program was modified to an incentive based program under Schedule 125 in October 2000.[2] The Small Retrofit Incentive and Retrofit Incentive (Schedules 115 and 116) were created in November 2000 and were improved and renamed FinAnswer Express (Schedule 115) in May 2004.

The consolidation of the programs to ***watt***smart Business was approved with Docket UE-132083, effective January 1, 2014.

Program Description

The ***watt***smart Business program was designed to support continuing acquisition of all cost-effective conservation from business customers and help reinforce the ongoing ethos of energy efficient new construction, facility upgrades, and ongoing operations.

Prescriptive incentives ("Typical Upgrades") are offered to commercial, industrial and agricultural customers for typical lighting, HVAC, motor, building envelope, food service, appliances, irrigation, dairy/farm equipment, compressed air and other retrofits or new installations. Typical Upgrades include an expedited energy analysis and incentives based on the equipment installed ($/fixture, $/motor, $/ton, etc.).

As of October 1, 2014, the program includes a lighting retrofit incentive offer specifically for small business customers receiving electric service on Schedule 24. Participating customers utilizing an approved contractor are eligible for an enhanced incentive offer targeted at 80% of the project cost.

Custom incentives and analysis are offered for commercial, industrial, and agricultural customer retrofits and new construction measures that meet minimum efficiency qualifications of the prescriptive incentives, but do not have a prescriptive incentive available. The program includes a vendor neutral investment grade energy analysis and cash incentives equal to $0.15 per kWh of annual energy savings (up to 70 percent of project costs).[3] There is a cap to prevent incentives from

[2] Prior to October 2000, the program offered energy efficiency funding repaid with interest on the customer's electric bill.

[3] Note there are no incentive caps for new construction projects where energy code applies.

bringing the payback for a project below one year. Custom analysis includes a post-installation verification and, if required, the program includes commissioning for dynamic measures. The program provides energy project manager (EPM) co-funding to increase end user management and engineering manpower devoted to electrical energy projects/activities increasing the number of commercial and industrial projects that can be completed. EPM co-funding is performance based and contingent on customer's commitment to an energy savings goal over a prescribed timeframe; typically 12 months. Participating customers set a verifiable energy savings goal and receive co-funding proportionate to that goal at $0.025/kWh (subject to a minimum co-funding level and salary cap). If the customer meets these verified energy savings goals on schedule, co-funding continues. If however, milestones are missed, co-funding would be suspended and/or ultimately ended and repayment of unearned co-funding would be required.

Energy Management was added to the ***watt***smart Business program in January 2014. Energy Management incentives expand the program and help the Company partner with customers to ensure ongoing efficiency improvements in the operation and management of facilities and industrial processes. Energy Management is a system of practices that creates reliable and persistent electric energy savings through improved operations, maintenance and management practices at customer sites. It is designed to complement program offerings for capital improvements and the Energy Project Manager co-funding offer.

Energy Management offers multiple levels of engagement: Strategic Energy Management, Persistent Commissioning, Industrial Re-commissioning and Re-commissioning. The level of engagement will be in direct response to the customer's specific needs and their commitment to a process that can extend from 3 to 24 months and produce measurable savings. Savings are site specific and monitoring of building systems and industrial process controls is used to identify and quantify energy savings.

The program is marketed primarily via Pacific Power account managers, ***watt***smart Business vendors, ***watt***smart Business consultants, and project staff. Other leads come via advertising in business publications, company newsletters, word-of-mouth, past participants returning for additional projects and a combination of other Company outreach efforts.

Planned Program Changes

Research is underway to inform the next program changes. A possible offer involving LED lighting distributors is under consideration. Future changes will be based on cost-effectiveness, participation and updated market information.

Evaluation Update

FinAnswer Express

Last Evaluation Report:

Program Years	Evaluation Report Date	Completed by
2009-2011	December 31, 2012	Navigant Consulting, Inc.

Future Evaluation Report(s):

Program Years	Evaluation Report Date	To be Completed by
2012-2013	By Year-end 2014	Navigant Consulting, Inc.

Energy FinAnswer

Last Evaluation Report:

Program Years	Evaluation Report Date	Completed by
2009- 2011	December 28, 2012	Navigant Consulting, Inc.

Future Evaluation Report(s):

Program Years	Evaluation Report Date	To be Completed by
2012-2013	By Year-end 2014	Navigant Consulting Inc.

***watt*smart Business**

Future Evaluation Report(s):

Program Years	Evaluation Report Date	To be Completed by
2014-2015	By year-end 2016	TBD

Program Details

General program details for this program are contained in the program tariff; additional program detail is available on the program website. Any changes to the details included in the program tariff must be filed and approved by the Commission prior to becoming effective. In addition, there are program details managed outside of the program tariff. The program tariff utilizes the modification procedure established with the approval of Advice No. 06-008 by the Washington Utilities and Transportation Commission. The program tariff and the text below from the Advice Letter 06-008 (Docket UE-061710), filed on November 8, 2006, describe the information that is managed outside of the tariff and the process for changes.

> Future changes in the … incentive tables and definitions would be driven by program and market data. The Company assesses program performance on an ongoing basis and would propose changes at least annually. Changes may be proposed more frequently if there is compelling market data. Similar to the filing process, the Company would present information on proposed changes to its Advisory Group and seek comments prior to making changes. Changes would be clearly posted on the program web site and e-mailed to the appropriate Commission staff person with at least 45 days advance notice.

The incentive tables, program definitions and custom incentives offered are managed outside of the program tariff on the Company website via the process described above.

The current information for the program can be found on the Company's website at www.be***watt***smart.com.

Washington *watt*smart Business

Definitions

Customer: Any party who has applied for, been accepted and receives service at the real property, or is the electricity user at the real property.

Energy Efficiency Incentive: Payments of money made by Pacific Power to Owner or Customer for installation of an Energy Efficiency Measure pursuant to an acknowledged Energy Efficiency Incentive Offer Letter or approved Energy Efficiency Incentive Application.

Energy Efficiency Incentive Offer Letter: An offer made by Pacific Power and acknowledged by Owner or Customer providing for Pacific Power to furnish Energy Efficiency Incentives for an Energy Efficiency Project.

Incentive Application: An application submitted by Owner or Customer to Pacific Power for Energy Efficiency or Energy Management Incentives.

Energy Efficiency Measure (EEM): Qualifying measures are any measures which, when installed in an eligible facility, result in verifiable electric energy efficiency improvement compared to a baseline as determined by Pacific Power. The baseline will be determined with reference to existing equipment, applicable state or federal energy codes, industry standard practice and other relevant factors.

Energy Efficiency Measure (EEM) Cost:

- New Construction/Major Renovation: EEM Cost is the total installed cost of energy efficiency equipment or system minus the cost of the code compliance/common practice equipment or system.
- Retrofit: EEM Cost is the total installed cost of the energy efficiency equipment or modification. In the case of New Construction, Major Renovations, and Retrofits, EEM Costs shall mean the Owner or Customer's reasonable costs incurred (net of any discounts, rebates or incentives other than Energy Efficiency Incentives from Pacific Power, or other consideration that reduces the final actual EEM Cost incurred by the Owner or Customer) to purchase and install EEMs at the Owner's or Customer's facility. If the Owner or Customer installs the EEM then the cost of installation shall be equal to the Owner's or Customer's actual labor costs for such installation.

Energy Efficiency Project: One or more EEM(s) at a Non-residential Facility[4] with similar one year payback limitations (see below) covered by one Energy Efficiency Incentive Offer Letter.

Energy Efficiency Project Cost: The sum of EEM Costs for one or more EEM(s) with similar one year payback limitations (see below) covered by one Energy Efficiency Incentive Offer Letter.

[4] Measures at multiple Non-residential Facilities may be included in one Offer Letter for convenience; however, project incentive caps (if any) are applied per individual Non-residential Facility.

Energy Management Offer Letter: An offer made by Pacific Power and acknowledged by Owner or Customer and Pacific Power providing for Pacific Power to furnish Energy Management Incentives for an Energy Management Project.

Energy Management Incentive: Payments of money made by Pacific Power to Owner or Customer for implementation of an Energy Management Measure pursuant to an executed Energy Management Offer Letter.

Energy Management Measure (EMM): an operational improvement which, when implemented in an eligible facility, result in electric savings compared to current operations as determined by Pacific Power.

Energy Management Project: One or more EMM(s) at a Non-residential Facility covered by one Energy Management Offer Letter.

Energy Project Manager: an employee or direct contractor of the Customer who will manage electrical energy efficiency projects that deliver savings toward the Customer/Owner's energy savings goal.

Energy Project Manager Co-funding: funding towards the Energy Project Manager agreed upon full value salary that is solely attributable to electrical energy efficiency work.

Major Renovation: A change in facility use type or where the existing system will not meet Owner/Customer projected requirements within existing facility square footage.

Mixed Use: Buildings served by a residential schedule and a rate schedule listed under Washington Schedule 140 shall be eligible for services under this schedule provided the Energy Efficiency Project meets the definition of New Construction or Major Renovation.

New Construction: A newly constructed facility or newly constructed square footage added to an existing facility.

Non-residential Facility: A Customer site that is served by Pacific Power and meets the applicability requirements of Washington Schedule 140, the program tariff, on file with the Washington Utilities & Transportation Commission.

Owner: The person who has both legal and beneficial title to the real property, and is the mortgager under a duly recorded mortgage of real property, the trustor under a duly recorded deed of trust.

Retrofit: Changes, modifications or additions to systems or equipment in existing facility square footage.

Incentives – General Information

Incentives for measures listed in the incentive tables

Per unit incentives are listed in the program incentive tables for specific Energy Efficiency Measures (EEMs) and are subject to the incentive caps below. Incentives are subject to change and current incentives can be found at www.pacificpower.net.

Custom incentives

Energy Efficiency Measures not listed in the prescriptive incentive tables (typical upgrades) may be eligible for a Custom Energy Efficiency Incentive. Pacific Power will complete an analysis of the EEM Cost and electric energy savings and determine whether to offer a custom Energy Efficiency Incentive and the incentive amount.

Electric savings resulting from lighting interaction with mechanical equipment is not eligible for a custom Energy Efficiency Incentive.

Energy management incentives

Non-Capital, improvements to operations and maintenance within a qualifying facility may be eligible for an Energy Management Incentive. Pacific Power will partner to complete an analysis of the electric energy savings of potential energy management measures and determine whether to offer an Energy Management Incentive and the incentive amount.

Energy project manager co-funding

Pacific Power can fund an additional $0.025/per kWh of verified ***watt***smart Business energy savings, up to 100 percent of the Energy Project Manager's salary. Salary is based on a letter from the Customer/Owner's human resources or accounting department stating the base annual salary and an appropriate overhead percentage, and subject to approval by Pacific Power.

Baseline adjustments

The baseline wattage for all retrofit incandescent and linear fluorescent lighting EEMs is the lesser of:

a) Wattage of existing equipment, or
b) Wattage of deemed baseline equipment listed in the lighting wattage table available on the Washington energy efficiency program section of the Pacific Power website.

Pacific Power may adjust baseline electric energy consumption and costs to reflect any of the following: energy codes, standard practice, changes in capacity, changes in production or facility use and equipment at the end of its useful life. Such adjustments may be made for lighting energy efficiency measures installed in new construction projects where energy code does not apply.

INCENTIVES:[5],[6]

Category		Incentive	Percent Project Cost Cap[7]	1-Year Simple Payback Cap for Projects[8]	Other Limitations
Prescriptive Incentives (Typical Upgrades)	Lighting - Retrofit	See incentive lists	70%	Yes	See incentive lists
	Lighting - New Construction/ Major Renovation		None	No	
	Motors		None	No	
	HVAC		None	No	
	Building Envelope		None	No	
	Food Service		None	No	
	Appliances		None	No	
	Office		None	No	
	Irrigation		70%	Yes	
	Farm and Dairy		70%	Yes	
	Compressed Air		70%	Yes	
	Wastewater and other Refrigeration		70%	Yes	
Enhanced Incentives for Small Businesses		Determined by Company with not-to-exceed amounts as shown in incentive table for this offer	80%	No	Available to all Schedule 24 customers meeting small business criteria on Company website. Qualifying equipment must be installed by an approved contractor/vendor.

[5] The Customer or Owner may receive only one financial incentive from Pacific Power per measure. Financial incentives include energy efficiency incentive payments and energy management payments. Energy Project Manager Co-Funding is available in addition to the project incentives.

[6] Incentives for prescriptive measures are restricted to the amounts shown on the website.

[7] All EEM Costs are subject to Pacific Power review and approval prior to making an Energy Efficiency Incentive Offer. All final EEM Costs are subject to Pacific Power review and approval prior to paying an Energy Efficiency Incentive per the terms of the Energy Efficiency Incentive Offer or approved Application. Pacific Power review and approval of EEM Costs may require additional documentation from the Customer or Owner.

[8] The 1 year simple payback cap means incentives will not be available to reduce the simple payback of a project below one year. If required, individual measure incentives will be adjusted downward pro-rata so the project has a simple payback after incentives of one year.

Custom Non-Lighting Incentives for qualifying measures not on the prescriptive list.[9]	$0.15 per annual kWh savings	70%	Yes	N/A
Energy Management	$0.02 per kWh annual savings	N/A	No	N/A
Energy Project Manager Co-Funding	$0.025 per kWh annual savings	100% of salary and eligible overhead	No	Minimum savings goal posted on Pacific Power website

Energy Project Manager Co-funding Incentives

Payment No.	Payment Amount	Milestone
1 - Initial payment	1/3 of funding amount* (not to exceed $25,000)	1. You select an Energy Project Manager 2. We work together on Comprehensive Plan for electric energy savings 3. You sign the Energy Project Manager Offer Letter
2 - Final payment	$0.025 per kwh of energy savings achieved, to a maximum 100 percent of approved Energy Project Manager Salary and less the initial payment	1. At the end of performance period as defined in the Energy Project Manager Offer Letter

**Funding amount is based on the lesser of (a) $0.025 per kWh or (b) the total annual cost of the Energy Project Manager (salary plus overhead).*

Retrofit Lighting Incentive Table

Measure	Category	Eligibility Requirements	Incentive
T8 Fluorescent	CEE T8	4' CEE Qualified High Performance Lamp and CEE Qualified Ballast included on qualified list	$3/Lamp
		4' CEE Qualified Reduced Wattage Lamp and CEE Qualified Ballast included on qualified list	$5/Lamp
	Premium Delamp	4' CEE Qualified Reduced Wattage or High Performance Lamp and CEE Qualified Ballast. Must remove one or more lamps. To delamp an existing fixture, the lamp and all corresponding sockets must be permanently disabled.	$21/Lamp Removed
	Relamp	Lamp wattage reduction ≥ 3 Watts, No ballast retrofit	$1/Lamp

[9] Project Cost and 1-Year Simple Payback Caps do not apply to New Construction and Major Renovation projects that are subject to state energy code.

	High Bay	Fixture with less than six (6) lamps: 4’ CEE Qualified High Performance Lamp. Must replace T12HO/VHO, Incandescent or HID	$18/Lamp
		Fixture with six (6) or more lamps: 4’ CEE Qualified High Performance Lamp. Must replace T12HO/VHO, Incandescent or HID.	$12/Lamp
	Continuous Operation	4’ CEE Qualified Reduced Wattage or High Performance Lamp and CEE Qualified Ballast included on qualified list installed in a continuous operation application.	$20/Lamp
T5 Fluorescent	Standard	4’ Nominal Lamp ≤ 28 Watts, Ballast Factor ≤ 1.0	$5/Lamp
	Relamp	Lamp wattage reduction ≥ 3 Watts, No ballast retrofit	$1/Lamp
	High Bay	Fixture with less than six (6) lamps: 4’ T5HO Lamp. Must replace T12HO/VHO, Incandescent or HID	$18/Lamp
		Fixture with six (6) or more lamps: 4’ T5HO Lamp. Must replace T12HO/VHO, Incandescent or HID.	$12/Lamp
	Continuous Operation	4’ Nominal High Output Lamp installed in a continuous operation application	$20/Lamp
Cold Cathode	Screw-in Lamp	All wattages	$5/Lamp
Compact Fluorescent Lamp (CFL)	Hardwired Fixture	All wattages	$5/Fixture
Ceramic Metal Halide (CMH)	CMH Fixture	All wattages	$35/Fixture
Pulse Start Metal Halide (PSMH)	PSMH Fixture	Wattages > 500W	$60/Fixture
	Electronic Ballast	Must be used in place of or replace a magnetic ballast	$20/Ballast
Induction	Induction Fixture	All wattages, New fixtures only	$75/Fixture
LED	Integral Screw-in Lamp	LED must be listed on qualified equipment list	$10/Lamp
	Recessed Downlight	LED must be listed on qualified equipment list	$10/Fixture
	Other LED	LED must be listed on qualified equipment list	$0.15/kWh annual energy savings
Lighting	Custom	Not listed above	$0.15/kWh annual energy savings

Notes for retrofit lighting incentive table:

1. To be eligible for the incentives listed, the new lighting system must use less energy than the existing lighting system replaced or the baseline lighting system as determined by Pacific Power.
2. Incentives are capped at 70 percent of Energy Efficiency Project Costs and incentives will not be available to reduce the Energy Efficiency Project simple payback below one year. Energy Efficiency Project Costs are subject to Pacific Power approval.
3. Incentives for T8 Premium Delamps may not be combined with other linear fluorescent lamp or fixture incentives. Complete fixture removals are not eligible.
4. Incentives for T8 and T5 Relamps may not be combined with other linear fluorescent lamp or fixture incentives and will only be paid once per facility.
5. Qualified equipment lists referenced in the table are posted on the Washington energy efficiency program section of Pacific Power's website.

BF = Ballast Factor
CEE = Consortium for Energy Efficiency
CFL = Compact Fluorescent Lamp
CMH = Ceramic Metal Halide
HID = High Intensity Discharge (e.g. Mercury Vapor, High Pressure Sodium, Metal Halide)
HO = High Output
LED = Light-Emitting Diode
PSMH = Pulse-Start Metal Halide
VHO = Very High Output

Lighting Controls and Non-General Illuminance Lighting (Retrofit only)

Measure	Category	Eligibility Requirements	Incentive
Lighting Control	Occupancy Control	PIR, Dual Tech, or Integral Sensor	$ 0.30/Watt controlled
	Daylighting Control	Must control interior fixtures with Continuous, Stepped, or Bi-level ballast or automated control that dims 50% or more of the fixture in response to daylight.	$0.34/Watt controlled
	Advanced Daylighting Control	Must incorporate both an occupancy sensor and daylighting sensor operating as part of the same control sequence in the same interior space.	$0.38/Watt controlled
	Timeclock	Must control on/off schedule of lighting equipment	$20/timeclock
Non-General Illuminance	Exit Sign	LED or photoluminescent replacing incandescent or fluorescent	$15/Sign
	LED Message Center Sign	LED replacing existing incandescent signage	$5/Lamp
	LED Channel Letter Sign	LED replacing existing neon or fluorescent signage	$5/Linear Foot
	LED Marquee/Cabinet Sign	LED replacing existing fluorescent signage	$5/Linear Foot
Custom	Custom	Not listed above	$0.15/kWh annual energy savings

Notes for lighting controls and non-general illuminance lighting incentive table:

1. To be eligible for the incentives listed, the new lighting system must use less energy than the existing lighting system replaced.

2. Incentives are capped at 70 percent of Energy Efficiency Project Costs and incentives will not be available to reduce the Energy Efficiency Project simple payback below one year. Energy Efficiency Project Costs are subject to Company approval.

3. Incentives for Advanced Daylighting Controls may not be combined with other lighting control incentives.

4. Watt controlled refers to the total wattage of lighting fixtures down circuit from the control.

PIR = Passive Infrared
Dual Tech = Sensors combining ultrasonic and passive infrared
LED - Light-emitting Diode

New Construction/Major Renovation Lighting Incentive Table

Measure	Category	Eligibility Requirements	Incentive
Interior Lighting	Lighting and Lighting Control	1. The total connected interior lighting power for New Construction/Major Renovation projects must be at least 10% lower than the interior lighting power allowance calculated under the applicable version of the State energy code. For New Construction/Major Renovation projects not included in the state energy code, the total connected lighting power must be at least 10% lower than common practice as determined by Pacific Power. 2. Energy savings is subject to approval by Pacific Power	$0.08/kWh annual energy savings
Exterior Lighting	Induction Fixture	All Wattages, New Fixtures Only	$75/Fixture
	LED Outdoor Pole/Roadway, decorative	<75W; LED must be listed on qualified equipment list	$75/Fixture
	LED Outdoor Pole/Roadway	≤200W; LED must be listed on qualified equipment list	$100/fixture
		>200W; LED must be listed on qualified equipment list	$400/fixture
	LED Canopy/Soffit	LED must be listed on qualified equipment list	$125/fixture
	LED Wall packs	<50 Watts; LED must be listed on qualified equipment list	$50/fixture
		≥50 Watts; LED must be listed on qualified equipment list	$75/fixture
	LED Flood Lights	<100 Watts; LED must be listed on qualified equipment list	$75/fixture
		≥100 Watts; LED must be listed on qualified equipment list	$150/fixture
	CFL Wall Pack	All Wattages, Hardwire Fixtures Only	$30/Fixture
	Custom	Not listed above	$0.08/kWh annual energy savings
	Lighting Control	Occupancy control which must control a linear fluorescent, induction, or LED fixture	$0.30/Watt controlled

Motor Incentives Table

Equipment Type	Size Category	Sub-Category	Minimum Efficiency Requirement	Customer Incentive
Variable-Frequency Drives (HVAC fans and pumps)	≤ 100 horsepower	HVAC fans and pumps	See Note 2	$65/horsepower
Green Motor Rewinds	≥ 15 and ≤ 5,000 hp	--	Must meet GMPG Standards	$1/horsepower (See Note 3)

Notes for other motor incentives table:

1. Equipment that meets or exceeds the efficiency requirements listed for the equipment category in the above table may qualify for the listed incentive.

2. Throttling or bypass devices, such as inlet vanes, bypass dampers, three-way valves, or throttling valves must be removed or permanently disabled to qualify for HVAC fan or pump VFD incentives. VFDs required by or used to comply with the applicable version of the energy code are not eligible for incentives. Savings will only be realized for installations where a variable load is present.

3. Green Motor Rewind motors that are installed or placed in inventory may qualify for an incentive. For Green Motor Rewinds, the participating electric motor service center is paid $2/horsepower for eligible Green Motor Rewinds. A minimum of $1/hp is paid by the service center to the Customer as a credit on the motor rewind invoice. The balance is retained by the service center.

GMPG = Green Motors Practices Group
HVAC = Heating, Ventilating and Air Conditioning
VFD = Variable Frequency Drive

HVAC Equipment Incentive Table

			Minimum Efficiency Requirement & Customer Incentive		
Equipment Type	**Size Category**	**Sub-Category**	**$25/ton**	**$50/ton**	**$75/ton**
Unitary Commercial Air Conditioners, Air-Cooled	< 65, 000 Btu/hr (single phase)	Split system and single package	--	CEE Tier 1	CEE Tier 2
	All equipment sizes (three phase)	Split system and single package	--		
Unitary Commercial Air Conditioners, Water and Evaporatively Cooled	All equipment sizes	Split system and single package	--	CEE Tier 1	--
Packaged Terminal Air Conditioners (PTAC)	≤ 8,000 Btu/hr	Single package	12.2 EER	--	--
	> 8,000 Btu/hr and < 10,500 Btu/hr	Single package	11.9 EER	--	--
	≥ 10,500 Btu/hr and ≤ 13,500 Btu/hr	Single package	10.7 EER	--	--
	> 13,500 Btu/hr	Single package	9.9 EER	--	--
Packaged Terminal Heat Pumps (PTHP) (Heating & Cooling Mode)	≤ 8,000 Btu/hr	Single package	--	12.2 EER and 3.4 COP	--
	> 8,000 Btu/hr and < 10,500 Btu/hr	Single package	--	11.5 EER and 3.3 COP	--
	≥ 10,500 Btu/hr and ≤ 13,500 Btu/hr	Single package	--	10.7 EER and 3.1 COP	--
	> 13,500 Btu/hr	Single package	--	9.8 EER and 3.0 COP	--
Heat Pumps, Air-Cooled (Cooling Mode)	< 65, 000 Btu/hr (single & three phase)	Split system and single package	--	CEE Tier 1	CEE Tier 2
	≥ 65,000 Btu/hr (three phase)	Split system and single package	--		--
Heat Pumps, Air-Cooled (Heating Mode)	< 65, 000 Btu/hr (single & three phase)	Split system and single package (See note 3)	--	CEE Tier 1	CEE Tier 2
	≥ 65,000 Btu/hr (three phase)	(See note 3)	--		--
Heat Pumps, Water-Source (Cooling Mode)	< 135,000 Btu/hr	(See note 3)	--	CEE Tier 1	--
Heat Pumps, Water-Source (Heating Mode)	< 135,000 Btu/hr	(See note 3)	--	CEE Tier 1	--
Heat Pumps, Ground-Source or Groundwater-Source (Heating & Cooling Mode)	All sizes	(See note 3)	--	ENERGY STAR Qualified	--
VRF Air-Cooled Heat Pumps (Cooling Mode)	All Equipment Sizes	Multisplit System or Multisplit System with Heat Recovery			CEE Tier 1

VRF Air-Cooled Heat Pumps (Heating Mode)	All Equipment Sizes	Multisplit System or Multisplit System with Heat Recovery (See note 3)			CEE Tier 1
VRF Water-Cooled Heat Pumps (Cooling Mode)	< 135,000 Btu/hr	Multisplit System or Multisplit System with Heat Recovery			CEE Tier 1
VRF Water-Cooled Heat Pumps (Heating Mode)	< 135,000 Btu/hr	Multisplit System or Multisplit System with Heat Recovery (See note 3)			CEE Tier 1
Ground Source or Groundwater-Source Heat Pump Loop	All sizes	Open Loop	**$25/ton**	--	--
		Closed Loop			

Notes for HVAC Equipment incentive table:

1. Equipment that meets or exceeds the efficiency requirements listed for the size category in the above table may qualify for the listed incentive. Equipment must meet all listed efficiency requirements to qualify for the listed incentives.

2. PTHPs can replace electric resistive heating, which must be removed.

3. Incentives for heat pumps are available per ton of cooling capacity ONLY. No incentives are paid per ton of heating capacity. Heat Pumps must meet both the cooling mode and heating mode efficiency requirements to qualify for per ton cooling efficiency incentives.

4. Equipment size categories are specified in terms of net cooling capacity at AHRI standard conditions as determined by AHRI Standard 210/240 for units <65,000 Btu/hr, AHRI Standard 340/360 for units ≥65,000 Btu/hr, AHRI Standard 1230 for VRF systems, and AHRI Standard 310/380 for PTAC and PTHP units.

5. Ground and Water Source Heat Pumps must meet or exceed listed efficiency requirements when rated in accordance with ISO-13256-1 to qualify for the listed incentive.

6. Units rated only with an IPLV may qualify for the listed incentives if the value meets or exceeds the minimum IPLV established as part of the Consortium for Energy Efficiency Commercial Unitary Air Conditioning and Heat Pump specification effective January 16, 2009.

7. Efficiency requirements align with the Consortium for Energy Efficiency (CEE) Unitary Air-Conditioning and Heat Pump Specification for equipment with heating sections other than electric resistance. CEE minimum efficiency requirements are listed on Pacific Power's website.

AHRI = Air-Conditioning, Heating and Refrigeration Institute
CEE = Consortium for Energy Efficiency
COP = Coefficient of Performance
EER = Energy Efficiency Ratio
HSPF = Heating Seasonal Performance Factor
HVAC = Heating, Ventilation and Air-Conditioning
IEER = Integrated Energy Efficiency Ratio
IPLV = Integrated Part Load Value
PTAC = Packaged Terminal Air Conditioner
PTHP = Packaged Terminal Heat Pump
SEER = Seasonal Energy Efficiency Ratio
VRF = Variable Refrigerant Flow

Other HVAC Equipment and Controls Incentives

Equipment Type	Size Category	Sub-Category	Minimum Efficiency Requirement	Customer Incentive
Evaporative Cooling	All sizes	Direct or Indirect		$0.06/ CFM
Indirect-Direct Evaporative Cooling (IDEC)	All sizes	--	Applicable system components must exceed minimum efficiencies required by energy code	$0.15/kWh annual energy Savings (See Note 2)
Chillers	All except chillers intended for backup service only	Serving primarily occupant comfort cooling loads (no more than 20% of process cooling loads)	Must exceed minimum efficiencies required by energy code	$0.15/kWh annual energy Savings (See Note 3)
Room Air Conditioner	Residential (used in a business)		See Home Energy Savings program	See Note 4
365/366 day Programmable or Occupancy-based Thermostat	All sizes in portable classrooms with mechanical cooling	Must be installed in portable classroom unoccupied during summer months	365/366 day thermostatic or occupancy based setback capability	$150/thermostat
Occupancy Based PTHP/PTAC control (Retrofit only)	All sizes with no prior occupancy based control	--	See Note 5	$50/controller
Evaporative Pre-cooler (Retrofit Only)		For single air-cooled packaged rooftop or matched split system condensers only.	Minimum performance efficiency of 75%. Must have enthalpy controls to control pre-cooler operation. Water supply must have chemical or mechanical water treatment.	$75/ton of attached cooling capacity

Notes for other HVAC equipment and controls incentive table:

1. Equipment that meets or exceeds the efficiency requirements listed for the equipment category in the above table may qualify for the listed incentive.

2. Incentives are paid at $0.15/kWh annual energy savings. IDEC energy savings subject to approval by Pacific Power.

3. Incentives are paid at $0.15/kWh annual energy savings. Chiller energy savings subject to approval by Pacific Power.

4. Refer to Pacific Power's Home Energy Savings Program for efficiency requirements and incentives for listed residential appliances used in a business.

5. Controller units must include an occupancy based control and include the capability to set back the zone temperature during extended unoccupied periods and set up the temperature once the zone is occupied.

CFM = Cubic Feet per Minute
IDEC = Indirect Direct Evaporative Cooling
PTHP = Packaged Terminal Heat Pump
PTAC = Packaged Terminal Air Conditioner

Building Envelope (Retrofit) Incentives

Equipment Type	Category	Minimum Efficiency Requirement	Customer Incentive
Cool Roof	--	ENERGY STAR Qualified	$0.10/square foot
Roof/Attic Insulation	--	Minimum increment of R-10 insulation	$0.08/square foot
Wall Insulation	--	Minimum increment of R-10 insulation	$0.10/square foot
Windows (See Note 3, 4)	Site-Built	U-Factor ≤ 0.30 and SHGC ≤ 0.33 (Glazing Only Rating)	$0.34/square foot
	Assembly	U-Factor ≤ 0.30 and SHGC ≤ 0.33 (Entire Window Assembly Rating)	$0.34/square foot
Window Film	Existing Windows	See Note 5	$0. 15/kWh annual energy savings (See Note 5)

Notes for retrofit building envelope incentive table:

1. Equipment that meets or exceeds the efficiency requirements listed for the equipment category in the above table may qualify for the listed incentive.

2. Building must be conditioned with mechanical cooling to be eligible for envelope incentives.

3. Energy performance of window assemblies and glazing products must be rated in accordance with NFRC. Site-Built metal window systems must include a thermal break within the frame or other appropriate NFRC certification to qualify for incentives. Skylights are not eligible to receive incentives.

4. Window square footage is determined by the dimensions of the entire window assembly, not just the window glass.

5. Incentives for window film are calculated based on film specifications and window orientation at $0.15/kWh annual energy savings. Energy savings subject to approval by Pacific Power.

NFRC = National Fenestration Rating Council
SHGC = Solar Heat Gain Coefficient

Building Envelope (New Construction/Major Renovation) Incentives

Equipment Type	Category	Minimum Efficiency Requirement	Customer Incentive
Cool Roof	--	ENERGY STAR Qualified	$0.10/square foot
Roof/Attic Insulation	--	Minimum increment of R-5 insulation above code (See Note 5)	$0.04/square foot
Windows (See Note 3, 4)	Site-Built	U-Factor ≤ 0.30 and SHGC ≤ 0.33 (Glazing Only Rating)	$0.34/square foot
	Assembly	U-Factor ≤ 0.30 and SHGC ≤ 0.33 (Entire Window Assembly Rating)	$0.34/square foot

Notes for building envelope (new construction/major renovation) incentives table:

1. Equipment that meets or exceeds the efficiency requirements listed for the equipment category in the above table may qualify for the listed incentive.

2. Building must be conditioned with mechanical cooling to be eligible for envelope incentives.

3. Window square footage is determined by the dimensions of the entire window assembly, not just the window glass.

4. Energy performance of window assemblies and glazing products must be rated in accordance with NFRC. Site-Built metal window systems must include a thermal break within the frame or other appropriate NFRC certification to qualify for incentives. Skylights are not eligible to receive incentives.

5. Compliance with the minimum efficiency requirements of Roof/Attic Insulation measure may be demonstrated with equivalent U-factors and is subject to Pacific Power approval.

NFRC = National Fenestration Rating Council
SHGC = Solar Heat Gain Coefficient

Food Service Equipment Incentives

Equipment Type	Equipment Category	Minimum Efficiency Requirement	Customer Incentive
Commercial Dishwasher (High Temperature models w/ electric boosters Only)	Undercounter	ENERGY STAR Qualified	$100
	Stationary Rack, Single Tank, Door Type		$400
	Single Tank Conveyor		$1,000
	Multiple Tank Conveyor		$500
Electric Insulated Holding Cabinet	Full Size	ENERGY STAR Qualified	$400
	3/4 Size		$300
	1/2 Size		$200
Electric Steam Cooker	3-, 4-, 5- and 6-pan or larger sizes – Tier 1	ENERGY STAR Qualified	$130
	3-, 4-, 5- and 6-pan or larger sizes – Tier 2	ENERGY STAR Qualified w/ Heavy Load Efficiency ≥ 68%	$300
Electric Convection Oven	--	ENERGY STAR Qualified	$350
Electric Griddle		ENERGY STAR Tier 2 Qualified	$150
Electric Combination Oven	6-15 pans	ENERGY STAR Qualified	$1,000
	16-20 pans	ENERGY STAR Qualified	$275
Electric Commercial Fryer	Tier 1	ENERGY STAR Qualified	$200
	Tier 2	ENERGY STAR Qualified w/Cooking Efficiency ≥ 85%, Idle Energy Rate ≤ 860 Watts	$300
Ice Machines (Air-Cooled Only)	Tier 1: Harvest Rate <500 lbs/day	ENERGY STAR Qualified	$125
	Tier 1: Harvest Rate ≥ 500 lbs/day	ENERGY STAR Qualified	$150
	Tier 2: Harvest Rate <500 lbs/day	CEE Tier 2 Qualified	$250
	Tier 2: Harvest Rate ≥ 500 lbs/day	CEE Tier 2 Qualified	$400
Residential Refrigerator	Used in a business	See Home Energy Savings program	See Note 2
Residential Refrigerator/ Freezer Recycling	Used in a business	See residential refrigerator/ freezer recycling program	See Note 3
Commercial Transparent Door Refrigerator	0 < V < 15	ENERGY STAR Qualified	$25
	15 ≤ V < 30		$50
	30 ≤ V < 50		$75
	50 ≤ V		$125
	Chest Configuration		$50
Commercial Transparent Door Freezer	0 < V < 15	ENERGY STAR Qualified	$25
	15 ≤ V < 30		$50
	30 ≤ V < 50		$75
	50 ≤ V		$100
	Chest Configuration		$100

LED Case Lighting (Retrofit Only)		LED replacing fluorescent lamp in refrigerated cases.	$10/linear foot
Refrigerated Case Occupancy Sensor (Retrofit Only)		Installed in existing refrigerated case with LED lighting	$1/linear foot
Demand Controlled Kitchen Ventilation Exhaust Hood (Retrofit Only)	Must be installed on commercial kitchen exhaust system.	Variable speed motors must be controlled to vary fan speed depending upon kitchen demand, as indicated by connected sensors.	$0.15/kWh annual energy savings (See note 4)
Anti-Sweat Heater Controls (Retrofit Only)	Low-Temp (Freezing) Cases	Technologies that reduce energy consumption of anti-sweat heaters based on sensing humidity.	$20/linear foot (case length)
	Med-Temp (Refrigerated) Cases		$16/linear foot (case length)

Notes for food service equipment incentives table:

1. Equipment that meets or exceeds the efficiency requirements listed for the equipment category in the above table may qualify for the listed incentive.

2. Refer to Pacific Power's Home Energy Savings Program for efficiency requirements and incentives for listed residential appliances used in a business.

3. Refer to Pacific Power's residential refrigerator and freezer recycling program (See ya later, refrigerator®) for requirements and incentives for listed appliance recycling measures for residential appliances used in a business.

4. Incentives are paid at $0.15/kWh annual energy savings. Demand controlled kitchen ventilation exhaust hood energy savings subject to approval by Pacific Power.

CEE = Consortium for Energy Efficiency
ASTM = American Society for Testing and Materials
MDEC = Maximum Daily Energy Consumption
V = Association of Home Appliance Manufacturers (AHAM) Volume in cubic feet

Appliances Incentive Table

Equipment Type	Equipment Category	Minimum Efficiency Requirement	Customer Incentive
High-Efficiency Clothes Washer	Residential (used in a business)	See Home Energy Savings program	
	Commercial (must have electric water heating)	ENERGY STAR® Qualified	$100
Electric Water Heater	Residential (used in a business)	See Home Energy Savings program	

Notes for appliances incentive table:

1. Equipment that meets or exceeds the efficiency requirements listed for the equipment category in the above table may qualify for the listed incentive.

2. Equipment must meet the efficiency rating standard that is in effect on the date of purchase.

3. Refer to Pacific Power's Home Energy Savings program for efficiency requirements and incentives for listed residential appliances used in a business.

CEE = Consortium for Energy Efficiency

Incentives for Office Energy Efficiency Measures

Equipment Type	Replace	Minimum Efficiency Requirements	Customer Incentive
Network PC Power Management Software	--	1. Installed software must automatically control the power settings of networked personal computers (PC) at the server level 2. The software must manage power consumption for each individual PC 3. The software must include the capability to report energy savings results 4. Incentives are for desktop computers only. Controlled laptop computers are not eligible for incentives.	$5 per controlled PC
Smart Plug Strip	--	1. Incentive applies to any plug strip that eliminates idle or stand-by power consumption of connected plug-load appliance through the use of an occupancy sensor, electric load sensor, or timer. 2. Applies only to electric plug-load applications (e.g. computer monitors, desk lamps, etc.)	$15/qualifying unit

Notes for office energy efficiency measures incentives table:

1. Equipment that meets or exceeds the efficiency requirements listed for the equipment category in the above table may qualify for the listed incentive.

Irrigation Incentives for Wheel Line, Hand Line, or Other Portable Systems (Retrofit Only)

Irrigation Measure	Replace	With	Limitations	Customer Incentive
New rotating, sprinkler replacing worn or leaking impact or rotating sprinkler	Leaking or malfunctioning impact rotating sprinkler	Rotating sprinkler	1. Fixed-in-place (solid set) systems not eligible. 2. Incentive limited to two sprinklers per irrigated acre.	$2.50 each
New or rebuilt impact Sprinkler replacing worn or leaking impact sprinkler	Leaking or malfunctioning impact sprinkler	New or rebuilt impact sprinkler	1. New nozzle shall be included in new or rebuilt sprinkler. 2. Rebuilt sprinkler shall meet or exceed manufacturer's specifications. 3. Fixed-in-place (solid set) systems not eligible. 4. Incentive limited to two sprinklers per irrigated acre.	$2.25 each
New nozzle replacing worn nozzle of same design flow or less on existing sprinkler	Worn nozzle	New nozzle of same design flow or less	1. Flow rate shall not be increased. 2. All nozzles on the wheel line or hand line shall be replaced. 3. Fixed-in-place (solid set) systems not eligible. 4. Incentive limited to two nozzles per irrigated acre.	$0.50 each
New flow control nozzle for impact sprinkler replacing existing nozzle or worn flow control nozzle of same design flow or less	Worn flow-controlling type nozzle	New flow-control nozzle	1. Nozzle to be replaced may be fixed orifice or flow control type. 2. New flow control nozzle shall have a flow rating equal to or less than the flow rating of the existing nozzle at 40 psi. 3. All nozzles on the wheel line or hand line shall be replaced. 4. Fixed-in-place (solid set) systems not eligible. 5. Incentive limited to two nozzles per irrigated acre.	$2.75 each
New gasket replacing leaking gasket, including mainline valve or section gasket, seal, or riser cap (dome disc)	Leaking gasket	New gasket, including mainline valve or section gasket, seal, or riser cap (dome disc)	1. New gasket must replace leaking gasket. 2. Fixed-in-place (solid set) systems not eligible. 3. Incentive limited to two gaskets per irrigated acre.	$2 each
New drain replacing leaking drain	Leaking drain	New drain, including drains on pivots and linears	1. New drain must replace leaking drain. 2. Fixed-in-place (solid set) systems not eligible. 3. Incentive limited to two drains per irrigated acre.	$3 each
Cut and press or weld repair of leaking wheel line, hand line, or portable main line	Leak in wheel line, hand line, or portable main line	Cut and pipe press or weld repair	Invoice must show number of leaks repaired	$10/repair
New or rebuilt wheel line leveler replacing leaking or malfunctioning leveler	Replace leaking or malfunctioning leveler	New or rebuilt leveler	1. Applies to leaking or malfunctioning levelers only. 2. For rebuilds, invoice must show number of rebuild kits purchased and installed.	$3 each

New or rebuilt wheel line feed hose replacing leaking wheel line feed hose	Leaking wheel line feed hose	New or rebuilt wheel line feed hose	1. Applies to leaking wheel line feed hose only. 2. For rebuilds, invoice must show number of rebuild kits purchased and installed.	$12 each
New Thunderbird wheel line hub replacing leaking wheel line hub	Leaking Thunderbird wheel line hub	New Thunderbird wheel -line hub	New hub must replace leaking hub	$10 each

Irrigation Incentives for Pivot and Linear Systems (Retrofit Only)

Irrigation Measure	Replace	With	Limitations	Customer Incentive
Low pressure sprinkler (e.g. rotating, wobbling, multy-trajectory spray) replacing impact sprinkler	Impact sprinkler	New low pressure sprinkler (on-board nozzle is considered part of sprinkler, not a separate item with additional incentive)	New sprinkler is of same design flow or less	$3 each
Low pressure sprinkler (e.g. rotating, wobbling, multi-trajectory spray) replacing worn low pressure sprinkler	Worn low pressure sprinkler (e.g. rotating, wobbling, multi-trajectory spray)	New low pressure sprinkler (on-board nozzle is considered part of sprinkler, not a separate item with additional incentive)	1. New sprinkler is of same design flow or less.	$1.50 each
Pressure regulator	Worn pressure regulator. May also add regulator where there had been none before.	New pressure regulator of same design pressure or less.	1. New regulator must be of same design pressure or less	$3 each
Gooseneck as part of conversion to low pressure system		New gooseneck as part of conversion to low pressure system	Gooseneck shall be used to convert existing center pivot with sprinkler equipment mounted on top of the pivot to low pressure sprinklers with regulators on new drop tubes.	$0.50 per outlet
Drop tube (3 ft minimum length)	Leaking drop tube	New drop tube (3 ft minimum length) OR add new drop tube as part of conversion to low pressure system	Drop tube or hose extension shall extend below the pivot lower brace or shall be a minimum of 3 feet in length, whichever is greater.	$2 per drop tube
New center pivot base boot gasket replacing leaking base boot gasket	Leaking center pivot base boot gasket	New center pivot base boot gasket	1. Gasket shall replace leaking gasket at the pivot point of the center pivot. 2. No more than one gasket shall be claimed per pivot.	$125 each
New tower gasket replacing leaking tower gasket	Leaking tower gasket	New tower gasket	New gasket shall replace leaking tower gasket	$4 each

Irrigation Incentives for Any Type of System (Retrofit or New Construction, Including Non-agricultural Irrigation Applications)

Irrigation Measure	Replace	With	Limitations	Customer Incentive
Irrigation pump VFD		Add variable frequency drive to existing or new irrigation pump	1. Pumps serving any type of irrigation water transport or distribution system are eligible – wheel lines, hand lines, pivots, linears, fixed-in-place (solid set). 2. Both retrofit and new construction projects are eligible.	$0.15/kWh annual savings

Notes for irrigation incentive tables:

1. Equipment that meets or exceeds the requirements above may qualify for the listed incentive.

2. Except for the pump VFD measure, incentives listed here are available only for retrofit projects where new equipment replaces existing equipment (i.e. new construction is not eligible).

3 Except for the pump VFD measure, equipment installed in fixed-in-place (solid set) systems is not eligible. Incentive is limited to two units per irrigated acre.

4. Incentives are capped at 70 percent of Energy Efficiency Project Costs, and incentives will not be available to reduce the Energy Efficiency Project simple payback below one year. Energy savings and Energy Efficiency Project Costs are subject to Pacific Power approval.

VFD = Variable Frequency Drive

Farm and Dairy Incentives

Equipment Type	Equipment Category	Minimum Efficiency Requirements	Customer Incentive
Automatic Milker Takeoffs (Retrofit Only)	--	Equipment must be able to sense milk flow and remove milker when flow reaches a pre-set level. The vacuum pump serving the affected milking units must be equipped with a VFD. Incentive is available for adding automatic milker takeoffs to existing milking systems, not for takeoffs on a brand new system where there was none before. Replacement of existing automatic milker takeoffs is not eligible for this listed incentive, but may qualify for a Custom Energy Efficiency Incentive.	$235 each
Agricultural Engine Block Heater Timers	--	Timer must be a UL-listed device and rated for a minimum of 15 amps continuous duty.	$10 each
High Efficiency Circulating Fans (See Note 2)	12-23" Diameter	Fan must achieve an efficiency level of 11 cfm/W	$25/fan
	24-35" Diameter	Fan must achieve an efficiency level of 18 cfm/W	$35/fan
	36-47" Diameter	Fan must achieve an efficiency level of 18 cfm/W	$50/fan
	≥48" Diameter	Fan must achieve an efficiency level of 25 cfm/W	$75/fan
Heat Recovery	--	Heat recovery unit must use heat rejected from milk cooling refrigeration system to heat water. Customer must use electricity for water heating.	$0.15/kWh annual energy savings
High-efficiency Ventilation Fans (See Note 2)	12-23" Diameter	Fan must achieve an efficiency level of 11 cfm/W	$45/fan
	24-35" Diameter	Fan must achieve an efficiency level of 13 cfm/W	$75/fan
	36-47" Diameter	Fan must achieve an efficiency level of 17 cfm/W	$125/fan
	≥48" Diameter	Fan must achieve an efficiency level of 19.5 cfm/W	$150/fan
Milk Pre-coolers	--	The equipment must cool milk with well-water before it reaches the bulk cooling tank.	$0.15/kWh annual energy savings
Programmable Ventilation Controllers	--	Controller must control ventilation fans based on temperature or other applicable factors such as humidity, odor concentration, etc...	$20/fan controlled
Variable Frequency Drives for Dairy Vacuum Pumps (Retrofit Only)	--	VFD must vary motor speed based on target vacuum level. incentive available for retrofit only (i.e. new construction and replacement of existing VFD not eligible.).	$165/hp
Potato or Onion Storage Fan VFD		Add variable frequency drive to existing or new fan in potato or onion storage	$0.15/kWh annual energy savings

Notes for farm and dairy incentives table:

1. Equipment that meets or exceeds the efficiency requirements above may qualify for the listed incentive.

2. Fan performance must be rated by an independent testing body in accordance with the appropriate ANSI/AMCA standards.

3. Incentives are capped at 70 percent of Energy Efficiency Project Costs and incentives will not be available to reduce the Energy Efficiency Project simple payback below one year. Energy savings and Energy Efficiency Project Costs are subject to Pacific Power approval.4. Except where noted, all equipment listed in the table is eligible for incentives in both new construction and retrofit projects.

AMCA = Air Movement and Control Association International, Inc.
ANSI = American National Standards Institute
VFD = Variable Frequency Drive
cfm = cubic feet per minute
W = watt

Compressed Air Incentives

Equipment Category	Replace	With	Limitations	Customer Incentive
Low-Pressure Drop Filters	Standard coalescing filter	Rated Low-Pressure Drop Filter where: 1. Pressure loss at rated flow is ≤ 1psi when new and ≤ 3psi at element change 2. Particulate filtration is 100% at ≥ 3.0 microns and 99.98% at 0.1 to 3.0 microns, with ≤ 5 ppm liquid carryover 3. Filter is of deep-bed "mist eliminator" style, with element life ≥ 5 years 4. Rated capacity of filter is ≤ 500 scfm	1. Compressor must be ≥ 25 hp and ≤ 75 hp 2. Compressor discharge pressure setpoint must be reduced by 2 psi or more after installation of low pressure drop filter.	$2/scfm
Receiver Capacity Addition	Limited or no receiver capacity (≤ 2 gallons per scfm of trim compressor capacity)	Total receiver capacity after addition must be > 2 gallons per scfm of trim compressor capacity	1. Compressor system size ≤ 75 horsepower, not counting backup compressor(s). 2. Trim compressor must use load/unload control, not inlet modulation or on/off control. 3. Systems with VFD compressor or using variable displacement compressor are not eligible.	$3/gallon above 2 gallons per scfm
Cycling Refrigerated Dryers	Non-cycling refrigerated dryer	Cycling refrigerated dryer	1. Rated dryer capacity must be ≤ 500 scfm 2. Dryer must operate exclusively in cycling mode and cannot be equipped with the ability to select between cycling and non-cycling mode. 3. Refrigeration compressor must cycle off during periods of reduced demand	$2/scfm
VFD Controlled Compressor	Fixed speed compressor	≤ 75 hp VFD controlled oil-injected screw compressor operating in system with total compressor capacity ≤ 75 hp, not counting backup compressor capacity	1. Total compressor capacity in upgraded system is ≤ 75 hp, not counting backup compressor capacity. 2. Compressor must adjust speed as primary means of capacity control	$0.15/kWh annual energy savings
Zero Loss Condensate Drains	Timer drain	Zero loss condensate drain (See Note 4)	Drain is designed to function without release of compressed air into the atmosphere. Any size system is eligible – there is no restriction on compressor size.	$100 each
Outside Air Intake	Compressor intake drawing air from compressor room	≤ 75 hp compressor where permanent ductwork between compressor air intake and outdoors	Ductwork must meet manufacturer's specifications, which may include: (a) ≤ 0.25" W.C. pressure loss at rated flow, and (b) allow use of compressor room air during extremely cold outside air conditions	$6/hp
Compressed air end use reduction	Inappropriate or inefficient compressed air end uses	Functionally equivalent alternatives or isolation valves	Any size system is eligible – there is no restriction on compressor size.	$0.15/kWh annual energy savings

Notes for compressed air incentive table:

1. Equipment that meets or exceeds the efficiency requirements above may qualify for the listed incentive.

2. Except for the zero loss condensate drain and compressed air end use reduction measures, eligibility for incentives is limited to compressed air systems with total compressor capacity of 75 hp or less, not including backup compressor capacity that does not normally run.

3. Incentives are capped at 70 percent of Energy Efficiency Project Costs and incentives will not be available to reduce the Energy Efficiency Project simple payback below one year. Energy savings and Energy Efficiency Project Costs are subject to Pacific Power approval.

4. Zero Loss Condensate Drains purchased as an integral part of another measure are eligible for the incentive shown above.

hp = horsepower
PPM = parts per million
PSI = pounds per square inch
scfm = cubic feet of air per minute at standard conditions (14.5 psia, 68˚F, and 0% relative humidity)
VFD = Variable Frequency Drive

Incentives for Wastewater and other Refrigeration Energy Efficiency Measures

Equipment Type	Replace	With	Customer Incentive
Adaptive refrigeration control	Conventional controls (defrost timeclock, space thermostat, evaporator fan control, if any, thermal expansion valve in some instances)	Adaptive refrigeration controller and, in some instances, electric expansion valve	$0.15/kWh annual energy savings
Fast acting door	Manually operated door, automatic door with long cycle time, strip curtain, or entryway with no door in refrigerated/conditioned space	Fast acting door	$0.15/kWh annual energy savings
Wastewater – low power mixer	Excess aeration capacity	Extended range circulator	$0.15/kWh annual energy savings

Notes for other energy efficiency measures incentives table:

1. Equipment that meets or exceeds the efficiency requirements above may qualify for the listed incentive.

2. Incentives are capped at 70 percent of Energy Efficiency Project Costs and incentives will not be available to reduce the Energy Efficiency Project simple payback below one year. Energy savings and Energy Efficiency Project Costs are subject to Pacific Power approval.

Enhanced Incentives for Small Businesses (Retrofit only)[10]

Measure	Category	Eligibility Requirements	Maximum Incentive[11]
T8 Fluorescent	Retrofit (Lamp/Ballast)	4’ CEE Qualified Reduced Wattage Lamp and CEE Qualified Ballast included on qualified ballast list	$140/Fixture
	Delamp	4’ CEE Qualified Reduced Wattage or High Performance Lamp and CEE Qualified Ballast. Must remove one or more lamps. To delamp an existing fixture, the lamp and all corresponding sockets must be permanently disabled.	$120/Fixture
	T12 Conversion (Kit/Lamp/Ballast)	8’ T12 to (2) 4’ CEE Qualified Reduced Wattage or High Performance T8 Lamps and CEE Qualified Ballast.	$150/Fixture
	Relamp	Lamp wattage reduction ≥ 3 Watts, No ballast retrofit	$15/Lamp Installed
	Replacement – High Bay (Fixture/Lamp/Ballast)	Fixture with less than six (6) lamps: 4’ CEE Qualified High Performance Lamp. Must replace T12HO/VHO, Incandescent or HID	$300/Fixture
		Fixture with six (6) or more lamps: 4’ CEE Qualified High Performance Lamp. Must replace T12HO/VHO, Incandescent or HID	$350/Fixture
T5 Fluorescent	Replacement – T5 Standard	4’ Nominal Lamp ≤ 28 Watts, Ballast Factor ≤ 1.0	$250/Fixture

[10] Incentives for measures in this table are available only to Small Business customers as defined in the incentives table on page 2.

[11] Actual incentives are subject to change and will be determined by Pacific Power on a component level basis on no less than an annual basis, will not exceed the values in this table, and will be posted on the Pacific Power website.

	(Fixture/Lamp/Ballast)		
	Relamp	Lamp wattage reduction ≥ 3 Watts, No ballast retrofit	$22/Lamp Installed
	Replacement – High Bay (Fixture/Lamp/Ballast)	Fixture with less than six (6) lamps: Must replace T12HO/VHO, Incandescent or HID	$375/Fixture
		Fixture with six (6) or more lamps: Must replace T12HO/VHO, Incandescent or HID	$450/Fixture
LED	Replacement/Retrofit - Recessed Downlight (Fixture or Kit)	Must replace existing incandescent or fluorescent, LED must be listed on qualified equipment list	$150/Fixture
	Replacement - Exit Signs	Must replace incandescent or fluorescent	$100/Sign
Lighting Control	Wall Occupancy Sensor Retrofit	PIR, Dual Tech	$100/Sensor
	Ceiling Occupancy Sensor Retrofit	PIR, Dual Tech	$220/Sensor

Notes for enhanced incentives for small business customers:

1. To be eligible for the incentives listed, the new lighting system must use less energy than the existing lighting system replaced or the baseline lighting system as determined by the Company.

2. Incentives are capped at 80 percent of Energy Efficiency Project Costs. Energy Efficiency Project Costs are subject to Pacific Power approval.

3. Incentives for T8 Fluorescent Premium Delamps may not be combined with other linear fluorescent lamp or fixture incentives. Complete fixture removals are not eligible.

4. Incentives for T8 and T5 Fluorescent Relamps may not be combined with other linear fluorescent lamp or fixture incentives and will only be paid once per facility.

5. Qualified equipment lists referenced in the above table are posted on the Washington energy efficiency program section of Pacific Power's website.

BF = Ballast Factor
CEE = Consortium for Energy Efficiency
CFL = Compact Fluorescent Lamp
CMH = Ceramic Metal Halide
HID = High Intensity Discharge (e.g. Mercury Vapor, High Pressure Sodium, Metal Halide)
HO = High Output
LED = Light-Emitting Diode
PSMH = Pulse-Start Metal Halide
VHO = Very High Output

Schedule 140
NON-RESIDENTIAL ENERGY EFFICIENCY

PURPOSE:

Service under this Schedule is intended to maximize the efficient utilization of the electricity of new and existing non-residential loads through the installation of energy efficiency measures and energy management protocols.

APPLICABLE:

To service under the Company's General Service Schedules 24, 33, 36, 40, 47T, 48T, 53 and 54 in all territory served by the Company in the State of Washington. This Schedule is applicable to new and existing non-residential facilities.

CUSTOMER PARTICIPATION:

Customer participation is voluntary and is initiated by following the participation procedures on the Washington energy efficiency program section of the Company website. The Company shall have the right to qualify participants, at its discretion, based on criteria the Company considers necessary to ensure the effective operation of the measures and utility system. Criteria may include, but will not be limited to cost effectiveness.

DESCRIPTION:

Ongoing program to provide incentives for a variety of equipment and operational improvements located in non-residential facilities. Periodic program changes will be made to insure or enhance program cost effectiveness as defined by the Company.

QUALIFYING MEASURE:

Measures which when installed in an eligible facility result in verifiable electric energy efficiency improvement compared to existing equipment or baseline equipment as determined by the Company. The baseline will be determined with reference to existing equipment, applicable state or federal energy codes, industry standard practice and other relevant factors.

QUALIFYING ENERGY MANAGEMENT:

Operational improvements which when implemented in an eligible facility result in verifiable electric energy savings compared to standard operations as determined by the Company.

PROVISIONS OF SERVICE:

(1) Qualifying equipment or services, incentive amounts, and other terms and conditions will be listed on the Washington energy efficiency program section of the Company website and may be changed by the Company with at least 45 days notice. Such changes will be prominently displayed on the Washington energy efficiency program section of the Company website and include a minimum 45 day grace period for processing prior offers.

PROVISIONS OF SERVICE: (continued)

(2) Company may elect to offer incentives through different channels and at different points in the sales process other than individual Energy Efficiency Incentive Agreement/Offer Letter(s) prior to

(continued)

equipment purchase. The differences will depend on and will be consistent for all equipment of similar type.

(3) Incentives may be offered year-round or for selected time periods.

(4) Equipment or services receiving an incentive under this program are not eligible for incentives under other Company programs.

(5) Company will employ a variety of quality assurance techniques during the delivery of the program. They will differ by measure and may include pre and post installation inspections, phone surveys, and confirmation of Owner/Customer and equipment eligibility.

(6) Company may verify or evaluate the energy savings of installed/implemented measures. This verification may include a telephone survey, site visit, review of facility operation characteristics, and pre- and post-installation of monitoring equipment and as necessary to quantify actual energy savings.

(7) Energy Project Manager co-funding is available according to the terms posted on the Washington Energy Efficiency program page of the Company website.

(8) Incentives will not be made available for fuel switching by Owner/Customer.

MINIMUM EQUIPMENT EFFICIENCY:

Retrofit energy efficiency projects must meet minimum equipment efficiency levels and equipment eligibility requirements of qualifying equipment that are listed on the Washington energy efficiency program section of the Company website.

ELECTRIC SERVICE REGULATIONS:

Service under this Schedule will be in accordance with the terms of the Electric Service Agreement between the Customer and the Company. The Electric Service Regulations of the Company on file with and approved by the Utilities & Transportation Commission of the State of Washington, including future applicable amendments, will be considered as forming a part of and incorporated in said Agreement.

(continued)

Other Programs & Initiatives

This section of the business plan includes information on the Company's Energy Education in Schools program, a general "education only" program; NEEA, an external group partly funded through Company dollars; and Production Efficiency, energy efficiency improvements at Company owned non-hydro generation facilities serving the Company's Washington territory.

Energy Education in Schools

Years of Implementation

This is a new "education only" program that replaced the previous "education and savings" program which ran from April 2003 through June 2012. The new education program, Be ***watt***smart, Begin at Home, was implemented with school presentations beginning in February 2013 (See "Year One Timeline" below under "Program Details"). Program costs are reflected in Tables 1, 2 and 3 of this report.

Program Description

The Company has contracted with the National Energy Foundation (NEF) to implement the Be ***watt***smart, Begin at Home program in schools during the 2012-13, 2013-14, and 2014-15 school years.

Program costs fall under Paragraph (7)(d) in Order 01 of Docket UE-132047, Conservation Efforts without Approved EM&V Protocol, where the Company can spend up to ten (10) percent of its conservation budget on programs whose savings impact has not yet been measured provided the overall portfolio of programs still pass the Total Resource Cost as described in Paragraph (10)(a) of the same Order 01.

NEF is a non-profit corporation with over 36 years providing energy education and awareness. The mission of NEF is to "cultivate and promote an energy literate society".

Planned Program Changes

The Company's contract with National Energy Foundation concludes with the Fall 2014 school assembly presentations and the delivery of final reports in early 2015. In order to continue the education program for the 2015/2016 school year, the Company will issue a competitive RFP for a partner to administer the program and award a contract in time to prepare the program for Fall 2015. There are no plans to change the fundamentals of the education program, but the vendor partner may or may not change depending on the outcome of the RFP.

Evaluation Information

As this is an "education only" initiative, no third-party impact evaluation is anticipated beyond verification that the program is being delivered as reported. See "household audits cards" in "Program Details" section below.

Program Details

The centerpiece of the program is a series of 45 to 60 minute grade-level presentations focusing on energy literacy and energy efficiency. The targeted grade levels are 4^{th} or 5^{th} grade based on

feedback from the state office of education. The school visit includes a custom designed presentation and hands-on group activities. Teachers receive a packet of instructional materials in advance of the school presentations to assist with the energy literacy education.

The school presentations are designed to get students "thinking" about energy and energy efficiency. In addition, an integrated follow-up to the school presentations will be provided through a home audit and household audit activity that is intended to provide students and their parents with an opportunity to "act" on the information they have learned. Students are provided informational booklets and a household audit activity to fill out regarding the energy use and energy efficiency topics they were taught. Students return the household audit report to their teachers, who in turn submit them to NEF. NEF provides teachers with an incentive for collecting the household audit cards. Each teacher returning at least 80 percent of their students' completed household audit cards receive a $50 mini-grant for their school. Those returning 50-79% of the household audit cards receive a $25 mini-grant for their school. The data is summarized and reported to determine energy efficiency behavioral data and other program participation information.

Program Metrics per Year

Total number of schools:	approximately 50
Total number of students:	approximately 4,000
Percent of eligible schools reached:	approximately 80 percent
Total teachers	approximately 160
Target return rate - Home Energy Checklists	approximately 65 percent

Anticipated Outcomes

- Teachers, students, and families become more energy literate, particularly in the understanding of energy efficiency.
- Teachers, students, and families learn the importance of being responsible energy stewards for the future of their community, state, country and planet.
- Teachers, students, and families make a commitment to use energy more wisely at home, at school, at work, and in the community.
- A culture of energy efficiency will be developed among teachers, students, and families.
- Continuous program improvement from year to year as identified through reporting and lessons learned.

Northwest Energy Efficiency Alliance

Years of Implementation
NEEA has been serving the Northwest region of Oregon, Washington, Idaho, and Montana since 1997.

Program Description
NEEA is a non-profit corporation supported by, and working in collaboration with, the Bonneville Power Administration, Energy Trust of Oregon and more than 100 Northwest utilities (including Pacific Power).

Program Details
NEEA works in collaboration with its funders and other strategic market partners to accelerate the innovation and adoption of energy-efficient products, services, and practices.

Costs include both Pacific Power's direct funding of NEEA and the Company's internal management costs. NEEA 2014 expenditures are based on Pacific Power's percent of regional savings applied to NEEA's 2014 budget presented at the October 2013 Regional Portfolio Advisory Committee meeting. Expenditures for 2015 were updated by applying Pacific Power's share of regional savings to the 2015 budget in NEEA's recently approved 2015-2019 Business Plan[12]. Forecasted savings were provided by NEEA on October 14, 2013 utilizing technical assumptions as of August 27, 2013.

See Appendix 9 to the Biennial Conservation Plan for more detail on NEEA's forecast and savings calculation methodology and Pacific Power's regional savings share. See the Biennial (2014-2015) Conservation Target section of the Biennial Conservation Plan for Pacific Power treatment of NEEA savings consistent with the order received in docket UE-100170.

In summary NEEA's plan to accomplish this goal includes:

- Building and leveraging relationships to influence the market.
- Designing and executing strategic market interventions to expand the availability and demand for energy efficient products, services and practices.
- Identifying, developing and advancing emerging opportunities to fill the pipeline for energy efficiency.
- Delivering education and training to expand market capacity to deliver and maintain energy-efficient products, services and practices.
- Facilitating regional coordination, collaboration and knowledge sharing to align interests and accelerate energy efficiency efforts.
- Demonstrating and promoting the value of energy efficiency to increase demand.
- Developing market intelligence and resources to help NEEA partners achieve their goals.
- Advancing the adoption and implementation of increasingly efficient energy codes and standards to lock in long-term savings.

[12] Approved June 20, 2014, Appendix 3 – Budget Detail.

NEEA has more than a dozen initiatives under way as outlined in their 2010-2014 and 2015-2019 Business and Strategic Plans. More information on NEEA's initiatives and business and strategic plans can be found at the following on the NEEA website:

- Initiatives: http://neea.org/initiatives
- Business Plans:
    - 2010-2014 http://neea.org/docs/marketing-tookits/neea-business-plan-2010-2014.pdf
    - 2015-2019 http://neea.org/docs/default-source/default-document-library/neea-2015-19-business-plan---board-approved.pdf?sfvrsn=2

- Strategic Plans:
    - 2010-2014 http://neea.org/docs/marketing-tookits/neea-strategic-plan-2010-2014.pdf
    - 2015-2019 http://neea.org/docs/default-source/default-document-library/neea-2015-2019-strategic-plan-board-approved.pdf?sfvrsn=2

Production Efficiency

Years of Implementation

The Company began a detailed study of the potential energy savings from production efficiency in 2011; with the initial implementation of identified projects beginning in 2012. The Company currently anticipates the complete acquisition of cost effective production efficiency energy savings in its Washington service territory by 2017. This is due to the necessity of obtaining approvals from joint owners.

Program Description

In 2011, the Company began studying potential energy efficiency upgrades to the plant electrical systems at thermal and wind power production facilities. Pacific Power fully owns one thermal plant that provides power to Washington State, Chehalis, as well as four wind projects. In addition, the Company jointly owns two thermal plants that also provide power to Washington State. All facilities were reviewed as a part of the potential assessment exercise.

Program Details

Project work began in 2012 at the Chehalis power plant for the 2012-13 biennium. The Company has been working with joint owners at Hermiston and Jim Bridger to identify projects approved for construction in the 2014-15 and later biennia. A key component of obtaining approval was to develop a cost-effective methodology that would be acceptable to all parties involved. The lighting upgrade project identified for the Jim Bridger plant was not approved by the joint owner. The desire is to wait until LED lighting is cost-effective and upgrade to that technology. The remaining facilities owned by the Company show no significant efficiency improvements available.

The following table details the specific projects identified for completion at the Hermiston facility in the 2014-2015 biennium.

Description	2014 MWh/yr	Net Present Benefit ($)	Total Resource Cost Test
HVAC Upgrades	3	$1,998	2.08
Compressed Air Dryer Controls	13	$5,649	1.9

The following table provides information on the allocation methodology used at Hermiston (projects included the current biennial period)

Location	Energy Conservation Measure	Plant Level Savings (MWh/yr)	Percent Owned by PacifiCorp	Washington Cost Allocation	PacifiCorp Potential Savings in Washington (MWh/yr)
Hermiston Plant	HVAC Upgrades	30	50%	22.47%	3
	Compressed Air System Upgrades	120	50%	22.47%	13

As noted in the 2014-2023 Conservation Target Report the Company's current West Control Area Allocation percentage is 22.47 percent for the Hermiston plant. The percentage is subject to change

annually based on Washington's share of Pacific Power's loads in the west (Washington, Oregon and California). The table utilizes the most current percentages to calculate Washington's share of these projects for the purposes of developing a ten-year conservation forecast and biennium target.

Customer Outreach and Communications

Years of Implementation

In 2014, the Company continued its ***watt***smart communications campaign, promoting the demand-side management through advertising and outreach. The ***watt***smart program was put into action to meet the program design principle conditions of Order 02 in Docket UE-100170 specific to energy efficiency program outreach.

Program Description

The conditions for outreach for programs required Pacific Power to establish a strategy for informing participants about program opportunities. The ***watt***smart communications campaign was designed to create awareness of the importance of being energy efficient, and to help increase participation in the Company's demand-side management programs. The programs are funded through the system benefit charge adjustment (Schedule 191) collected on customer bills.

Program Details

Provided in the table below is a summary of the media channels that were used to deliver the ***watt***smart campaign in 2014.

Communication Channel	Value to Communication Portfolio
Television	Advertisements were rotated, both 30-second and 15-second TV spots, with an average of 475 television placements each week from January through February, April through June, and November through December 2014. Stations on which campaign spots were aired include: KAPP (ABC), KIMO (CBS), KNDO (NBC), KUNW(UNIV) and Charter (Cable). Reach: 92.2% . Frequency: 17.8
Radio	An average of 200 radio spots per week from January through February, April through June, and November through December 2014. Radio stations on which campaign spots were aired include: KARY-FM (Oldies), KFFM-FM (Contemporary Hits), KIT-AM (News Talk), KRSE-FM (Classic Rock), KXDD-FM (Country), KZTA-FW (Mexican Regional) Reach: 64% Frequency: 11.0
Newspaper	Newspaper placements included: Dayton Chronicle, The East Washingtonian, La Voz Hispanic News, The Waitsburg Times, Walla Walla Union Bulletin and Yakima Herald-Republic.
Website: Pacificpower.net/***watt***smart Be***watt***smart.com	Pacific Power's ***watt***smart website, pacificpower.net/***watt***smart, and promotional URL be***watt***smart.com link directly to the energy efficiency landing page and fulfill the campaign's call-to-action to engage customers in the Company's energy efficiency programs. These sites further support all other forms of communications by serving as a source for detailed information regarding the company's program and other energy efficiency opportunities.
Twitter	Other interactive campaign elements like online media and social media will work with traditional media to enhance the campaign by driving traffic to the program websites. Build awareness for early adopters regarding energy efficiency tips and post Tweets on a weekly basis.
Facebook	Facebook is used to build awareness for early adopters regarding energy efficiency tips and a location to share information. Information and tips posted three times a week. We also started utilizing promoted posts and mobile posts to get a better reach for posts.
Other Online	Supports the broadcast and print media while also increasing awareness for early adopters who are online and are likely to be receptive to energy saving

	messaging. Some of these uses include banner ads on local sites, blogs, behavioral ad targeting, and pay-per-click ad placements.

The objectives of the communications and outreach campaign in the 2014-15 biennium are to increase awareness of the availability of energy efficiency programs, cash incentives and resources in order to boost participation and achieve energy conservation targets in Washington and promote customer conservation and increase participation and savings through Pacific Power ***watt***smart demand-side management programs.

The ongoing communications strategy uses an integrated communications approach to reach customers with program information effectively and efficiently throughout the year. Information will be disseminated through a combination of mass media advertising, bill statement communications, web communications, community outreach, public relations, retailer outreach, trade ally outreach/training, nonprofit energy assistance agencies, direct mail, social media and one-on-one contacts. These communications are consistent with our messaging to maximize all customer touch-points, tailor educational messages to the season and encourage customers to take action.

The Company will continue an integrated advertising campaign featuring ***watt***smart energy efficiency messaging in the Yakima and Walla Walla market areas targeting residential, low-income and small/mid-size business customers. In 2014 we developed new creative content for all of the above components. The new creative content launched the week of May 5, 2014 and ran for 3 weeks. It will run again in November and December 2014.

Cost Effectiveness

The cost effectiveness of individual programs proposed for the 2014-2015 biennium period and the portfolio views described below was assessed based on forecasted expenditures and energy savings.

Cost effectiveness is provided at the following levels:

- Individual program[13] or initiative[14] level
- Residential energy efficiency portfolio (Company programs)
- Non-residential energy efficiency portfolio(Company programs) [15]
- Total Company portfolio with portfolio costs added
- Total Company portfolio with portfolio costs and non-energy benefits added
- Total Company portfolio with portfolio costs and NEEA added
- Total Company portfolio with portfolio costs, NEEA and non-energy benefits added

Forecasted energy savings utilized in this analysis are gross savings and the impact of line losses is indicated with an "at site" or "at generation" designation. Line losses for retail customer programs are based on the Company's 2012 line loss study. The line loss impact for the distribution efficiency effort is specific to the affected portion of the distribution system and was calculated by the Pacific Power engineering group. All cost effectiveness calculations utilize a Net-to-gross ratio of 1.0 consistent with the Council's methodology. The energy savings attributed to each program are shaped according to specific end-use savings (the hourly calculation of when energy is used for the various end-use measures from which the savings are derived). Program costs and the value of the energy savings are then compared on a present value basis with the Company's 2013 Integrated Resource Plan ("IRP") calculated decrement values for demand-side resource savings and avoided capacity investments. The energy efficiency resource decrement values are fully shaped to represent the 8,760 hourly values that exist within a calendar year. By matching the hourly savings with the hourly avoided costs, both energy and capacity impacts of energy efficiency savings are recognized.

Costs utilized in the portfolio analysis are those with no direct energy savings attributed to them and include Energy Education in Schools, Customer outreach/communications, Program Evaluations, and administration of prior programs.

Costs utilized in the cost effectiveness analysis for production efficiency in non-hydro generating facilities are estimated implementation costs for the projects which will be recovered outside the System Benefits Charge. The Technical Reference Library and potential study update costs required by I-937 are considered initiative compliance costs rather than program costs and will not be included in the determination of the demand-side management program or portfolio cost effectiveness.

The five California Standard Practice Manual cost effectiveness tests as modified in the Northwest were utilized in the cost benefit analysis.

[13] Low Income Weatherization, Refrigerator Recycling, Home Energy Savings, Home Energy Reports
[14] NEEA
[15] FinAnswer Express and Energy FinAnswer are combined for analytical purposes in anticipation of consolidation

Additional information for the cost effectiveness assessment of each program, initiative and the portfolios are available in Appendix 1 to this document.

Cost Effectiveness Discussion for Revision 3 of the Business Plan

Cost effectiveness of individual programs proposed for the 2014-15 biennium was assessed based on forecasted expenditures and energy savings reported in November 1, 2013 Business Plan.

Final cost-effectiveness at program and portfolio levels for 2014 will be available in the Company's 2014 Annual Report on Conservation Acquisition in March 2015.

Cost effectiveness for expanding the residential refrigerator recycling program to include business customer pickups was discussed in Advice No. 14-02 provided on February, 28, 2014. Since this change did not adjust unit energy savings or increase unit costs, cost-effectiveness was not re-calculated.

Cost effectiveness of the ***watt***smart Business improved lighting retrofit incentive offer specifically for small business customers receiving electric service on Schedule 24 was provided during the flexible tariff change process initiated on August 15, 2014.

Cost-effectiveness of the Home Energy Reports program expansion was provided as a filed revision to the Business Plan on August 20, 2014.

Cost effectiveness of the Home Energy Reports program extension was provided in Attachment A of filed Business Plan revision filed on August 20, 2014.

Overall, the Conservation portfolio level costs are up $150,707 from the November 2013 forecasted expenses.[16] However, the Company's conservation savings are up by 18% with only a ten percent increase in costs when compared to the last business plan. Since the benefits (energy savings) have increased by a higher percentage than the costs. Impacts on portfolio economics should be slightly positive and the Company does not believe revised portfolio economics are needed at this time.

Conservation Portfolio Level 2-Year Costs
(current forecast compared to prior forecast)

Initiative/Program	March 2014 (Nov 2013)	Nov-14	Variance
Be wattsmart, Begin at Home	$ 120,000	$ 119,000	$ (1,000)
Customer outreach/communication	$ 500,000	$ 500,000	$ -
Program Evaluations	$ 968,000	$ 1,035,814	$ 67,814
Potential study update/analysis	$ 150,000	$ 142,000	$ (8,000)
Measure data documentation	$ 10,400	$ 105,293	$ 94,893
Admin. of prior programs	$ 3,000	$ -	$ (3,000)
Total Portfolio-Level Expenses	**$ 1,751,400**	**$ 1,902,107**	**$ 150,707**

[16] The variance is from the correct total portfolio expense as noted on page 8 of this Revision 3.

For ease of reference, the cost-effectiveness of individual programs or initiatives for the 2014-15 biennium period are provided in the Program/Initiative order provided below. Portfolio cost effectiveness is also included.

Program/Initiative	**Last Analysis Date**
Low Income Weatherization	October 25, 2013
See ya later, refrigerator®	October 25, 2013
Home Energy Savings	October 25, 2013
Home Energy Reports – extension	June 18, 2014
Home Energy Reports – expansion	July 15, 2014
wattsmart Business	October 29, 2013
wattsmart Business – small business lighting offer	June 26, 2014
NEEA	October 28, 2013
Production Efficiency Initiative	November 1, 2013[17]
Portfolio	October 29, 2013

[17] Provided as Appendix 2 of the business plan

Appendix 1
Program and Portfolio-Level Cost-Effectiveness

Appendix 2
Production Efficiency Economic Evaluation Methodology

The Company provides power to Washington customers through the West Control Area Allocation Methodology. Inherent in this methodology is the reality that the power produced is distributed to multiple states. The Company has an obligation to ensure that the projects pursued as a result of the Washington Initiative 937 can be proven to be cost-effective in the most stringent of the jurisdictions the Company serves. The Company will not carry unreasonable or unnecessary recovery risk that may arise due to concerns in the methodology used to financially justify projects. Additionally, the Company operates multiple facilities jointly with other utilities that do not carry responsibility to comply with Washington Initiative 937. Justifying projects to these joint owners is required before approval to proceed with a project can be obtained.

In an attempt to reduce the recovery risk to the Company and to help justify production efficiency projects to joint owners, the cost-effective methodology was examined for relevance to the production perspective. The Company has concluded that the previous production efficiency project analyses employed the same evaluation methodology used for retail DSM projects and did not adequately address the unique differences and cost recovery rules attributed to production projects. The Company therefore has revised the production cost effective analysis methodology to better comply with the rules and regulations of its multiple state utility commissions while also meeting the evaluation requirements of the Washington Initiative 937.

The key differences between the previous (DSM Method) and the current (Production Method) are as follows:

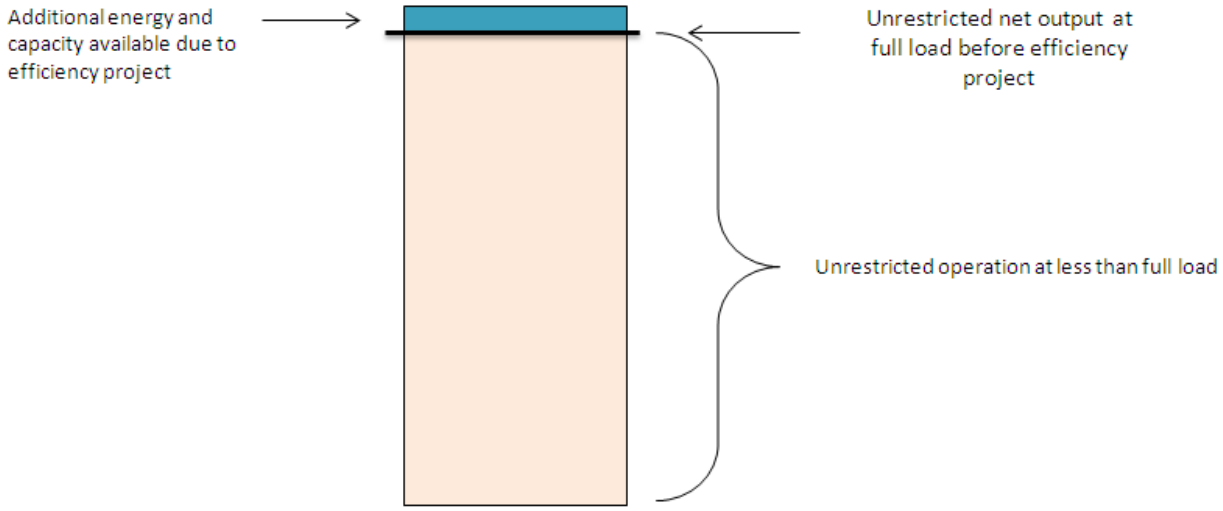
Component	**DSM Method**	**Production Method**
T&D Deferral Credit	Financial model included T&D deferral credit.	Financial model excludes T&D deferral credit
Production Capital	Production Capital was not treated as a rate based asset.	Production Capital revenue requirement is calculated assuming rate base treatment.
Energy Savings Value	All MWh efficiency savings are valued as dispatchable energy.	MWh efficiency savings are split between dispatchable energy and non-dispatchable energy for valuation.
Capacity Resource Deferral	DSM Capacity Resource Deferral value was included as a $/MWh value.	Capacity resource deferral value is converted to $/kW for inclusion in evaluation.

Explanation of the above differences:

1. The DSM methodology analyzes energy savings at the retail distribution level. As such, the incremental reduction in retail energy delivery requirements is credited with an incremental value of deferring transmission and distribution costs. Production efficiency projects, however, do not change retail energy delivery requirements and are therefore evaluated at the production level without additional transmission and distribution deferral credit.

2. Capital for retail DSM projects is funded through a DSM tariff rider and is not included in rate base for regulatory recovery treatment. The full capital cost for production efficiency projects is placed in rate base and is recovered over time through depreciation expense.

3. Depending on the dispatch level of the plant, production efficiency projects may make more energy available to be consumed or sold or may simply result in fuel savings from reduced generation. If the plant is operating at or near full load and is not restricted for dispatch reasons, the energy efficiency savings are valued at the full DSM production $/MWh values from the Company's filed Integrated Resource Plan. However, if additional energy is available but cannot be dispatched, then the energy efficiency is valued as a reduction in fuel cost needed to produce the same output. The following figure illustrates this concept:



Unrestricted operation was assessed to be at or below the capacity factor of the unit in question. Under this condition, the additional energy saved is only providing a savings in fuel cost through heat rate improvement.

4. For production project evaluations, capacity is typically assessed as a $/kW value. For evaluating the capacity resource deferral attributed to production efficiency projects, the $/MWh value used for valuing retail DSM capacity deferral was converted to $/kW.

Appendix 1
Program and Portfolio-Level Cost-Effectiveness

CADMUS

MEMORANDUM

Date: **October 25, 2013**

To: **Don Jones, Jr.**

From: **Aaron Jenniges and Ken Lyons**

Re: **WA Low Income Weatherization 2014-2015 Cost-Effectiveness**

The tables below present the cost-effectiveness findings of the Washington Low Income Weatherization program based on 2014-15 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "CE inputs for tying to Table 1 business plan for 2014-2015 period 102213.xlsx". The utility discount rate is from the 2013 PacifiCorp Integrated Resource Plan.

Cost-effectiveness was tested using the 2013 IRP 49% load factor west residential whole house decrements. Table 1 shows the input assumptions.

Table 1: Low Income Weatherization Inputs

Input Description	2014-15
Discount Rate	6.88%
Residential Line Loss	9.67%
Inflation Rate	1.90%
Net-to-Gross	100%
Program Delivery and Administration	$1,840,000
Gross Site Savings (kWh)	475,272
Average Measure Life (years)	37

Table 2 shows the 2014-15 combined cost-effectiveness results. The WA Low Income Weatherization program was not cost-effective from any test perspective.

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Table 2: Low Income Weatherization 2014-15 Cost-Effectiveness

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.250	$1,780,762	$709,079	($1,071,683)	0.40
Total Resource Cost Test (TRC) No Adder	$0.250	$1,780,762	$644,618	($1,136,145)	0.36
Utility Cost Test (UCT)	$0.250	$1,780,762	$644,618	($1,136,145)	0.36
Rate Impact Test (RIM)		$2,420,164	$644,618	($1,775,546)	0.27
Participant Cost Test (PCT)		$0	$639,401	$639,401	N/A
Lifecycle Revenue Impact ($/KWh)	0.000117906				
Discounted Participant Payback (years)	N/A				

These results do not include the non-energy benefits analyzed in the 2012 program evaluation, including the program's arrearage reduction, economic, and home repair benefit impacts. These benefits are shown in Table 3.

Table 3: Low Income Weatherization Non-Energy Benefits

Non-Energy Benefit	Program Impact	Perspective Adjusted
Arrearage Reduction	$7,125	PTRC, TRC
Economic Impact	$689,360	PTRC, RIM, UCT, TRC
Home Repair Benefits	$107,842	PCT, PTRC, TRC
Total	**$804,327**	

Table 4 shows the cost-effectiveness results of the program with the non-energy benefits included. The program is not cost-effective from any test perspective.

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Table 4: Low Income Weatherization 2014-15 Cost-Effectiveness including Non-Energy Benefits

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.250	$1,780,762	$1,513,406	($267,356)	0.85
Total Resource Cost Test (TRC) No Adder	$0.250	$1,780,762	$1,448,945	($331,818)	0.81
Utility Cost Test (UCT)	$0.250	$1,780,762	$1,333,978	($446,785)	0.75
Rate Impact Test (RIM)		$2,420,164	$1,333,978	($1,086,186)	0.55
Participant Cost Test (PCT)		$0	$747,243	$747,243	N/A

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CADMUS

MEMORANDUM

Date: **October 25, 2013**

To: **Don Jones, Jr.**

From: **Aaron Jenniges and Byron Boyle**

Re: **WA See-Ya-Later Refrigerator (SYLR) 2014-2015 Cost-Effectiveness**

The tables below present the cost-effectiveness findings of the Washington SYLR program based on 2014-15 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "WA SYLR 2014-2015 Forecast_GHS for CE inputs 102213.xlsx". The utility discount rate is from the 2013 PacifiCorp Integrated Resource Plan.

Cost-effectiveness was tested using the 2013 IRP 49% load factor west residential whole house decrements. Table 1 show the input assumptions. Table 2 shows the 2014-15 combined cost-effectiveness results. The WA SYLR program was cost effective from all test perspectives except for the RIM.

Table 1: SYLR Inputs

Input Description	2014	2015	Total
Discount Rate	6.882%	6.882%	6.882%
Line Loss	9.67%	9.67%	9.67%
Inflation Rate	1.90%	1.90%	1.90%
Net-to-Gross	100%	100%	100%
Total Program Admin Costs	$192,749	$192,749	$385,498
Total Incentives	$45,633	$45,633	$91,266
Participant Measure Costs	$0	$0	$0
Gross Site Savings (kWh/year)	900,915	900,915	1,801,829
Average Measure Life (years)	6.59	6.59	6.59

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Table 2: WA SYLR 2014-15 Cost Effectiveness

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.035	$373,087	$785,681	$412,594	2.11
Total Resource Cost Test (TRC) No Adder	$0.035	$373,087	$714,256	$341,168	1.91
Utility Cost Test (UCT)	$0.044	$461,415	$714,256	$252,841	1.55
Rate Impact Test (RIM)		$1,373,842	$714,256	($659,587)	0.52
Participant Cost Test (PCT)		$0	$1,000,755	$1,000,755	N/A
Lifecycle Revenue Impacts ($/kWh)	$0.000019250				
Discounted Participant Payback (years)	N/A				

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CADMUS

MEMORANDUM

Date: **October 25, 2013**

To: **Don Jones, Jr.**

From: **Aaron Jenniges**

Re: **WA Home Energy Savings (HES) 2014-2015 Cost-Effectiveness**

The tables below present the cost-effectiveness findings of the Washington HES program based on 2014-15 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "WA HES State Savings Summary 2014_Proposed - used for CE inputs 102313 EM.xlsx". The utility discount rate is from the 2013 PacifiCorp Integrated Resource Plan.

Cost-effectiveness was tested using the 2013 IRP 49% load factor west residential whole house decrements. Table 1 show the input assumptions.

Table 1: HES Inputs

Input Description	2014	2015	Total
Discount Rate	6.88%	6.88%	6.88%
Residential Line Loss	9.67%	9.67%	9.67%
Inflation Rate	1.90%	1.90%	1.90%
Net-to-Gross	100%	100%	100%
Utility Admin Costs	$140,000	$140,000	$280,000
Implementation Costs	$616,143	$660,376	$1,276,519
Incentives	$1,015,920	$1,296,154	$2,312,074
Participant Measure Costs	$2,395,829	$2,859,827	$5,255,657
Gross Site Savings (kWh/year)	7,312,374	8,677,822	15,990,196
Average Measure Life (years)	11.82	11.82	11.82

Table 2 shows the 2014-15 combined cost-effectiveness results. The WA HES program was cost effective from all test perspectives except for the RIM.

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Table 2: HES 2014-15 Cost-Effectiveness

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.046	$6,576,499	$11,689,831	$5,113,332	1.78
Total Resource Cost Test (TRC) No Adder	$0.046	$6,576,499	$10,627,119	$4,050,620	1.62
Utility Cost Test (UCT)	$0.026	$3,733,600	$10,627,119	$6,893,519	2.85
Rate Impact Test (RIM)		$16,650,500	$10,627,119	($6,023,381)	0.64
Participant Cost Test (PCT)		$5,071,515	$15,145,516	$10,074,001	2.99
Lifecycle Revenue Impact ($/KWh)	0.000119763				
Discounted Participant Payback (years)	2.63				

These results do not include non-energy benefits (operations and maintenance and water savings) from showerheads, clothes washers, and lighting measures. The present value of these non-energy benefits and the test perspectives adjusted are shown in Table 3.

Table 3: HES Non-Energy Benefits

Non-Energy Benefit	Program Impact (Present Value)	Perspective Adjusted
Total	$5,640,857	PTRC, TRC, and PCT

Table 4 shows the cost-effectiveness results of the program with the non-energy benefits included. The program is cost-effective from all test perspectives except the RIM.

Table 4: HES 2014-15 Cost-Effectiveness including Non-Energy Benefits

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.046	$6,576,499	$17,330,687	$10,754,188	2.63
Total Resource Cost Test (TRC) No Adder	$0.046	$6,576,499	$16,267,975	$9,691,476	2.47
Utility Cost Test (UCT)	$0.026	$3,733,600	$10,627,119	$6,893,519	2.85
Rate Impact Test (RIM)		$16,650,500	$10,627,119	($6,023,381)	0.64
Participant Cost Test (PCT)		$5,071,515	$20,786,373	$15,714,858	4.10

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Washington
Home Energy Reporting Program
18 Month Evaluation Report
(8/1/2012 – 1/31/2014)

Presented to
Pacific Power
June 18, 2014

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E. Executive Summary

E.1. Program Description

Pacific Power's (PP) Home Energy Reporting (HER) program in Washington is designed to generate energy savings by providing residential customers with sets of information about their specific energy use and related energy conservation suggestions and tips. The information is provided in the form of Home Energy Reports that give customers various types of information, including: a) how their recent energy use compares to their energy use in the past; b) tips on how to reduce energy consumption, some of which are tailored to the customer's circumstances; and c) information on how their energy use compares to that of neighbors with similar homes. In other studies, this type of information has shown that customers are stimulated to reduce their energy use, creating average energy savings in the 1% to 2% range, depending on local energy use patterns.

E.2. Key Impact Findings

The HER program savings for the first year of the program are presented in Table E-1. Findings include:

- Total verified net program savings during the first 18 months of the program were 8,125 MWh.
- On average, participants reduced their electricity usage by 1.80% during the first 18 months of the program.
- As expected, savings "ramped up" over time, increasing from 1.42% in 2012 to 1.97% in 2013.
- Double counting of savings with Washington's Home Energy Savings and Appliance Recycling programs is relatively small –16 MWh, or 0.2% of total savings.
- Program savings at site, both in terms of MWh and percentage, increase with customer energy usage.

Table E-1. Program Electric Savings†

Type of Statistic	2012	2013	18 Months
Number of Participants		13,286	
Reported Savings (MWh)	1,778	5,516	-
Verified Savings (MWh)	1,675	5,841	8,141
Realization Rate	0.94	1.06	-
Percent Savings	1.42%	1.97%	1.80%
Verified Net Savings (MWh)‡	**1,670**	**5,830**	**8,125**

† All savings are at site.
‡Verified net savings are savings after netting out savings double counted with other EE programs.
Source: Navigant analysis.

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E.3. Program Cost Effectiveness

The cost effectiveness of utility-funded programs in Washington is typically analyzed using tests prescribed by the California Standard Practice Manual.[1] Overall the program is cost effective as determined by various industry-accepted tests. The program was found to be cost effective over its first 18 months for four of five standard cost-effectiveness tests: the Participant Cost Test (benefit/cost ratio ($0 participant cost), the Utility Cost Test (benefit/cost ratio of 2.24), the Total Resource Cost Test (benefit/cost ratio of 2.24), and the PacifiCorp Total Resource Cost Test (benefit/cost ratio of 2.46). The exception is the Rate Impact Test (benefit/cost ratio of 0.60), which restricts the cost-effectiveness analysis to the effect of a program on ratepayer bills. These tests generated qualitatively similar results for 2012 and for 2013. Section 6 presents the analysis of program cost effectiveness.

E.4. Recommendations

In light of the observed savings, Navigant recommends the following:

- Expand the program, especially to high usage customers. If the program is expanded, Navigant (or another third party) should receive the billing data for the new treatment and control households for the year before these households are added to the program, *before* the home energy reports are initially sent to the new treatment households. Navigant (or another third party) can verify that the allocation of households across the two groups is consistent with a randomized controlled trial.

- Consider evaluation of program demand savings. It is possible that customer energy savings are greater than average during peak demand hours. If the interval data necessary to estimate these savings is available, a fairly simple statistical analysis that takes advantage of the experimental design of the program could be used to estimate peak demand savings.

[1] The California Standard Practice Manual is an industry accepted manual; it identifies the cost and benefit components and cost-effectiveness calculation procedures from five major perspectives: Participant, Ratepayer Impact Measure (RIM), and Total Resource Cost (TRC). Definitions and methodologies of these cost-effectiveness tests can be found at http://www.energy.ca.gov/greenbuilding/documents/background/07-J_CPUC_STANDARD_PRACTICE_MANUAL.PDF.

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1. Introduction

1.1 Program Description

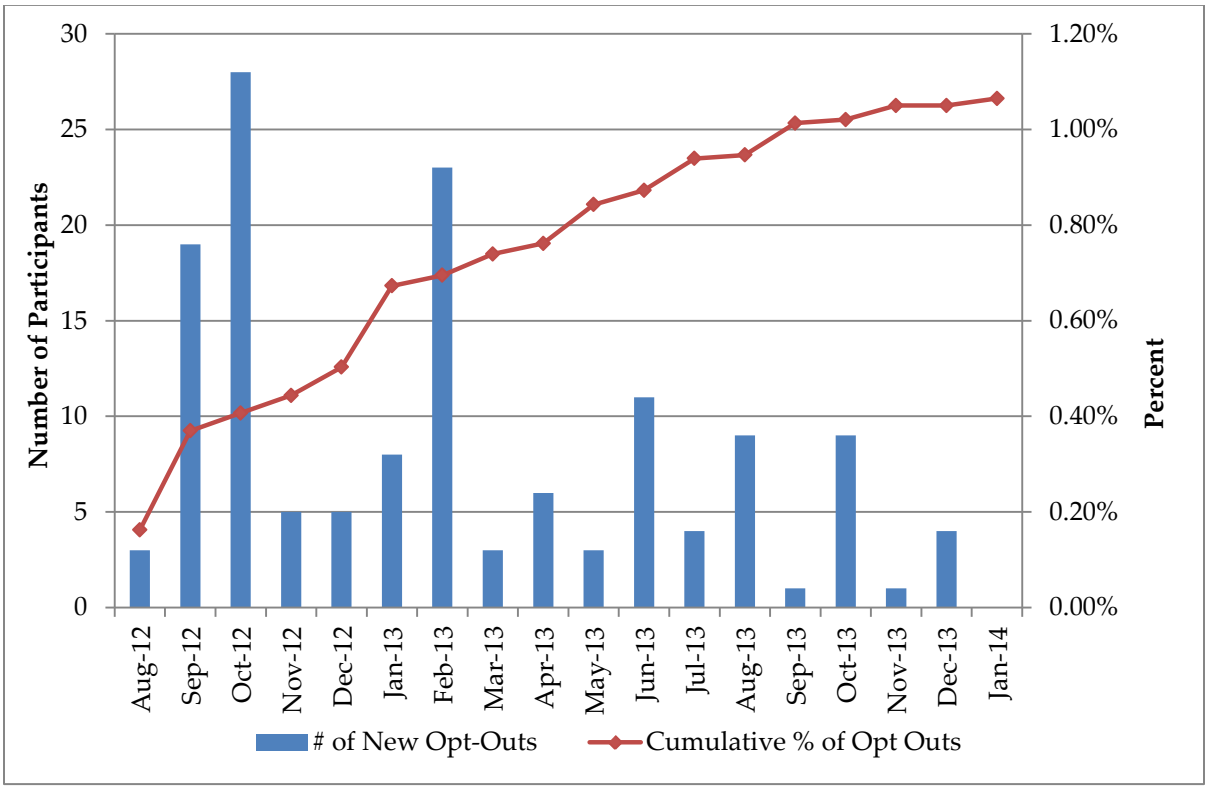
Washington's Home Energy Reporting (HER) program is designed to generate energy savings by providing residential customers with information about their specific energy use and related energy conservation suggestions and tips. The information is provided in the form of home energy reports that illustrate: a) how customers' recent energy use compares to their energy use in the past; b) tips on how the customers can reduce energy consumption, some of which are tailored to each customer's unique circumstances; and c) information on how the customers' energy use compares to that of neighbors with similar homes. In other studies, this type of information has stimulated customers to reduce their energy use, creating average energy savings in the 1% to 2% range, depending on local energy use patterns.

An important feature of the program is that it is a randomized controlled trial (RCT). Eligible customers are randomly assigned to a participant group and a control group for the purpose of estimating changes in energy use due to the program.

The HER program was launched in August 2012, with the first reports generated on August 7, 2012. The initial deployment of the program involved 13,286 participants and 13,299 control customers. [2] There are two sources of decay in program participation over time. The first is customers who opt out of the program. Figure 1-1 shows the monthly number of participants choosing to opt out of the program, and the cumulative percentage of opt-outs, since the start of the program. Over the first 18 months, 1.09% of participants chose to opt out of the program. The second is customers who move from the residence. Figure 1-2 shows the cumulative percentage of move-outs over the course of the program for both participants and controls. The rate of program customer loss due to move outs is about 0.6% per month, and is virtually the same for participants and controls. Over the 18-month period of the program covered by this evaluation, 11.2% of both participant and control accounts had been shed from the program due to move outs.

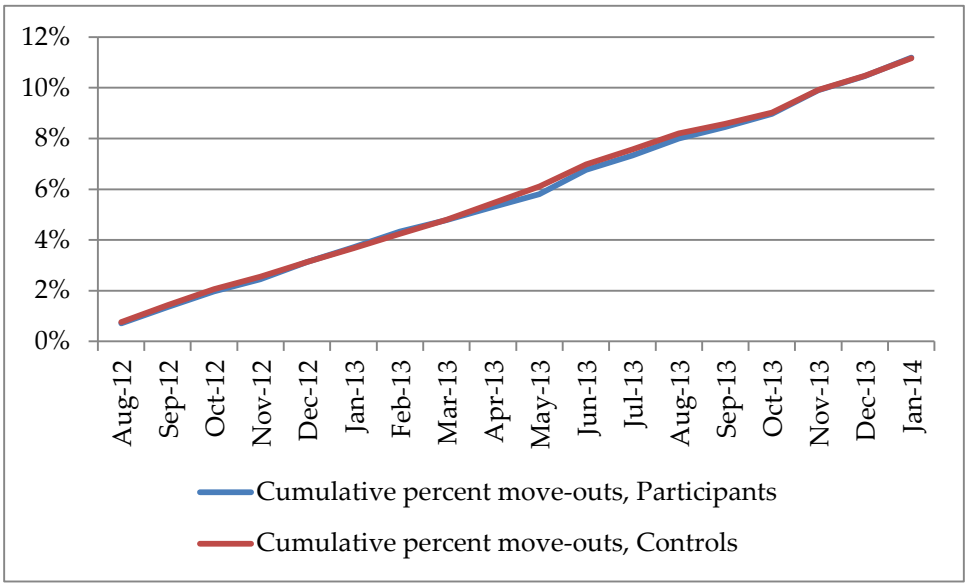
[2] The initial dataset indicated records for 13,523 participants and 13,508 controls. The reduction to the actual number of participants and controls reported here is explained in section 2.4.

Figure 1-1. Customers Opting Out of the HER Program, First 18 Months



Source: Navigant analysis

Figure 1-2. Cumulative Percentage of Move-Outs, First 18 Months



Source: Navigant analysis

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1.2 Evaluation Objectives

The primary objective of the analysis in this report is to determine the extent to which participants in the HER program reduced their energy consumption due to the program.

Secondary objectives are to report on customer satisfaction with the HER program, and on behavioral and information effects of the HER program, including effects on customer awareness and purchase of energy efficient appliances and customer awareness of Pacific Power's energy efficiency programs.

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2. Impact Evaluation Approach

The impact evaluation approach Navigant employed in this analysis is consistent with the methodology described in the SEE Action report,[3] relying on statistical analysis appropriate for RCTs. This evaluation has three primary components: 1) checking the allocation of customers to the treatment and control groups for consistency with an RCT, 2) regression analysis to quantify program savings, and 3) quantification of double-counted savings from participation uplift in other energy efficiency programs. This section describes these components in more detail.

2.1 Statistical Consistency of the Program with an RCT

Navigant compared the monthly energy usage of the participant and control groups during the 12 month period prior to the start of the program (July 2011 through June 2012). If the allocation of the households across the participant and control groups is truly random, the two groups should have the same distribution of energy usage for each of the 12 months before the start of the program. For this analysis, Navigant compared the mean usage for each of the 12 months before the start of the program.

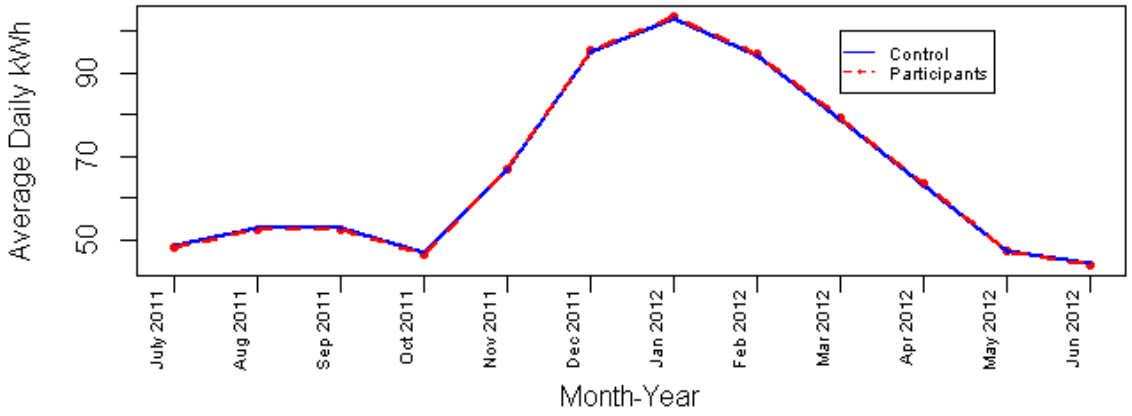
The results of the analysis indicate that the allocation of program households across the participant and control groups is consistent with an RCT design. Figure 2-1 depicts the average energy usage for participant and control households for the 12 months prior to the start of the HER program. The blue line indicates the average energy usage for the control group and the red dashed line indicates the average energy usage for the participant group. The two lines in each graph are nearly identical, indicating no difference in average usage patterns for the participant and control groups.

Navigant conducted a statistical test on the difference in the mean energy usage in each of the twelve months. Navigant found the difference to be statistically significant at the 90% confidence level in October 2011 and insignificant in all other months.[4] As an additional check, Navigant conducted a regression analysis in which average daily usage in the pre-program was a function of monthly binary variables and a binary participation variable. The parameter on the participation variable was not significant at the 90% confidence level, indicating no statistical difference in energy use between the participant and control groups prior to the start of the program. In light of these results, and as detailed in the next section, Navigant used a statistical method appropriate for use with RCTs to quantify the energy savings for the program.

[3] Todd, A., E. Stuart, S.Schiller, and C. Goldman. *Evaluation, Measurement, and Verification (EM&V) of Residential Behavior-Based Energy Efficiency Programs: Issues and Recommendations.* Lawrence Berkeley National Laboratory. May 2012. Available at: http://behavioranalytics.lbl.gov/

[4] The p-value for October 2011 was 0.098 –just significant at the 90% level. The percent difference in energy use between the two groups was 0.76% --i.e., less than 1%. Note that using a 90% confidence interval we would expect that, due to random chance alone, on average one out of every ten months will have a statistically significant difference in average consumption between treatment and control customers.

Figure 2-1. Average Daily Energy Use during the Pre-Program Year



Source: Navigant analysis

2.2 Net Impact Evaluation Methodology

Navigant estimated program impacts using two approaches: linear fixed effects regression (LFER) analysis applied to monthly billing data, and a simple post-program regression (PPR) analysis with lagged controls. We run both models as a robustness check. Although the two models are structurally very different, both generate unbiased estimates of program savings in an RCT.

A key feature of the RCT design of the HER program is that the analysis estimates net savings, not gross savings. While some customers receiving reports may have taken energy conserving actions or purchased high efficiency equipment in the absence of the program, the random selection of program participants (as opposed to voluntary participation) assures that on average their behavior in this regard would have been no different in the absence of the program than the actual average behavior of the control group. Thus, there is no free ridership, and no "net-to-gross" adjustment is necessary.

The LFER model combines both cross-sectional and time series data in a panel dataset. The regression essentially compares pre- and post-program billing data for participants and controls to identify the effect of the program. The customer-specific constant term ("fixed effect") is a key feature of the LFER analysis and captures all customer-specific effects on energy usage that do not change over time, including those that are unobservable. The fixed effect represents an attempt to control for any small systematic differences between the participant and control customers that might occur due to chance. Specifically, Navigant estimated the following regression model:

Equation 2-1. LFER Model

$$ADC_{kt} = \alpha_{0k} + \alpha_1 Post_t + \alpha_2 Participant_k \cdot Post_t + \varepsilon_{kt} ,$$

where,

ADC_{kt} = The average daily usage in kWh for customer *k* during billing cycle *t*. This is the dependent variable in the model.

$Post_t$ = A binary variable indicating whether bill cycle *t* is in the post-program period (taking a value of 1) or in the pre-program period (taking a value of 0).

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$Participant_k$	= A binary variable indicating whether customer *k* is in the participant group (taking a value of 1) or in the control group (taking a value of 0).
α_{0k}	= The customer-specific fixed effect (constant term) for customer *k*. The fixed effect controls for all customer-specific effects on energy usage that do not change over time.
α_1, α_2	= Regression parameters corresponding to the independent variables.
ε_{kt}	= The cluster-robust error term for customer *k* during billing cycle *t*. Cluster-robust errors account for heteroscedasticity and autocorrelation[5] at the customer level.

Average daily savings are indicated by the parameter α_2. Program savings are the product of the average daily savings estimate, the number of days in the post-period[6], and the number of participants.

As with the LFER model, the PPR model combines both cross-sectional and time series data in a panel dataset, but it uses the post-program data only, with lagged energy use for the same calendar month of the pre-program period replacing the customer-specific fixed effect as a control for any small systematic differences between the participant and control customers. In particular, energy use in calendar month *m* of the post-program period is framed as a function of both the participant variable and energy use in the same calendar month of the pre-program period. The underlying logic is that systematic differences between participants and controls will be reflected in differences in their past energy use, which is highly correlated with their current energy use. Formally, the model is,

Equation 2-2. PPR Model

$$ADC_{kt} = \beta_0 + \beta_1 ADClag_{kt} + \beta_2 Participant_k + \sum_j \beta_{3j} Month_j + \varepsilon_{kt} ,$$

where ADC_{kt} and $Participant_k$ are defined as in the LFER model, $ADClag_{kt}$ is customer *k*'s energy use in the same calendar month of the pre-program year as the calendar month of month *t*, and $Month_j$ is a binary variable taking a value of 1 if the observation is in Month *j* and 0 otherwise. In this model β_2 is the estimate of average daily energy savings due to the program.

A minor complication to the use of this model in the analysis of 18-month savings is that the time lapse to the same pre-program calendar month is 12 months for the first 12 months of the program (August 2012-July2013), and 24 months for the last six months of the program (August 2013-January 2014). Concerned that the effect on post-program consumption of the pre-program variable can be different for a 12-month lag than for a 24-month lag, we used $ADClag1_{kt}$ for the case where the time lapse to the same pre-program calendar month was 12 months, and $ADClag2_{kt}$ for the case where it was 24 months. As it turns out, there was no statistically different effect across the two lag lengths.

[5] Ordinary Least Squares (OLS) regression models assume the data are homoscedastic and not autocorrelated. If either of these assumptions is violated, the resulting standard errors of the parameter estimates are likely underestimated. A random variable is heteroscedastic when the variance is not constant. A random variable is autocorrelated when the error term in one period is correlated with the error terms in at least some previous periods.

[6] Savings accrue for participants with active accounts.

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Finally, to investigate how savings vary with usage level, Navigant divided the program participants and control customers into three equal-sized segments based on their usage during the pre-program year and estimated Equation 2-1 separately for each segment (high, medium, and low).

2.3 Uplift Analysis Methodology

The HERs include energy saving tips, some of which encourage participants to enroll in other energy efficiency (EE) programs offered by Pacific Power. If participation rates in other energy efficiency programs are the same for HER participants and controls, the savings estimates from the regression analysis are already "net" of savings from the other programs, as this indicates the HER program had no effect on participation in the other EE programs. However, if the HER program affects participation rates in other energy efficiency programs, then portfolio savings differ from the simple summation of savings in the HER and EE programs. For instance, if the HER program increases participation in other EE programs, the increase in savings may be allocated to either the HER program or the energy efficiency program, but cannot be allocated to both programs simultaneously. On the other hand, if the HER program generates *negative* participation in other EE programs –a negative spillover—as might happen, for instance, if the HER program encourages behaviors or actions that reduce the value to customers of participating in other EE program—then there is no double counting of savings. The negative savings associated with this negative spillover should be included as HER program savings because they represent a downward bias in the statistical estimate of HER program savings. In other words, because the statistical analysis does not account for the lower rate of EE participation by HER participants, estimated savings are lower than actual savings by an amount equal to the negative savings. Net verified savings are equal to the program savings less uplift savings.

Navigant used a difference-in-difference (DID) approach to estimate uplift in Washington's EE programs over the first 18 months of the HER program. This method uses differences between the participant and control groups in the rate of change in EE program participation to calculate the uplift in EE program participation due to the HER program. For instance, if the average annualized rate of participation in an EE program during the HER program is 5% for the participant group and 3% for the control group, and the rate of participation during the year before the start of the HER program is 2% for the participant group and 1% for the control group, then the annualized rate of uplift due to the HER program is 1%, as found in the calculation (5%-2%)-(3%-1%)=1%. Converting this annual rate of uplift to 18 months generates a value of 1.5%. The DID statistic generates an unbiased estimate of uplift when the baseline average rate of participation is the same for the participant and control groups, or when they are different due only to differences between the two groups in time-invariant factors.

Navigant examined the uplift associated with two energy efficiency programs: Appliance Recycling and Home Energy Savings (HES). It is not possible to state definitively the double-counted savings of the HER program and the portion of the HES program involving upstream energy efficient lighting (EEL) because it is not feasible to develop appropriate tracking data. A survey conducted as part of the program evaluation included two questions designed to provide an upper bound on the double counting of these savings. The first asked about the number of installed CFLs in the room in which the respondent is located while answering the survey. The second asked the respondent to walk through the residence, counting first the number of all lights turned on, and then counting the number of lights turned on that are CFLs (importantly, all surveys were done in the evening). If there is a statistical difference between participant and control customers in the average deployment

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and/or use of energy efficient lighting, and we assume that this difference is due *entirely* to the EEL program, and these observed differences are then extrapolated to average annual differences in energy use in a way that is reasonable and yet generous in the energy savings attributable to the EEL program, then we obtain an upper bound on the estimate of double counted savings. The specifics of these questions and the comparisons of responses for participants and controls are presented in section 4.2.1.

2.4 Data Used in the Impact Analysis

In preparation for the impact analysis, Navigant cleaned the data provided by the HER program implementer, Opower. The initial dataset indicated records for 13,523 participants and 13,508 controls. Navigant reached the count of verified customers used in the analysis –13,286 participants and 13,299 controls –as follows:

- Removed non-random "test" participants (7 participants);
- Removed duplicate records (6 participants, 6 controls);
- Removed customers for whom no observations remained after removing observations where bills were longer than the maximum allowed (40 days) or shorter than the minimum allowed (20 days) (0 participants, 1 control);
- Removed participants with no "first generation date" indicating a report was sent, and remove controls with a similar indication (224 participants, 202 controls).

In addition, Navigant removed the following observations:

- Observations with less than 20 days or more than 40 days in the billing cycle. These observations were removed because long and short bills can be an indication of an issue in the recording of energy use;
- Observations outside of the evaluation period, including the twelve month pre-program period and the post-program period;
- Outliers, defined as observations with average daily usage at least ten times larger or ten times smaller than the median usage.[7]

For the 18-month analysis, the removal of these additional observations reduced the total number of available observations from 771,311 to 763,233 total bills, a reduction of 1.1%. The percentage reductions for the 2012 and 2013 analyses were each 1.2%.

[7] As an example, the median usage for the 18-month analysis is 59.31 kWh per day, and so observations with usage greater than 593.1 kWh or less than 5.931 kWh per day were excluded from the analysis.

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3. Approach to Understanding Behavioral and Information Effects

Navigant conducted a telephone survey as part of the analysis of Washington's Home Energy Reporting program. The primary objective of the survey was to investigate the effect of the HER program on participation in the upstream energy efficient lighting program, in order to provide a basis for estimating double-counted savings with the lighting program. Secondary objectives included determining customer satisfaction with the HER program, and determining the effect of the HER program on customer awareness and purchase of energy efficient appliances and customer awareness of Pacific Power's energy efficiency programs. The survey was written by Navigant and programmed and fielded by The Dieringer Research Group (DRG) in March and April 2014. The survey instrument is presented in Appendix A.

3.1 Survey Sample Size

Based on prior studies performed by Navigant, the expected value of answers to the proposed survey questions, and a desired confidence/precision of 90/10 on binary questions, Navigant targeted 400 completed surveys divided evenly between participants and controls. The focus on the *difference* in responses between participants and controls reflects the understanding that it is this difference that indicates the effect of the HER program on respondent behaviors and attitudes.

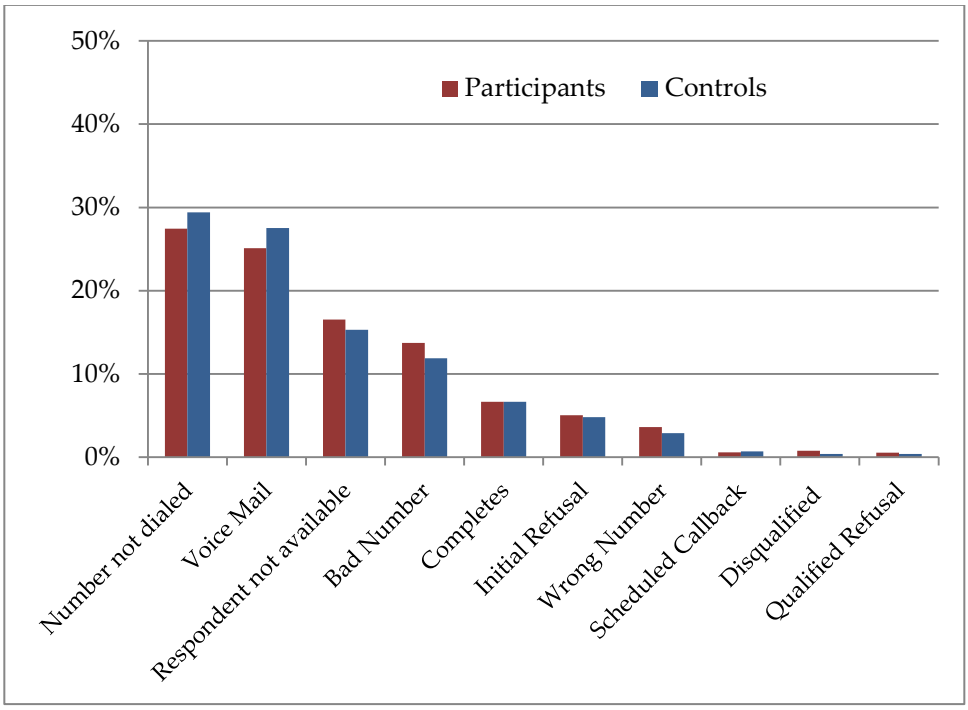
3.2 Survey Response Rates and Demographic Balance of Participant and Control Customers

To achieve the targeted sample of 200 surveys completed by participant households and 200 surveys completed by control households, Navigant provided DRG with a list of 3,000 randomly selecting participants and 3,000 randomly selected controls from the program. Figure 3-1 below presents the proportional dispensation of these 6,000 customers provided to DRG. If we define the response rate as the proportion of phone numbers dialed that generated a completed survey, then the response rate was about 9.2% for participants and 9.4% for controls.[8] If we instead define the response rate in terms of actually speaking to a household member, the response rate rises to 22.7% for the participants and 23.9% for the controls.[9]

[8] This value is found by dividing the proportion of the sample of 3,000 participant or control customers for which a survey was completed by the proportion for which a phone number was actually dialed. For instance, 27.4% of the sample of 3,000 participants were never dialed before the quota of 200 completed surveys was attained. It follows that 72.6% of customers were dialed. Dividing the 6.7% completes (200/3,000) by 72.6% gives a completion rate of 9.2%.

[9] This value is found by dividing the proportion of the sample of 3,000 participant or control customers for which a survey was completed (6.67% for both participants and controls) by the proportion for which a household member was reached –the sum of the proportions for "Completes" , "Respondent not available", "Initial refusal", "Scheduled Callback", and "Qualified refusal". For instance, for participants this involves dividing 6.7% by the sum of 6.7%, 16.5%, 0.6%, and 0.5% , generating a response rate of 22.7%.

Figure 3-1. Disposition of the 6,000 Customers in Survey Sample



Source: 2014 Navigant HER Program Survey

The participant and control groups are reasonably well balanced in the demographic variables. The mean square footage of survey participant and control customers is 2,124 and 2,069, respectively; the mean number of household members is 2.83 and 2.87, respectively. Survey respondents were asked about their annual household incomes using income categories. The two groups have similar percentages of customers with annual household incomes in the lowest category (<$25,000; 22% vs. 25%), and the highest category (>$250,000; 2% vs. 2%), and for both groups the median income lies in the income category $35,000-$50,000.

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4. Impact Evaluation Results

Navigant estimated the LFER and PPR models for three time periods:

- The first 18-months of the program (August 1, 2012 through January 31, 2014);
- 2012 (August 1, 2012 through December 31, 2012);
- 2013 (January 1, 2013 through December 31, 2013).

The LFER and PPR models generate very similar results for program savings in all three time periods. We use LFER results for reporting total program savings. Overall verified net program savings for the first 18-months of the program after excluding double-counted savings are 8,125 MWh.

4.1 Impact Parameter Estimates

Parameter estimates for the estimated models are presented Appendix B. Key findings include:

- For all three analysis periods the LFER *Post*Participant* parameter estimate is statistically significant at the 90% confidence level, as is the PPR *Participant* parameter estimate.
- The parameter estimates concerning 18-month energy savings generated by the LFER and PPR models are quite close, -1.187 and -1.189, respectively, and not statistically significantly different at the 90% confidence level.

Section 4.3 explains the calculation program savings.

4.2 Uplift of Savings in Other EE programs

LFER program savings include savings resulting from the uplift in participation in other energy efficiency programs caused by the HER program. To avoid double-counting of savings, program savings due to this uplift must be counted towards either the HER program or the other EE programs, but not both programs. The uplift of savings in other EE programs was a small proportion of the total savings: 16 MWh or 0.2 %.

Table 4-1 presents the details of the calculation of the double-counted savings due to uplift in other EE programs. The programs included in the uplift analysis were the Appliance Recycling program and the Home Energy Savings program.

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Table 4-1. Estimated Double-Counted Savings from Uplift in other EE Programs, First 18 Months

	Program	
	Appliance Recycling	Home Energy Savings
Median program savings (annual kWh per participant)	1,215	203
# HER participant households	13,516	13,516
annualized rate of participation (%)	1.52%	1.66%
Change in annualized rate of participation from pre-program year (%)	-0.03%	-0.85%
# HER control households	13,508	13,508
annualized rate of participation	1.36%	1.57%
Change in annualized rate of participation from pre-program year (%)	-0.11%	-0.78%
annualized DID statistic	0.08%	-0.07%
DID statistic for 18 months	0.12%	-0.11%
Change in program participation due to HER program	16	-15
Statistically significant at the 90% confidence level?	No	Yes
Savings attributable to other programs (kWh)	**19,456**	**-3,026**

Source: Navigant analysis.
Note: Median program savings are equal to the median kWh impact for HER participants during the post-period.

The estimate of double-counted savings is surely an *overestimate* because it presumes participation in the other EE programs occurs at the very start of the program year. Under the more reasonable assumption that participation occurs at a uniform rate throughout the year, the estimate of double-counted savings would be approximately 8 MWh, half the estimated value of 16 MWh. The upshot is that double counting of savings with other PP energy efficiency programs for which tracking data is available is not a significant issue for the HER program.

4.2.1 Double-counting of savings with the HES upstream energy efficient lighting program

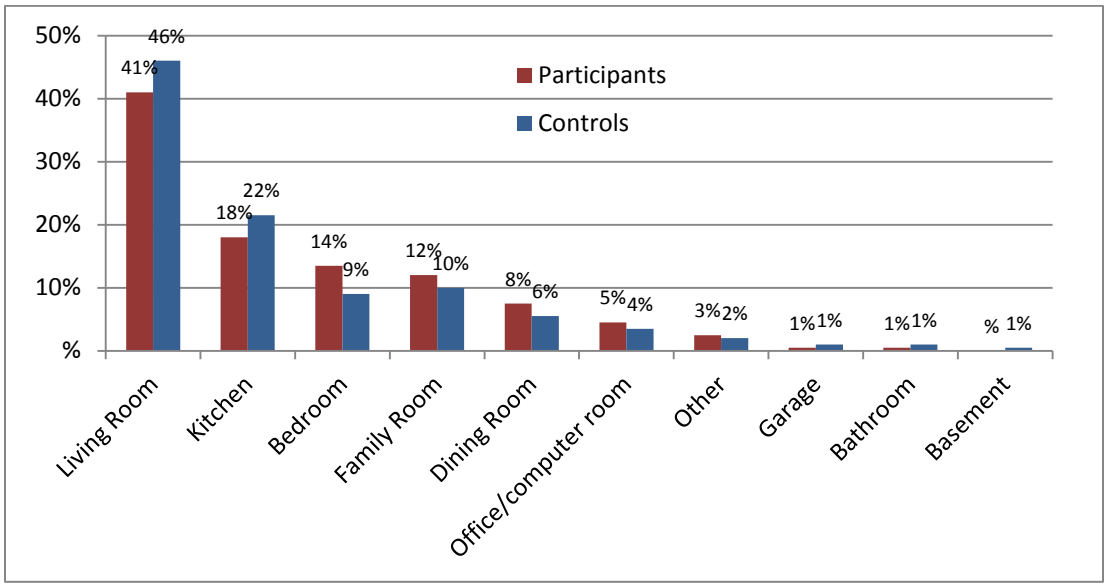
Due to a lack of tracking data, it is not possible to state definitively the double-counted savings of the HER program and the Home Energy Savings upstream energy efficient lighting (EEL) program. Navigant's approach to this issue is to use a set of survey questions to examine whether the HER program is in fact serving to increase the use of energy efficient lighting, and, if so, to derive an upper bound on the double-counting of savings, as described in section 2.3.

The first survey question relevant to this poses the following question about the lights in the room in which the survey respondent is located (question 2 in the survey, see the Appendix):

> *Please look around at the lights. How many of the light bulbs in the room are compact fluorescent lights, which are often called "CFL's"? I can wait if you need a minute to look around the room.*

The average installation of CFLs/room was 2.00 for participants and 1.87 for control customers; the difference between these values is not statistically different at the 90% significance level. Possibly this result is confounded by differences between participant and control customers in the distribution of types of rooms in which respondents were located; one might be concerned, for instance, that participants were more often in rooms with fewer lights, or with a lower likelihood of a CFL installation. To address this possibility, the survey asked respondents about the type of room in which they were located. Figure 4-1 shows that the distribution of rooms for both treatment and control customers was quite similar. Still, to address the possibility that even these small differences were a source of bias in the group-wise average difference in CFL installations, we also calculated a weighted average estimate of CFLs/room, where the weighting is based on the sample distribution of room types. The objective is to remove differences between participants and controls in the distribution of rooms as a source of differences between them in the average number of CFLs. So, for instance, because 18.6% of all respondents took the survey in their kitchen, the weight allocated to the average installed CFLs for kitchens—2.14 for the treatment group and 1.90 for the control group—is 0.186. This sample-weighted average is virtually no different than the unweighted average: 2.01 for participants and 1.87 for control customers.

Figure 4-1. Room Where Respondent Took the Survey



Source: 2014 Navigant HER Program Survey

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The second question used for this analysis is based on the actual use of CFLs, rather than their installation. The survey was conducted entirely in the evening hours between 6 PM and 10 PM, and asked the respondent to walk through the residence, counting the total number of all lights turned on, and to then repeat the walk-through, counting the number of CFLs turned on. In particular, the first of this pair of questions (question 3 in the survey, see the Appendix) stated,

> *Now I want to ask about the total number of lights that are currently **turned on** in your home, and the number of those that are CFL's.*
>
> *Let's begin with the **total** number of lights that are currently on. Beginning with the room you're currently in, please walk through your home and count the number of lights **of any type** that are **currently** turned on. Please don't turn off any of the lights that are currently on, because when you're done I'm going to ask you another question about the light bulbs that are currently on. If you need to put down the phone for this, I can wait.*

This was followed by the question (question 4 in the survey),

> *Next, please count the number of CFL's currently turned on in your home. Please don't include any lights you turned on as part of your walk-through.*

Double counting of savings is complicated by a potential behavioral response to the HER treatment: CFLs may be in lower use in participant households because these households are turning lights off more frequently. In fact, we found good evidence of this. The average number of lights turned on in participant households was 3.67, and the average number of lights turned on in control households was 4.57, a difference that is statistically significant at the 90% level. The HER program appears to cause customers to reduce their use of lighting by 20% in the evening. This behavioral effect tends to diminish the energy savings of the uplift in the EEL program due to the HER program; the HER program may increase the installation of CFLs in participant households, but their use may be no greater or even less than in control households due to behavioral effects. The survey revealed that indeed on average participants had *fewer* CFLs turned on than did control customers, 1.42 compared to 1.95, a statistically significant difference at the 90% confidence level, though the average *proportion* of CFLs in use by participants and controls was not statistically different, 38.6% for participants and 42.6% for controls.

Navigant also asked customers whether (a) they had seen materials encouraging them to purchase CFLs (question 5 in the survey), and (b) whether they had purchased at least one CFL in 2014 (question 6 in the survey). 65% of participants and 63% of control customers answered "Yes" to the first question, and 38% of treatment customers and 37% of control customers answered "Yes" to the second question. In neither case is the difference between treatment and control customers statistically significant.

In summary, there appears to be virtually no difference between participants and control customers in their installation of CFLs, nor in the proportion of lighting actually used in the evening that is provided by CFLs. Due to behavioral effects of the HER program, the level of use of CFLS by participants is lower than their use by control customers. There appears to be no difference between the two groups in the purchase of CFLs since the start of the year, or in awareness of messaging to

purchase CFLs. Navigant concludes from these survey results that the savings estimate for the HER program is not double counting savings attributable to the upstream lighting program.

4.3 Verified Net Program Impact Results

Table 4-2 presents verified net savings results from the HER program. Savings are slightly higher than typical for first year behavior programs. On average participants reduced their usage by 1.80% during the first 18 months of the program. Verified net savings are calculated via the following equation:

Equation 4-1. Calculation of Verified Net Savings

$$Verified\ Net\ Savings = \frac{-\alpha_2 * Number\ of\ Program\ Days}{1000} - Double\ Counted\ Savings$$

Where α_2 is the parameter from Equation 2-1 that indicates average daily impacts from the LFER model in kWh (thus division by 1000 to convert the value to MWh), and the number of program days is the sum across all participants of the number of days during the specified period that a participant's account is active and they are receiving reports.[10] Total verified net program savings during the first 18 months of the program is 8,125 MWh.

[10] Customers who opt out of the program remain in the analysis because they might continue to generate savings after they opt out.

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Table 4-2. Net Program Savings and Uplift of Savings in Other EE programs

Type of Statistic	2012	2013	18 Months
Number of Participants†	13,286		
Number of Control Customers†	13,299		
Percent Savings	1.42%	1.97%	1.80%
Standard error:	*0.22%*	*0.20%*	*0.18%*
90% confidence bound:	*[1.06%, 1.78%]*	*[1.65%, 2.29%]*	*[1.51%, 2.09%]*
Average savings per customer (kWh)	124	432	602
Standard error:	*19*	*43*	*59*
90% confidence bound:	*[93, 155]*	*[362, 503]*	*[505,700]*
Verified Net Savings, Prior to Uplift Adjustment (MWh)‡	1,675	5,841	8,141
Standard error:	*257*	*578*	*801*
90% confidence bound:	*[1,253, 2,097]*	*[4,890, 6,793]*	*[6,824, 9,458]*
Savings Uplift in other EE programs (MWh)	4*	11*	16
Verified Net Savings (MWh)	**1,671**	**5,830**	**8,125**

†The initial data set contained records for 13,523 participants and 13,508 controls. See Section 2.4 for the derivation of the customer counts presented here (and used in the analysis) from the raw customer counts.
‡Net savings in units of kWh are provided in Appendix C.
**Savings uplift is a prorated value based on the analysis for the first 18 months of the program.*
Source: Navigant analysis.

4.4 Realization Rates for 2012 and 2013

Reported savings are 1,778 MWh for 2012 and 5,516 MWh for 2013.[11] Comparing these to the verified net savings prior to uplift reported in Table 4-2 (1,675 MWh for 2012 and 5,841 MWh for 2013) generates realization rates of 0.94 for 2012 and 1.06 for 2013.

[11] Reported savings are available in annual reports at www.pacificorp.com/es/dsm.html.

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4.5 Analysis of Savings by Usage Level

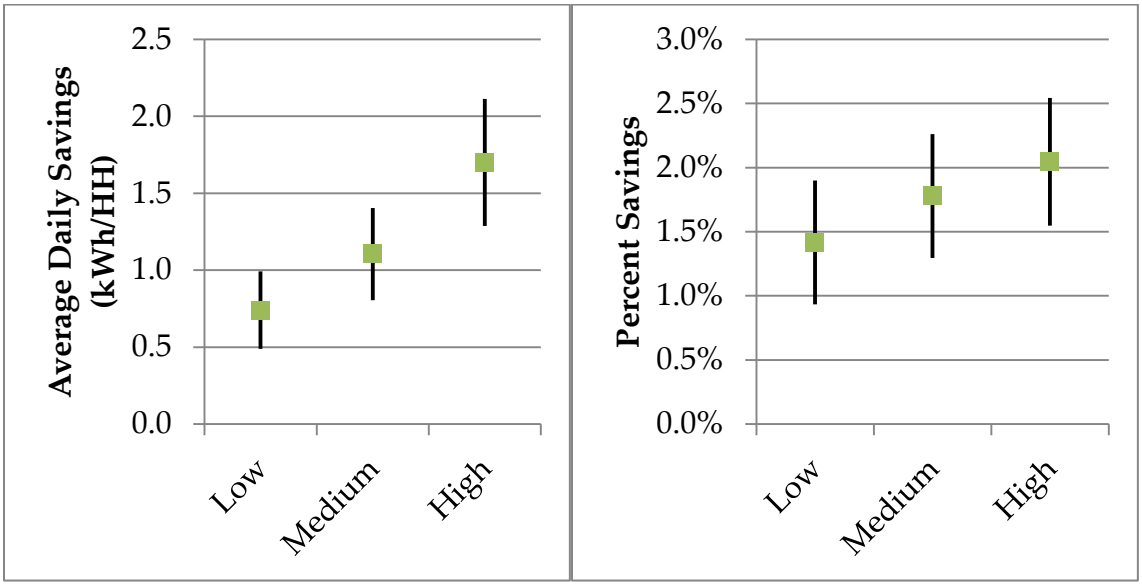
Navigant analyzed how program savings in the first 18 months of the program vary with usage level by segmenting program participants and controls into three equal-sized groups based on their pre-program usage level. Table 4-3 provides descriptive statistics and savings values for each of the three segments. Both actual and percentage savings increase with usage, as illustrated in Figure 4-2.

Table 4-3. 18-month Savings by Usage Level

Type of Statistic *Standard errors are provided in italics*	Low Usage	Medium Usage	High Usage
Number of Participants	4,423	4,398	4,465
Number of Controls	4,395	4,466	4,438
Pre-Program Annual Usage (kWh)	9,944 - 20,780	20,780 - 25,280	25,280 - 75,280
18-month Percent Savings	1.42% *0.29%*	1.78% *0.29%*	2.05% *0.30%*
Average 18-month savings per customer (kWh)	405 *84*	605 *100*	931 *138*

Source: Navigant analysis.

Figure 4-2. Absolute and Percent Savings by Usage Level, with 90% Confidence Interval



Source: Navigant analysis

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5. Survey Results

The primary objective of the survey was to determine whether program savings are double counting savings from the HES upstream energy efficient lighting program. Results pertaining to this objective were presented in section 4.2.1. Here we present a discussion of results pertaining to secondary objectives for the survey.

5.1 Energy Efficiency Awareness and Purchase Behavior

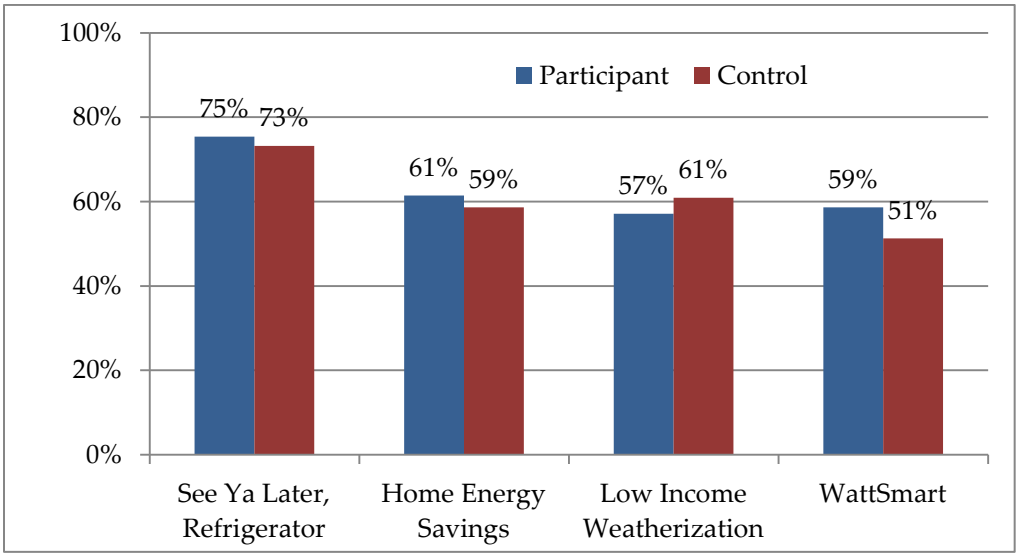
Navigant found no statistical differences between participants and controls with respect to the following:

- Recollection of seeing material from Pacific Power encouraging the purchase of CFLs (65% of treatment customers and 63% of control customers);
- Purchase of any CFLs since the start of 2014 (38% vs. 37%);
- The average number of bulbs purchased, conditional on a purchase since 2014 (6.69 bulbs vs. 6.75 bulbs);
- The presence of LEDs in the home (25% vs. 29%)
- Familiarity with the Energy Star label (79% vs. 82%)
- New television has an Energy Star label, conditional on having purchased a television over the past year (96% vs. 95%)

5.2 Awareness of Pacfic Power's Energy Efficiency Programs

Figure 5-1 compares treatment and control customers with respect to awareness of Pacific Power's energy efficiency programs. In no case was there a statistically significant difference between the two groups at the 90% significance level. Customers were most aware of the 'See Ya Later, Refrigerator' Program.

Figure 5-1. Proportion of Customers Aware of Pacific Power Energy Efficiency Programs

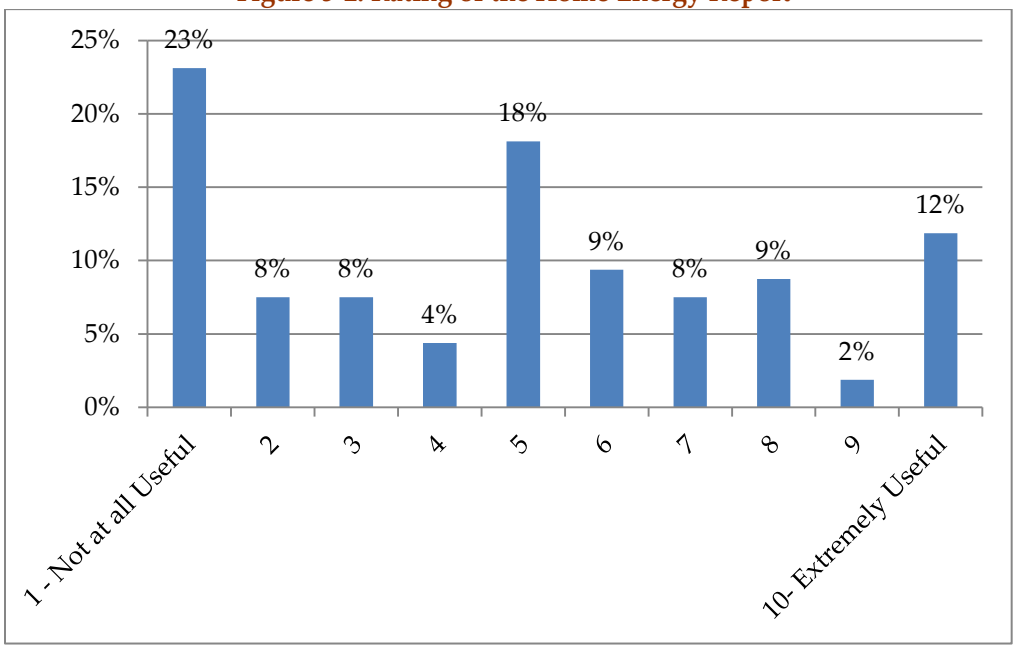


Source: 2014 Navigant HER Program Survey

5.3 Satisfaction with the HER program

Eighty-eight percent of the treatment group remembered receiving the HER reports. As illustrated in Figure 5-2, customers were fairly evenly split in terms of their perception of the usefulness of the reports. Of those customers receiving the reports, 42% rated the report low (1-4 on the 10-point scale), 28% gave the reports an average rating, and 30% rated the report high (7-10 on the 10-point scale).

Figure 5-2. Rating of the Home Energy Report



Source: 2014 Navigant HER Program Survey

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6. Program Cost Effectiveness

Program cost effectiveness was evaluated for 2012, 2013, and the first 18 months of the program, August 2012-January 2014. The cost effectiveness of utility-funded programs in the state is typically analyzed using tests prescribed by the California Standard Practice Manual.[12] For the purposes of this evaluation, Pacific Power specifically required the following cost-effectiveness tests:

- Participant Cost Test (PCT);
- Utility Cost Test (UCT);
- Ratepayer Impact (RIM);
- Total Resource Cost Test (TRC); and
- PacifiCorp's Total Resource Cost Test (PTRC).

Table 6-1 presents details of these tests.

The evaluation team initialized and validated the cost-effectiveness model used for this evaluation. This model was calibrated using prior inputs and outputs from the previous evaluation cycle to ensure that similar inputs yielded similar outputs. The evaluation team worked through a range of input assumptions pertaining to avoided cost data formats, financial assumptions regarding discount and escalation rates, participant costs and benefits, and other input parameters.

Cost-effectiveness inputs were provided by Pacific Power staff, including data obtained from the 2011 IRP (for the 2012 analysis) and the 2013 IRP (for all other analyses), and include program cost inputs, program savings by measure, and measure life. Table 6-2 provides an overview of cost-effectiveness input values used by the evaluation team in the cost-effectiveness analysis.

[12] The California Standard Practice Manual is an industry-accepted manual; it identifies the cost and benefit components and cost-effectiveness calculation procedures from five major perspectives: Participant, Ratepayer Impact Measure (RIM), and Total Resource Cost (TRC). Definitions and methodologies of these cost-effectiveness tests can be found at http://www.energy.ca.gov/greenbuilding/documents/background/07-J_CPUC_STANDARD_PRACTICE_MANUAL.PDF.

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Table 6-1. Details of Cost Effectiveness Tests[13]

Test	Acronym	Key Question Answered	Summary Approach
Participant Cost Test	PCT	Will the participants benefit over the measure life?	Comparison of costs and benefits of the customer installing the measure
Utility Cost Test	UCT	Will utility revenue requirements increase?	Comparison of program administrator costs to supply-side resource costs
Ratepayer Impact Measure	RIM	Will utility rates increase?	Comparison of program administrator costs and utility bill reductions to supply side resource costs
Total Resource Cost Test	TRC	Will the total costs of energy in the utility service territory decrease?	Comparison of program administrator and customer costs to utility resource savings
PacifiCorp Total Resource Cost Test	PTRC	Will the total costs of energy in the utility service territory decrease when a proxy for benefits of conservation resources is included?	Comparison of program administrator and customer costs to utility resource savings with a 10% benefits adder.

Source: Navigant analysis

Table 6-2. HER Program Cost Effectiveness Evaluation Input Values

Variable	2012	2013	2014	18 months
	Input			
Discount Rate	6.88%	6.88%	6.88%	6.88%
Inflation Rate	1.90%	1.90%	1.90%	1.90%
Residential Line Loss	9.67%	9.67%	9.67%	9.67%
Residential Retail Rate	$0.0817	$0.0833	$0.0849	$0.0831
Gross Customer Costs	$0	$0	$0	$0
Program Costs	$100,257	$139,002	$13,009	$252,268
Utility Administrative	$28,976	$13,121	$550	$42,647
Program Delivery	$71,281	$125,881	$12,459	$209,621
Incentives Costs	$0	$0	$0	$0

Source: Navigant analysis

[13] "Understanding Cost Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy – Makers" NAPEE, November 2008. http://www.epa.gov/cleanenergy/documents/suca/cost-effectiveness.pdf.

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6.1 Cost Effectiveness Evaluation Results

The evaluation team calibrated and updated the cost-effectiveness models based on evaluated net savings prior to uplift adjustment, as reported in Table 4-2. We do not use saving after uplift adjustment because the adjustment reflects an issue of double counting with other programs, rather than an issue of overstating program savings. As Tables 6-3 to 6-5 indicate, for all three evaluation periods the program is cost effective for four of the five standard cost tests, with the exception being the Rate Impact Test (RIM).

Table 6-3. HER Program 2012 Benefit-Cost Ratios

Benefit/Cost Test Performed	Evaluated Gross Savings	Evaluated Net Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp Total Resource Cost Test (PTRC)	1,675,000	1,675,000	$100,257	$148,499	1.48
Total Resource Cost Test (TRC)	1,675,000	1,675,000	$100,257	$134,999	1.35
Utility Cost Test (UCT)	1,675,000	1,675,000	$100,257	$134,999	1.35
Rate Impact Test (RIM)	1,675,000	1,675,000	$239,734	$134,999	0.56
Participant Cost Test (PCT)	1,675,000	1,675,000	$0	$139,477	N/A

Source: Navigant analysis

Table 6-4. HER Program 2013 Benefit-Cost Ratios

Benefit/Cost Test Performed	Evaluated Gross Savings	Evaluated Net Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp Total Resource Cost Test (PTRC)	5,841,000	5,841,000	$139,002	$426,167	3.07
Total Resource Cost Test (TRC)	5,841,000	5,841,000	$139,002	$387,424	2.79
Utility Cost Test (UCT)	5,841,000	5,841,000	$139,002	$387,424	2.79
Rate Impact Test (RIM)	5,841,000	5,841,000	$634,801	$387,424	0.61
Participant Cost Test (PCT)	5,841,000	5,841,000	$0	$495,800	N/A

Source: Navigant analysis

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Table 6-5. HER Program 18-Month Benefit-Cost Ratios

Benefit/Cost Test Performed	Evaluated Gross Savings	Evaluated Net Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp Total Resource Cost Test (PTRC)	8,141,000	8,141,000	$252,268	$621,367	2.46
Total Resource Cost Test (TRC)	8,141,000	8,141,000	$252,268	$564,879	2.24
Utility Cost Test (UCT)	8,141,000	8,141,000	$252,268	$564,879	2.24
Rate Impact Test (RIM)	8,141,000	8,141,000	$941,604	$564,879	0.60
Participant Cost Test (PCT)	8,141,000	8,141,000	$0	$689,337	N/A

Source: Navigant analysis

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7. Key Findings and Recommendations

7.1 Impact Key Findings and Recommendations

This section summarizes the key findings and associated recommendations.

Finding 1. The treatment and control groups had similar usage prior to the start of the program. Therefore Navigant employed a statistical method appropriate for use with RCTs to quantify the energy savings for the program.

Finding 2. The program generated 8,125 MWh of electric energy savings during the first 18 months of the program. On average, participants reduced their electricity usage by 1.80%. The savings appear to be typical for behavioral programs of this type.

Finding 3. The program is cost-effective.

Recommendation. Expand the HER program in its current form. If the program is expanded, Navigant (or another third party) should receive the billing data for the new treatment and control households for the year before these households are added to the program, *before* the home energy reports are initially sent to the new treatment households. Navigant (or third party) can verify that the allocation of households across the two groups is consistent with a randomized controlled trial.

Finding 4. Program savings, both in terms of kWh and percentage, increase with customer usage.

Recommendation. Future expansions of the program should continue to target high users to achieve the greatest program savings.

Recommendation. Consider an evaluation of program demand savings. It is possible that customer energy savings are greater than average during peak demand hours. If the interval data necessary to estimate these savings is available, a fairly simple statistical analysis that takes advantage of the experimental design of the program could be used to estimate peak demand savings.

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Appendix A. Survey Instrument

Pacific Power HER Program Pilot Participant and Non-participant Telephone Survey Guide, March 4, 2014

Introduction I

Hello, I'm [YOUR NAME] of Dieringer Research, calling on behalf of Pacific Power about energy efficiency programs that Pacific Power offers its customers to save energy. I want to emphasize that this is not a sales call; Pacific Power has asked that we ask their customers some questions for research purposes only.

May I speak with [CONTACT NAME]? (**IF NOT AVAILABLE, SAY:** May I speak with the person within the [LAST NAME] household who is most knowledgeable about your energy bill?) **[IF NO ONE AVAILABLE FROM HOUSEHOLD, SCHEDULE A CALL BACK.] [IF AVAILABLE INDIVIDUAL IS NOT FROM THE HOUSEHOLD LISTED IN THE CONTACT LIST, THANK AND TERMINATE]**

Introduction II

[SKIP THIS SECTION IF THE PERSON WHO INITIALLY ANSWERED THE PHONE IS ALSO THE RESPONDENT]

Hello, I'm [YOUR NAME] of Dieringer Research, calling on behalf of Pacific Power about energy efficiency programs that Pacific Power offers its customers to save energy. I want to emphasize that this is not a sales call; Pacific Power has asked that we ask their customers some questions for research purposes only.

Introduction III

Pacific Power is interested in how to better design energy efficiency programs to save their customers money on their utility bills. They have found that one of the best sources of information is to survey customers like you.

Several of the questions that we ask concern the amount of energy efficient lighting in the home. We know from past experience that responses to these questions are most accurate when respondents are free to walk around their home looking at the lighting. Is this a good time for that, or should we schedule a call for later? **[(IF RESPONDENT ASKS, SAY: The survey will take about 10** minutes, depending on your answers.) **IF NECESSARY, SCHEDULE A CALL BACK. THE CALL BACK NEEDS TO BE IN THE EVENING, WHEN LIGHTS ARE ON.] IF THERE IS A QUESTION ABOUT THE LEGITIMACY OF THE SURVEY THE PARTICIPANT MAY CALL SHAWN GRANT AT 801-220-4196.**

Your responses to our questions are strictly confidential. They will be averaged with those of other customers to evaluate the usefulness of Pacific Power's energy efficiency programs. This call may be monitored for quality assurance purposes**.**

CFL Bulbs

1. I want to start by asking you about the lights in the room that you're currently in.

   What type of room is it? (Don't Read)

   1-Kitchen

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2-Dining Room
3-Living Room
4-Bedroom
5-Family Room
6-Bathroom
7-Basement
8-Garage
9-Other: _____

2. Please look around at the lights. How many of the light bulbs in the room are compact fluorescent lights, which are often called "CFL's"? I can wait if you need a minute to look around the room.

   Number: ____

3. Now I want to ask about the total number of lights that are currently **turned on** in your home, and the number of those that are CFL's.

   Let's begin with the ***total*** number of lights that are currently on. Beginning with the room you're currently in, please walk through your home and count the number of lights ***of any type*** that are ***currently*** turned on. Please don't turn off any of the lights that are currently on, because when you're done I'm going to ask you another question about the light bulbs that are currently on. If you need to put down the phone for this, I can wait. **[IF RESPONDENT ASKS ABOUT WHETHER TO COUNT LIGHTS THEY TURN ON TO HELP THEM GO THROUGH THE HOME, THE ANSWER IS NO –ONLY COUNT LIGHTS THAT ARE ALREADY ON].**

   Number of lights on: ____
   88 - Don't Know
   99 - Refused

4. Next, please count the number of CFL's currently turned on in your home. Please don't include any lights you turned on as part of your walk-through.

   Number of CFL's on: _____
   88 - Don't Know
   99 - Refused

5. Since the start of 2014, do you recall seeing information from Pacific Power that encourages you to replace traditional incandescent light bulbs with CFLs to save energy?

   1-Yes
   2-No
   88 - Don't Know

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99 - Refused

6. To the best of your recollection, has your household purchased Compact Fluorescent Light Bulbs (CFLs) since the start of 2014?

   1-Yes
   2-No
   88 - Don't Know
   99 - Refused

7. [IF YES on question 6, ask:] About how many CFLs has your household purchased in 2014?

   Number of CFL's purchased in 2014: _____

   88 - Don't Know
   89 99 - Refused

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8. Do you have any LED lights installed?

    1-Yes
    2-No
    88 - Don't Know
    99 - Refused

9. Are you familiar with the "Energy Star" label for appliances that meet national energy efficiency standards? Energy Star appliances could include such as televisions, dishwashers, washers and dryers.

    1-Yes - CONTINUE
    2-No – GO TO Q12
    88 - Don't Know – GO TO Q12
    99 - Refused – GO TO Q12

IF YES TO Q9:

10. Did you purchase a new television since January, 2013?

    1-Yes
    2-No – GO TO Q12
    88 - Don't Know – GO TO Q12
    99 - Refused - GO TO Q12

IF YES TO Q10:

11. Did the new television carry the Energy Star label?

    1-Yes
    2-No
    88 - Don't Know
    99 - Refused

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Usefulness of Home Energy Reports (SKIP THIS SECTION FOR NON-PARTICIPANTS)

12. Some customers of Pacific Power are in a program in which they receive home energy reports every two months. These reports provide customers with information on their energy use, how their energy use compares to similar customers, and gives customers energy-saving tips. Do you recall receiving any of these reports in the past 12 months?

    1-Yes
    2-No – GO TO Q14
    88 - Don't Know – GO TO Q14
    99 – Refused – GO TO Q14

13. If "Yes" on Question 12: On a scale of 1 to 10, with 1 being "not at all useful" and 10 being "extremely useful," how would you rate the average usefulness of the home energy reports for helping you to save energy? You may use any number from 1 to 10.

    •

Not at all useful									Extremely useful
1	2	3	4	5	6	7	8	9	10

    88 – Don't Know (DO NOT READ)
    99 – Refused (DO NOT READ)

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Satisfaction with Pacific Power

14. How would you rate your overall satisfaction with Pacific Power? Would you say you were Very Satisfied, Somewhat Satisfied, Neither Satisfied nor Dissatisfied, Somewhat Dissatisfied or Very Dissatisfied?

    1-Very Satisfied

    2-Somewhat Satisfied

    3-Neither Satisfied nor Dissatisfied

    4-Somewhat Dissatisfied

    5-Very Dissatisfied

    88 - Don't Know

    99 - Refused

Awareness of Pacific Power's other energy efficiency programs

15. Have you ever heard of the following energy efficient programs offered by Pacific Power?

    1. **Home Energy Savings:** Pacific Power offers cash incentives to customers who install or upgrade the insulation in their home, buy energy-efficient electrical appliances and lighting for their home.

        - 1-Yes
        - 2-No
        - 88 - Don't Know
        - 99 – Refused
        -

    2. **See Ya Later, Refrigerator/Refrigerator Recycling:** Company picks up and recycles your old working refrigerator or freezer. Participants receive $30

        - 1-Yes
        - 2-No
        - 88 - Don't Know

        99 – Refused

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3. **Low Income Weatherization:** Pacific Power works with local agencies to provide free weatherization services to income-qualifying customers.

    - 1-Yes
    - 2-No
    - 88 - Don't Know

    99 – Refused

4. **Wattsmart:** Pacific Power campaign to promote energy-efficiency and conservation and to educate customers on saving money on their utility bills.

    - 1-Yes
    - 2-No
    - 88 - Don't Know
    - 99 – Refused

Just a few more questions and we will be finished.

Demographics

16. What is the total square footage of your home's living space? Your best estimate will be fine.

    _____ Square feet

    88 - Don't Know
    99 - Refused

17. How many people lived in your home during 2013?

    Number: ____
    88 - Don't Know
    99 - Refused

18. What was your approximate household income in 2013? Please stop me when I say the answer that best reflects your approximate household income.

    1. Up to $24,999
    2. $25,000 - $34,999
    3. $35,000 - $49,999
    4. $50,000 - $74,999
    5. $75,000 - $99,999
    6. $100,000-$124,999

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7. $125,000-$149,999
8. $150,000-$199,999
9. $200,000-$249,999
10. $250,000 or more

88 - Don't Know

99 - Refused

That is all of the questions I have for you today. Thank you very much for your time.

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Appendix B. Regression Coefficient Estimates

Table B-1. LFER Parameter Estimates

Variable	2012		2013		18 Months	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Post	-4.151	-46.02	-0.423	-4.64	-0.466	-5.65
Post * Participant	-0.836	-6.53	-1.301	-10.10	-1.187	-10.17

Source: Navigant analysis.

Note: T-statistics greater than 1.645 in absolute value indicate results are statistically significant at the 90% confidence level.

Table B-2. PPR Parameter Estimates

Variable	2012		2013		18 Months	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
ADClag1	0.766	192.46	0.810	179.81	0.790	216.59
ADClag2	-	-	0.833	182.05	0.824	184.63
Participant	-0.885	-7.13	-1.283	-10.10	-1.189	-9.99
August 2012	17.592	81.78	-	-	16.478	79.42
September 2012	9.242	43.87	-	-	8.123	40.16
October 2012	10.643	55.72	-	-	9.675	53.61
November 2012	8.334	31.61	-	-	6.867	27.80
December 2012	7.716	20.85	-	-	5.574	16.50
January 2013	-	-	18.656	41.92	20.647	56.75
February 2013	-	-	16.113	39.75	17.928	53.88
March 2013	-	-	9.581	28.10	11.097	39.58
April 2013	-	-	5.630	20.05	6.835	29.37
May 2013	-	-	10.183	46.51	11.079	60.42
June 2013	-	-	8.908	42.38	9.745	55.35
July 2013	-	-	13.517	60.04	13.879	61.88
August 2013	-	-	13.815	56.95	14.216	59.02
September 2013	-	-	8.121	33.91	8.527	35.92
October 2013	-	-	9.369	42.74	9.723	45.08
November 2013	-	-	4.506	14.85	5.033	17.05
December 2013	-	-	17.647	41.49	18.400	44.71
January 2014	-	-	-	-	14.993	33.25

Source: Navigant analysis.

Note: T-statistics greater than 1.645 in absolute value indicate results are statistically significant at the 90% confidence level.

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Appendix C. Program Savings in kWh

Type of Statistic *Standard errors are provided in italics*	2012	2013	18 Months
Number of Participants	13,286		
Number of Control Customers	13,299		
Percent Savings	1.42% *0.22%*	1.97% *0.20%*	1.80% *0.18%*
Average savings per customer (kWh) †	124 *19*	432 *43*	602 *59*
Verified Net Savings, Prior to Uplift Adjustment (kWh)	1,674,797 *256,578*	5,841,197 *578,369*	8,141,078 *800,558*
Savings Uplift in other EE programs (kWh)	4,564	10,953	16,430
Verified Net Savings (kWh)	**1,670,234**	**5,830,244**	**8,124,648**

†*All reported savings in this table are at site*

NAVIGANT

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Memorandum

To: **Don Jones Jr., PacifiCorp/Rocky Mountain Power**

From: **David Basak, Navigant**

Date: **July 15, 2014**

Re: **OPOWER Residential Program Cost Effectiveness and Program Design – Washington**

Navigant has developed this memo in response to PacifiCorp's proposed OPOWER program cost effectiveness modeling needs for the residential sector in the state of Washington.

This memo presents the cost effectiveness results of individual analysis runs and a compilation of combined years for the state of Washington. Each scenario is analyzed using the expected results for the 35K Expansion Only option with modeled assumptions provided by OPOWER. These scenarios utilize the following assumptions:

- ***Avoided Costs:*** All scenarios use the "West - Residential Whole House" decrement value stream provided in the 2013 PacifiCorp Integrated Resource Plan.
- ***Modeling Inputs:*** Navigant utilized measure savings and costs provided by OPOWER to PacifiCorp. The program savings are assumed to include a 2-4% discount for overlap with existing rebate programs.
- ***Net-to-Gross:*** Along with OPOWER's discount, an additional Net-to-Gross Ratio of 99% was used to account for a conservative estimate of 1% attribution to other DSM programs.
- ***Energy Rates:*** Navigant utilized the 2013 rates provided by PacifiCorp and applied an escalation of 1.9% to arrive at estimated rates for PY2014-2017.
- ***Incremental Costs:*** $0 incremental costs were assumed for customers, because all net impacts are assumed to be zero-cost behavioral actions.
- ***Lifetime:*** This analysis ran two separate scenarios for the measure lifetime associated with behavioral measures; the first made a conservative assumption of a one-year measure life and the second assumed a two-year measure life.

This memo will begin by addressing the inputs for PY2014-2017 for the OPOWER program. The cost-effectiveness inputs are as follows:

Table 1 –Cost Effectiveness Analysis Inputs

Parameters	2014	2015	2016	2017
Discount Rate for all B/C Tests	6.88%	6.88%	6.88%	6.88%
Line Loss Factor - Energy (%)	9.67%	9.67%	9.67%	9.67%
Residential Energy Rate ($/kWh)	$0.085	$0.086	$0.088	$0.090
Net-to-Gross Ratio	99%	99%	99%	99%
Escalation Rate	1.9%	1.9%	1.9%	1.9%

Table 2 –Annual Program Costs for PY 2014-2017 1 Year and 2 Year Measure Life (Source: PacifiCorp)

Scenario	Incentives ($)	OPower ($)	Randomization ($)	PC Internal - Admin ($)	Total Program Costs ($)
Program Year 2014	$0	$133,096	$5,868	$11,360	**$150,324**
Program Year 2015	$0	$288,244	$0	$27,264	**$315,508**
Program Year 2016	$0	$299,276	$0	$27,264	**$326,540**
Program Year 2017	$0	$316,428	$0	$27,264	**$343,692**
Program Year 2014-2017	$0	$1,037,044	$5,868	$93,152	**$1,136,064**

Table 3 –Annual Program Savings at Site for PY 2014-2017 in kWh (Source: OPOWER)

Scenario	Gross Annual Energy Savings at Site (kWh)	Net Annual Energy Savings at Site (kWh)	Gross Annual Energy Savings at Generator (kWh)	Net Annual Energy Savings at Generator (kWh)
1 Year Measure Life - PY2014	584,000	578,160	640,473	634,068
1 Year Measure Life - PY2015	5,831,004	5,772,694	6,394,862	6,330,913
1 Year Measure Life - PY2016	7,083,996	7,013,156	7,769,018	7,691,328
1 Year Measure Life - PY2017	6,891,000	6,822,090	7,557,360	7,481,786
1 Year Measure Life - PY2014-2017	**20,390,000**	**20,186,100**	**22,361,713**	**22,138,096**
2 Year Measure Life - PY2014	584,000	578,160	640,473	634,068
2 Year Measure Life - PY2015	5,831,004	5,772,694	6,394,862	6,330,913
2 Year Measure Life - PY2016	12,331,000	12,207,690	13,523,408	13,388,174
2 Year Measure Life - PY2017	6,891,000	6,822,090	7,557,360	7,481,786
2 Year Measure Life - PY2014-2017	**25,637,004**	**25,380,634**	**28,116,102**	**27,834,941**

The PY 2014-2017 cost/benefits results for the 35K Expansion Option assuming a 1-Year Measure Life are as follows:

Table 4 –PY 2014 Cost/Benefit Test Results - 35K Expansion (1-Year Measure Life)

Benefit/Cost Test Performed	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conversation Adder	$0.2730	$150,324	$43,202	($107,122)	0.29
Total Resource Cost Test (TRC) No Adder	$0.2730	$150,324	$39,274	($111,050)	0.26
Utility Cost Test (UCT)	$0.2730	$150,324	$39,274	($111,050)	0.26
Rate Impact Test (RIM)		$200,332	$39,274	($161,058)	0.20
Participant Cost Test (PCT)		$0	$50,513	$50,513	n/a
Lifecycle Revenue Impacts ($/kWh)				$0.000040128	
Discounted Participant Payback (years)				n/a	

Table 5 – PY 2015 Cost/Benefit Test Results - 35K Expansion (1-Year Measure Life)

Benefit/Cost Test Performed	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conversation Adder	$0.0574	$315,508	$443,537	$128,029	1.41
Total Resource Cost Test (TRC) No Adder	$0.0574	$315,508	$403,216	$87,708	1.28
Utility Cost Test (UCT)	$0.0574	$315,508	$403,216	$87,708	1.28
Rate Impact Test (RIM)		$824,307	$403,216	($421,091)	0.49
Participant Cost Test (PCT)		$0	$513,938	$513,938	n/a
Lifecycle Revenue Impacts ($/kWh)				$0.000104853	
Discounted Participant Payback (years)				n/a	

Table 6 – PY 2016 Cost/Benefit Test Results - 35K Expansion (1-Year Measure Life)

Benefit/Cost Test Performed	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conversation Adder	$0.0489	$326,540	$564,144	$237,604	1.73
Total Resource Cost Test (TRC) No Adder	$0.0489	$326,540	$512,858	$186,318	1.57
Utility Cost Test (UCT)	$0.0489	$326,540	$512,858	$186,318	1.57
Rate Impact Test (RIM)		$956,416	$512,858	($443,558)	0.54
Participant Cost Test (PCT)		$0	$636,239	$636,239	n/a
Lifecycle Revenue Impacts ($/kWh)				$0.000109939	
Discounted Participant Payback (years)				n/a	

Table 7 – PY 2017 Cost/Benefit Test Results - 35K Expansion (1-Year Measure Life)

Benefit/Cost Test Performed	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conversation Adder	$0.0529	$343,692	$583,504	$239,812	1.70
Total Resource Cost Test (TRC) No Adder	$0.0529	$343,692	$530,459	$186,767	1.54
Utility Cost Test (UCT)	$0.0529	$343,692	$530,459	$186,767	1.54
Rate Impact Test (RIM)		$968,050	$530,459	($437,591)	0.55
Participant Cost Test (PCT)		$0	$630,664	$630,664	n/a
Lifecycle Revenue Impacts ($/kWh)				$0.000108543	
Discounted Participant Payback (years)				n/a	

Table 8 – PY 2014-2017 Cost/Benefit Test Results - 35K Expansion (1-Year Measure Life)

Benefit/Cost Test Performed	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conversation Adder	$0.0591	$1,136,064	$1,634,387	$498,323	1.44
Total Resource Cost Test (TRC) No Adder	$0.0591	$1,136,064	$1,485,806	$349,742	1.31
Utility Cost Test (UCT)	$0.0591	$1,136,064	$1,485,806	$349,742	1.31
Rate Impact Test (RIM)		$2,949,105	$1,485,806	($1,463,298)	0.50
Participant Cost Test (PCT)		$0	$1,831,354	$1,831,354	n/a
Lifecycle Revenue Impacts ($/kWh)				$0.000090912	
Discounted Participant Payback (years)				n/a	

The PY 2014-2017 cost/benefits results for the 35K Expansion Option assuming a 2-Year Measure Life are as follows:

Table 9 –PY 2014 Cost/Benefit Test Results - 35K Expansion (2-Year Measure Life)

Benefit/Cost Test Performed	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conversation Adder	$0.1398	$150,324	$44,422	($105,902)	0.30
Total Resource Cost Test (TRC) No Adder	$0.1398	$150,324	$40,384	($109,940)	0.27
Utility Cost Test (UCT)	$0.1398	$150,324	$40,384	($109,940)	0.27
Rate Impact Test (RIM)		$248,009	$40,384	($207,626)	0.16
Participant Cost Test (PCT)		$0	$98,672	$98,672	n/a
Lifecycle Revenue Impacts ($/kWh)				$0.000051730	
Discounted Participant Payback (years)				n/a	

Table 10 – PY 2015 Cost/Benefit Test Results - 35K Expansion (2-Year Measure Life)

Benefit/Cost Test Performed	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conversation Adder	$0.0294	$315,508	$464,360	$148,852	1.47
Total Resource Cost Test (TRC) No Adder	$0.0294	$315,508	$422,145	$106,637	1.34
Utility Cost Test (UCT)	$0.0294	$315,508	$422,145	$106,637	1.34
Rate Impact Test (RIM)		$1,309,389	$422,145	($887,244)	0.32
Participant Cost Test (PCT)		$0	$1,003,921	$1,003,921	n/a
Lifecycle Revenue Impacts ($/kWh)				$0.000220926	
Discounted Participant Payback (years)				n/a	

Table 11 – PY 2016 Cost/Benefit Test Results - 35K Expansion (2-Year Measure Life)

Benefit/Cost Test Performed	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conversation Adder	$0.0144	$326,540	$1,044,144	$717,604	3.20
Total Resource Cost Test (TRC) No Adder	$0.0144	$326,540	$949,222	$622,682	2.91
Utility Cost Test (UCT)	$0.0144	$326,540	$949,222	$622,682	2.91
Rate Impact Test (RIM)		$2,468,265	$949,222	($1,519,044)	0.38
Participant Cost Test (PCT)		$0	$2,163,359	$2,163,359	n/a
Lifecycle Revenue Impacts ($/kWh)				$0.000376507	
Discounted Participant Payback (years)				n/a	

Table 12 – PY 2017 Cost/Benefit Test Results - 35K Expansion (2-Year Measure Life)

Benefit/Cost Test Performed	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conversation Adder	$0.0271	$343,692	$550,009	$206,317	1.60
Total Resource Cost Test (TRC) No Adder	$0.0271	$343,692	$500,008	$156,316	1.45
Utility Cost Test (UCT)	$0.0271	$343,692	$500,008	$156,316	1.45
Rate Impact Test (RIM)		$1,563,304	$500,008	($1,063,297)	0.32
Participant Cost Test (PCT)		$0	$1,231,932	$1,231,932	n/a
Lifecycle Revenue Impacts ($/kWh)				$0.000263748	
Discounted Participant Payback (years)				n/a	

Table 13 – PY 2014-2017 Cost/Benefit Test Results - 35K Expansion (2-Year Measure Life)

Benefit/Cost Test Performed	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conversation Adder	$0.0241	$1,136,064	$2,102,934	$966,870	1.85
Total Resource Cost Test (TRC) No Adder	$0.0241	$1,136,064	$1,911,758	$775,694	1.68
Utility Cost Test (UCT)	$0.0241	$1,136,064	$1,911,758	$775,694	1.68
Rate Impact Test (RIM)		$5,588,968	$1,911,758	($3,677,210)	0.34
Participant Cost Test (PCT)		$0	$4,497,883	$4,497,883	n/a
Lifecycle Revenue Impacts ($/kWh)				$0.000228459	
Discounted Participant Payback (years)				n/a	

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MEMORANDUM

Date: **October 29, 2013**

To: **Don Jones, Jr.**

From: **Aaron Jenniges**

Re: **WA Business Program 2014-2015 Cost-Effectiveness Summary**

The tables below present the cost-effectiveness findings of the Washington Business Program based on 2014-15 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "Copy of 2014-2015 Business Plan Tables 10232013 - REV for Energy management 102613.xlsx". The utility discount rate is from the 2013 PacifiCorp Integrated Resource Plan.

Cost-effectiveness was tested using the 2013 IRP 71% load factor west system decrements. Table 1 shows the financial input assumptions.

Table 1: Business Program Financial Inputs

Input Description	2014	2015	2014-15
Discount Rate	6.88%	6.88%	6.88%
Commercial Line Loss	9.53%	9.53%	9.53%
Industrial Line Loss	8.16%	8.16%	8.16%
Irrigation Line Loss	9.67%	9.67%	9.67%
Inflation Rate	1.90%	1.90%	1.90%

Table 2 shows the 2014-15 utility and participant costs by program component. Table 3 shows the 2014-15 KWh savings, realization rates, and measure lives by program component.

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Table 2: 2014-15 Utility and Participant Costs by Scenario

Scenario	Year	Program Delivery Costs	Utility Delivery Costs	Incentives	Total Utility Costs	Participant Measure Costs
Portfolio - Business As Usual	2014	$1,430,462	$414,423	$2,532,628	$4,377,512	$7,906,221
	2015	$1,498,275	$438,215	$2,691,103	$4,627,594	$8,335,340
Increase Custom Incentive Project Cost Cap	2014	$14,221	$5,034	$136,751	$156,006	$90,570
	2015	$15,643	$5,537	$150,426	$171,606	$99,627
Eliminate kW $ and Fund Cx	2014	$68,543	$0	($41,815)	$26,728	($68,543)
	2015	$75,397	$0	($45,996)	$29,401	($75,397)
Food Service	2014	$2,294	$538	($850)	$1,982	$30,198
	2015	$5,837	$1,370	$4,531	$11,738	$54,836
HVAC	2014	$1,446	$339	$5,000	$6,785	$42,500
	2015	$2,726	$640	$9,500	$12,865	$77,650
Irrigation	2014	$11,254	$2,641	$7,800	$21,694	$27,083
	2015	$11,254	$2,641	$7,841	$21,735	$27,056
Compressed Air	2014	$10,433	$2,448	$17,958	$30,840	$43,510
	2015	$10,433	$2,448	$17,958	$30,840	$43,510
Potato storage Van VFD	2014	$2,683	$630	$4,650	$7,963	$9,900
	2015	$2,683	$630	$4,650	$7,963	$9,900
Adaptive Refrigeration Control	2014	$8,512	$2,510	$17,100	$28,122	$34,000
	2015	$8,917	$2,629	$18,000	$29,546	$37,200
Fast Acting Door	2014	$3,513	$1,036	$7,800	$12,349	$32,500
	2015	$7,836	$2,310	$17,400	$27,547	$72,500
End Use Compressed Air Reduction	2014	$3,895	$914	$6,750	$11,560	$11,200
	2015	$4,112	$965	$7,125	$12,202	$11,800
Wastewater - Low Power Mixing	2014	$5,998	$1,727	$13,500	$21,225	$40,000
	2015	$5,998	$1,727	$13,500	$21,225	$40,000
Energy Management	2014	$117,355	$35,436	$10,506	$163,297	$27,086
	2015	$156,364	$59,116	$21,055	$236,535	$54,727

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Table 3: 2014-15 Energy Savings and Measure Lives by Scenario

Scenario	Year	Gross KWh Savings	Realization Rate	Adjusted Gross KWh Savings	Net-to-Gross Ratio	Net Adjusted KWh Savings	Measure Life (Years)
Portfolio - Business As Usual	2014	20,395,389	97%	19,742,722	100%	19,742,722	14
	2015	21,664,015	97%	20,949,831	100%	20,949,831	14
Increase Custom Incentive Project Cost Cap	2014	269,268	95%	256,040	100%	256,040	14
	2015	296,195	95%	281,644	100%	281,644	14
Eliminate kW $ and Fund Cx	2014	0	95%	0	100%	0	14
	2015	0	95%	0	100%	0	14
Food Service	2014	26,500	97%	25,705	100%	25,705	12
	2015	67,438	97%	65,414	100%	65,414	12
HVAC	2014	22,500	72%	16,200	100%	16,200	15
	2015	42,425	72%	30,546	100%	30,546	15
Irrigation	2014	130,000	97%	126,100	100%	126,100	6
	2015	130,000	97%	126,100	100%	126,100	6
Compressed Air	2014	120,525	97%	116,909	100%	116,909	9
	2015	120,525	97%	116,909	100%	116,909	9
Potato storage Van VFD	2014	31,000	97%	30,070	100%	30,070	10
	2015	31,000	97%	30,070	100%	30,070	10
Adaptive Refrigeration Control	2014	126,000	94%	118,440	100%	118,440	14
	2015	132,000	94%	124,080	100%	124,080	14
Fast Acting Door	2014	52,000	94%	48,880	100%	48,880	14
	2015	116,000	94%	109,040	100%	109,040	14
End Use Compressed Air Reduction	2014	45,000	97%	43,650	100%	43,650	9
	2015	47,500	97%	46,075	100%	46,075	9
Wastewater - Low Power Mixing	2014	90,000	95%	85,500	100%	85,500	14
	2015	90,000	95%	85,500	100%	85,500	14
Energy Management	2014	525,293	95%	499,028	100%	499,028	3
	2015	1,033,105	95%	981,450	100%	981,450	3

Table 4 shows the cost-effectiveness results for the WA 2014-15 Business Program. The program is cost-effective (benefit/cost ratio greater than 1.0) from all test perspectives except the RIM.

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Table 4: WA 2014-15 Business Program Portfolio

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.049	$20,771,445	$32,999,523	$12,228,078	1.59
Total Resource Cost Test (TRC) No Adder	$0.049	$20,771,445	$29,999,567	$9,228,122	1.44
Utility Cost Test (UCT)	$0.023	$9,769,411	$29,999,567	$20,230,156	3.07
Rate Impact Test (RIM)		$41,612,376	$29,999,567	($11,612,810)	0.72
Participant Cost Test (PCT)		$16,449,077	$37,290,008	$20,840,931	2.27
Lifecycle Revenue Impact ($/KWh)	0.000198969				
Discounted Participant Payback (years)	4.26				

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MEMORANDUM

To: **Don Jones, Jr.**

From: **Brian Hedman and Ken Lyons**

Subject: **Washington Small Business Lighting Three-Year Plan Cost-Effectiveness**

Date: **June 26, 2014**

The tables below present the cost-effectiveness findings of the Washington Small Business Lighting Three-Year Plan based on costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "SBL C-E Scenarios 061714 - WA.xlsx". The utility discount rate is from the 2013 PacifiCorp Integrated Resource Plan.

Three-year cost-effectiveness inputs and results for small business lighting individual years and combined years are presented in this memo.

For all measures and scenarios, cost-effectiveness was tested using the 2013 IRP 70% load factor west system decrements and the large office lighting load shape. Table 1 lists the discount rate, line losses, and retail rates; Table 2 lists the measure group costs and incentives; Table 3 lists savings; Table 4 lists benefit cost ratios for the combined years and individual years; and Table 5 to Table 8 show the complete cost-effectiveness results for the combined years and individual years.

The small business lighting three-year plan is cost-effective from the PTRC perspective for all program years and all years combined. The program is cost-effective from the TRC perspective for all years except for 2014.

Table 1. WA Small Business Lighting Plan: Financial Inputs

Parameter	Value
Discount Rate	6.88%
Commercial Lines Loss	9.53%
Commercial Energy Rate ($/kWh) - 2013 base rate	$0.0772
Inflation Rate[1]	1.90%

[1] Future rates determined using a 1.9% annual escalator.

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Table 2. WA Small Business Lighting Plan: Program Costs

Measure	Year	Utility Admin	Incentives	Total Utility Costs	Participant Incremental Cost
Small Business Lighting	1	$31,622	$49,910	$81,532	$62,388
	2	$86,082	$269,080	$355,162	$336,350
	3	$125,772	$442,680	$568,452	$553,350

Table 3. WA Small Business Lighting Plan: Annual Energy Savings

Measure	Year	Gross KWh Savings	Realization Rate	Adjusted KWh Savings	Net-to-Gross Percentage	Net KWh Savings	Measure Life
Small Business Lighting	1	124,775	98%	122,280	100%	122,280	14
	2	672,700	98%	659,246	100%	659,246	14
	3	1,106,700	98%	1,084,566	100%	1,084,566	14

Table 4. WA Small Business Lighting Plan: Benefit-Cost Ratios by Year

Measure	PTRC	TRC	UCT	RIM	PCT
Small Business Lighting 2014-2016	1.34	1.22	1.45	0.56	2.46
Small Business Lighting 2014	1.06	0.97	1.12	0.50	2.41
Small Business Lighting 2015	1.32	1.20	1.42	0.56	2.44
Small Business Lighting 2016	1.39	1.27	1.51	0.58	2.47

Table 5. WA Small Business Lighting Plan: 2014-2016 Cost-Effectiveness

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.062	$1,083,724	$1,449,078	$365,354	1.34
Total Resource Cost Test (TRC) No Adder	$0.062	$1,083,724	$1,317,343	$233,619	1.22
Utility Cost Test (UCT)	$0.052	$911,431	$1,317,343	$405,912	1.45
Rate Impact Test (RIM)		$2,339,945	$1,317,343	($1,022,602)	0.56
Participant Cost Test (PCT)		$861,465	$2,117,687	$1,256,221	2.46
Discounted Participant Payback (years)	2.94				
Lifecycle Revenue Impact ($/KWh)	$0.00002398				

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Table 6. WA Small Business Lighting Plan: 2014 Cost-Effectiveness

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.075	$94,010	$100,079	$6,069	1.06
Total Resource Cost Test (TRC) No Adder	$0.075	$94,010	$90,981	($3,029)	0.97
Utility Cost Test (UCT)	$0.065	$81,532	$90,981	$9,449	1.12
Rate Impact Test (RIM)		$182,118	$90,981	($91,137)	0.50
Participant Cost Test (PCT)		$62,388	$150,496	$88,108	2.41
Discounted Participant Payback (years)	1.31				
Lifecycle Revenue Impact ($/KWh)	$0.00000230				

Table 7. WA Small Business Lighting Plan: 2015 Cost-Effectiveness

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.062	$422,432	$556,452	$134,020	1.32
Total Resource Cost Test (TRC) No Adder	$0.062	$422,432	$505,866	$83,433	1.20
Utility Cost Test (UCT)	$0.052	$355,162	$505,866	$150,703	1.42
Rate Impact Test (RIM)		$907,753	$505,866	($401,888)	0.56
Participant Cost Test (PCT)		$336,350	$821,671	$485,321	2.44
Discounted Participant Payback (years)	1.29				
Lifecycle Revenue Impact ($/KWh)	$0.00001052				

Table 8. WA Small Business Lighting Plan: 2016 Cost-Effectiveness

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.061	$679,122	$946,317	$267,195	1.39
Total Resource Cost Test (TRC) No Adder	$0.061	$679,122	$860,288	$181,166	1.27
Utility Cost Test (UCT)	$0.051	$568,452	$860,288	$291,836	1.51
Rate Impact Test (RIM)		$1,494,826	$860,288	($634,538)	0.58
Participant Cost Test (PCT)		$553,350	$1,369,054	$815,704	2.47
Discounted Participant Payback (years)	1.26				
Lifecycle Revenue Impact ($/KWh)	$0.00001657				

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MEMORANDUM

Date: **October 28, 2013**

To: **Don Jones, Jr.**

From: **Aaron Jenniges and Byron Boyle**

Re: **WA NEEA 2014-2015 Cost-Effectiveness**

The tables below present the cost-effectiveness findings of the Washington NEEA funding based on 2014-15 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "Copy of Pacific_6thAND7thPPSavingsReport_2014-2015_20130920_wMeasureLife_Costs_Sent_KB+ DLJ CE calculations 102513.xlsx". The utility discount rate is from the 2013 PacifiCorp Integrated Resource Plan.

Cost-effectiveness was tested using the 2013 IRP 49% load factor west residential whole house decrements for residential savings and the 2013 IRP 71% load factor west system decrements for commercial and industrial savings. Table 1 shows the input assumptions.

Table 1: NEEA Inputs

Input Description	2014	2015	2014-15
Discount Rate	6.88%	6.88%	6.88%
Commercial Line Loss	9.53%	9.53%	9.53%
Industrial Line Loss	8.16%	8.16%	8.16%
Residentiial Line Loss	9.67%	9.67%	9.67%
Inflation Rate	1.90%	1.90%	1.90%
Net-to-Gross	100%	100%	100%
Utility Costs	$1,225,843	$1,115,256	$2,341,099
Gross Generation Savings (kWh/year)	7,088,896	7,224,424	14,313,320
Average Measure Life (years)	6	6	6

Table 2 shows the savings shares by sector. These shares are used to divide the savings by sector so that appropriate retail rates and line losses are applied.

Table 2: NEEA Sector Shares

Sector	Share
Commercial	13.71%
Industrial/Agriculture	1.46%
Residential	84.83%

Table 3 shows the 2014-15 combined cost-effectiveness results. The WA NEEA funding was cost-effective from the UCT (Utility Cost Test) perspective but not the RIM (Ratepayer Impact) perspective.

Table 3: WA NEEA 2014-15 Cost-Effectiveness

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Utility Cost Test (UCT)	$0.032	$2,269,289	$4,712,309	$2,443,020	2.08
Rate Impact Test (RIM)		$8,258,542	$4,712,309	($3,546,233)	0.57
Lifecycle Revenue Impact ($/KWh)	0.000115825				

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MEMORANDUM

Date: **October 29, 2013**

To: **Don Jones, Jr.**

From: **Aaron Jenniges**

Re: **WA 2014-2015 Total Company, Residential, and Commercial and Industrial Portfolio Cost-Effectiveness**

The tables below present the cost-effectiveness findings of the Washington total company, residential, and commercial and industrial portfolios based on 2014-15 costs and savings estimates provided by PacifiCorp. The utility discount rate is from the 2013 PacifiCorp Integrated Resource Plan.

Cost-effectiveness was tested using the 2013 IRP 49% load factor west residential whole house decrements for residential savings and the 2013 IRP 71% load factor west system decrements for commercial and industrial savings. Table 1 shows the input assumptions.

Table 1: Portfolio Financial Inputs

Input Description	Value
Discount Rate	6.88%
Residential Line Loss	9.67%
Commercial Line Loss	9.53%
Industrial Line Loss	8.16%
Irrigation Line Loss	9.67%
Inflation Rate	1.90%

Table 2 shows portfolio level costs.

Table 2: Portfolio Costs

Cost Type	2014	2015
Energy Education in Schools	$60,000	$60,000
Customer Outreach and Communication	$250,000	$250,000
Program Evaluations	$640,000	$328,000
Administration of Prior Programs	$1,500	$1,500

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Cost-effectiveness was tested for six portfolio scenarios:

1. Residential Portfolio (Table 4): Home Energy Savings, Home Energy Reporting, See-Ya Later Refrigerator, and Low Income Weatherization
2. Commercial & Industrial Portfolio (Table 5): Business Program
3. Total Company Portfolio (Table 6): Residential Portfolio, Commercial & Industrial Portfolio, and Portfolio Costs from Table 2
4. Total Company Portfolio including Non-Energy Benefits (Table 9)
5. Total Company Portfolio including NEEA (Table 10)
6. Total Company Portfolio including NEEA and Non-Energy Benefits (Table 11)

Table 3 provides a summary of the benefit/cost ratios for the six portfolio scenarios. The total company and sector specific portfolios are cost-effective from all perspectives except the RIM (Ratepayer Impact Test)

Table 3: Summary of Benefit/Cost Ratios

Scenario	PTRC	TRC	UCT	RIM	PCT
Residential Portfolio	1.54	1.40	2.02	0.59	3.48
C&I Portfolio	1.59	1.44	3.07	0.72	2.27
Total Portfolio	1.50	1.36	2.43	0.66	2.55
Total Portfolio + NEBs	1.70	1.57	2.47	0.67	2.82
Total Portfolio + NEEA	1.50	1.36	2.39	0.65	2.55
Total Portfolio + NEBS & NEEA	1.70	1.57	2.42	0.66	2.82

Table 4: WA 2014-15 Residential Portfolio

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.053	$9,009,077	$13,910,655	$4,901,579	1.54
Total Resource Cost Test (TRC) No Adder	$0.053	$9,009,077	$12,646,050	$3,636,974	1.40
Utility Cost Test (UCT)	$0.037	$6,254,505	$12,646,050	$6,391,545	2.02
Rate Impact Test (RIM)		$21,592,377	$12,646,050	($8,946,327)	0.59
Participant Cost Test (PCT)		$5,071,515	$17,654,816	$12,583,301	3.48
Lifecycle Revenue Impact ($/KWh)	0.000095896				
Discounted Participant Payback (years)	1.87				

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Table 5: WA 2014-15 Commercial and Industrial Portfolio

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.049	$20,771,445	$32,999,523	$12,228,078	1.59
Total Resource Cost Test (TRC) No Adder	$0.049	$20,771,445	$29,999,567	$9,228,122	1.44
Utility Cost Test (UCT)	$0.023	$9,769,411	$29,999,567	$20,230,156	3.07
Rate Impact Test (RIM)		$41,612,376	$29,999,567	($11,612,810)	0.72
Participant Cost Test (PCT)		$16,449,077	$37,290,008	$20,840,931	2.27
Lifecycle Revenue Impact ($/KWh)	0.000198969				
Discounted Participant Payback (years)	4.26				

Table 6: WA 2014-15 Total Company Portfolio Including Portfolio Costs

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.053	$31,330,345	$46,910,179	$15,579,834	1.50
Total Resource Cost Test (TRC) No Adder	$0.053	$31,330,345	$42,645,617	$11,315,272	1.36
Utility Cost Test (UCT)	$0.030	$17,573,739	$42,645,617	$25,071,878	2.43
Rate Impact Test (RIM)		$64,754,577	$42,645,617	($22,108,960)	0.66
Participant Cost Test (PCT)		$21,520,592	$54,944,824	$33,424,232	2.55
Lifecycle Revenue Impact ($/KWh)	0.000236986				
Discounted Participant Payback (years)	3.36				

Table 6 does not include non-energy benefits from the Home Energy Savings and Low Income Weatherization programs. Table 7 and Table 8 show the non-energy benefits from these programs.

Table 7: WA 2014-15 Home Energy Savings Non-Energy Benefits

Non-Energy Benefit	Program Impact (Present Value)	Perspective Adjusted
Home Energy Savings	$5,640,857	PTRC, TRC, and PCT

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Table 8: WA 2014-15 Low Income Weatherization Non-Energy Benefits

Non-Energy Benefit	Program Impact	Perspective Adjusted
Arrearage Reduction	$7,125	PTRC, TRC
Economic Impact	$689,360	PTRC, RIM, UCT, TRC
Home Repair Benefits	$107,842	PCT, PTRC, TRC
Total	**$804,327**	

Table 9 shows the total portfolio cost-effectiveness with non-energy benefits included. The portfolio is cost-effective from all perspectives except the RIM. Table 10 shows the cost-effectiveness of the total portfolio including NEEA funded savings. Table 11 shows the cost-effectiveness of the total portfolio including both NEEA funded savings and non-energy benefits.

Table 9: WA 2014-15 Total Company Portfolio Including Portfolio Costs and Non-Energy Benefits

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.053	$31,330,345	$53,355,363	$22,025,018	1.70
Total Resource Cost Test (TRC) No Adder	$0.053	$31,330,345	$49,090,801	$17,760,456	1.57
Utility Cost Test (UCT)	$0.030	$17,573,739	$43,334,977	$25,761,238	2.47
Rate Impact Test (RIM)		$64,754,577	$43,334,977	($21,419,600)	0.67
Participant Cost Test (PCT)		$21,520,592	$60,693,523	$39,172,931	2.82

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Table 10: WA 2014-15 Total Company Portfolio Including Portfolio Costs and NEEA Funded Savings

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.053	$31,330,345	$46,910,179	$15,579,834	1.50
Total Resource Cost Test (TRC) No Adder	$0.053	$31,330,345	$42,645,617	$11,315,272	1.36
Utility Cost Test (UCT)	$0.030	$19,843,028	$47,357,926	$27,514,898	2.39
Rate Impact Test (RIM)		$73,013,119	$47,357,926	($25,655,193)	0.65
Participant Cost Test (PCT)		$21,520,592	$54,944,824	$33,424,232	2.55
Lifecycle Revenue Impact ($/KWh)	0.000295247				
Discounted Participant Payback (years)	3.36				

Table 11: WA 2014-15 Total Company Portfolio Including Portfolio Costs, NEEA Funded Savings, and Non-Energy Benefits

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.053	$31,330,345	$53,355,363	$22,025,018	1.70
Total Resource Cost Test (TRC) No Adder	$0.053	$31,330,345	$49,090,801	$17,760,456	1.57
Utility Cost Test (UCT)	$0.030	$19,843,028	$48,047,286	$28,204,258	2.42
Rate Impact Test (RIM)		$73,013,119	$48,047,286	($24,965,833)	0.66
Participant Cost Test (PCT)		$21,520,592	$60,693,523	$39,172,931	2.82

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