

2012-2013

Biennial Conservation Report

Washington

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# Introduction

PacifiCorp’s, d.b.a. Pacific Power & Light Company (“PacifiCorp” or the “Company”) 2012-2013 Biennial Conservation Report is being submitted to the Washington Department of Commerce (“Commerce”) and Washington Utilities and Transportation Commission (“Commission”) in response to reporting requirements established as part of the Energy Independence Act. The report is consistent with chapter 19.285 Revised Code of Washington, section 70 which states:

1. *On or before June 1, 2012, and annually thereafter, each qualifying utility shall report to the department on its progress in the preceding year in meeting the targets established in RCS 19.285.40, including expected electricity savings from the biennial conservation target, expenditures on conservation, actual electricity savings results, the utility’s annual load for the prior two years, the amount of megawatt-hours needed to meet the annual renewable energy target, the amount of megawatt-hours of each type of eligible renewable resource acquired, the type and amount of renewable energy credits acquired, and the percent of its total annual retail revenue requirement invested in the incremental cost of eligible renewable resources and the cost of renewable energy credits.”*

This report is also consistent with the guidelines set forth in WAC 480-109-040(1) and Condition (8)(h) in Docket UE-111880, Order 01, addressing reporting requirements.

As directed in Docket UE-100523 memorandum dated May 4, 2012, two separate filings will be submitted for “Conservation” and “Renewables”. This report is addressing the Conservation target and savings.

Consistent with the requirement to pursue all cost-effective, reliable and feasible conservation, the Company completed a comprehensive conservation potential assessment followed by economic resource screening and selection through the Company’s Integrated Resource Planning process. The resulting ten-year conservation forecast and biennial target was filed with and approved by the Commission in Docket UE-111880.

# Executive Summary

The Company has achieved its 2012-2013 Biennial Conservation Target as set forth in Docket UE-111880, PacifiCorp’s Ten-Year Conservation Potential and 2012-2013 Biennial Conservation Target.

A summary of 2012-2013 electric conservation targets, expenditures and savings results are provided below.



Consistent with the conditions established by the Commission in Docket UE-111880 Order 01, the cost-effectiveness has been determined based on the Total Resource Cost (TRC) test incorporating the 10 percent conservation benefit and risk adder consistent with the Northwest Power and Conservation Council’s approach. Using this test, the benefit to cost ratio for the Company’s 2012-2013 Biennial Conservation savings was 2.31[[1]](#footnote-1).

Working in partnership with its customers, Commission staff, and demand side management advisory group members, the Company achieved these results while adhering to the conditions established by the Commission in Docket UE-111880. Appendix 1 summarizes the Company’s compliance.

# Energy Independence Act (I-937) Commerce Conservation Report





# Biennial Target Compared to Actual







# Savings Reporting Adjustments

In the Washington Conservation Working Group, parties agreed “to the extent practicable, there should be consistency between the use of prescriptive unit energy savings estimates in the establishment of the biennial target and the reliance on those same savings estimates in the utility’s demonstration that it met the biennial target.”[[2]](#footnote-2) Consistent with this approach, the results provided in the Company’s 2012 and 2013 Annual Reports on Conservation Acquisition have been adjusted, incorporating the key planning assumptions used in establishing the 2012-2013 target. The adjustments are discussed in detail in the following sections.

**Refrigerator Recycling**

Kit savings for Refrigerator Recycling were reported for the 2012 program year using 23 kWh per kit instead of 36 kWh per kit. As a result, the Company is adjusting the savings for 2012 with an increase of 18,434 kWh at site to reflect the correct value of 36 kWh per kit.

The savings calculation adjustment is provided in Table 1.

**Table 1**

**2012 Refrigerator Recycling Kit Adjustment Calculations**



**Home Energy Savings**

The Washington Savings Verification and Reporting Process Review[[3]](#footnote-3) identified discrepancy of savings with insulation. As a result, the third party administrator researched this further and identified the adjustment needed for the 2012 – 2013 biennial reporting period.

1. Floor insulation. The adjustment resulted in a .04 kWh reduction per square foot for nine customers in 2012 and 52 customers in 2013.These adjustments resulted in a total decrease of 1,980 kWh at site.
2. Attic insulation in 2013. This adjustment affected one customer for a decrease of 109 kWh at site.

The total decrease in savings for these two measures resulted in a decrease of 2,089 kWh at site or -0.01% of Home Energy savings during the biennial period.

In addition, savings adjustments were required for residential lighting, heat pump water heaters and refrigerators which were identified in Appendix 4 of PacifiCorp’s Ten-Year Conservation Potential and 2012-2013 Biennial Conservation Target Report. These adjustments align planning and reporting assumptions.

Details for the kWh adjustments at site for lighting are provided below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **2012 Reporting** | **Units** | **UES reported** | **UES from 2011 CPA** | **UES difference (planning – reported)** | **Impact \***  **(unit x savings)** |
| Standard CFL | 187,862 | 20.35 | 18.31 | (2.03) | (381,921) |
| Specialty CFL | 36,516 | 23.10 | 24.61 | 1.51 | 55,151 |
| LED | 736 | 36.10 | 36.12 | 0.02 | 15 |
| **Total** |  |  |  |  | **(326,755)** |
|  | | | | | |
| **2013 Reporting** |  |  |  |  |  |
| Standard CFL | 207,395 | 17.78 | 18.31 | 0.53 | 110,718 |
| Specialty CFL | 100,282 | 24.44 | 24.61 | 0.17 | 16,757 |
| LED | 19,960 | 36.10 | 36.12 | 0.02 | 401 |
| **Total** |  |  |  |  | **127,875** |

\*Negative value = over-reported

Detail for kWh adjustments at site for Heat Pump Water Heaters (“HPWH”) and refrigerators are provided below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **2012 Reporting** | **Units** | **UES reported** | **Target UES Appendix 4** | **UES difference (planning – reported)** | **Impact \***  **(unit x savings)** |
| HPWH | 1 | 1,189 | 1,323 | 134 | 134 |
| Refrigerators | 409 | 108 | 65 | (43) | (17,630) |
|  | | | | | |
| **2013 Reporting** |  |  |  |  |  |
| HPWH | 2 | 881 | 1,323 | 442 | 884 |
| Refrigerators | 125 | 71 | 65 | (6) | (793) |

\*Negative value = over-reported

The summary of savings calculation adjustments are provided in Table 2 and Table 3.

**Table 2**

**2012 Home Energy Savings Adjustment Calculations**



**Table 3**

**2013 Home Energy Savings Adjustment Calculations**



**Home Energy Reports**

A third party impact evaluation was recently completed on Washington’s Home Energy Reports program for the first 18 months, through January 2014. Results from the evaluation provided verifiable energy savings that were achieved by customers who were participants in Home Energy Reports program.

As a result, the Company is adjusting the reported savings from this program to reflect the savings verified through the evaluation. The impact on savings reporting adjustments sis provided in Tables 4 and 5.

**Table 4**

**2012 Home Energy Reports Adjustment Calculations**



**Table 5**

**2013 Home Energy Reports Adjustment Calculations**



**Northwest Energy Efficiency Alliance (“NEEA”)**

Utilizing the NEEA baseline assumptions incorporated in setting the Company’s 2012 and 2013 biennial target, NEEA’s revised results for 2012 and 2013 require adjustments to the saving reported in the 2012 and 2013 Report on Conservation Acquisition which reflected the savings as “preliminary”. The consensus agreement regarding frozen planning assumptions was in place when the Company prepared the annual Reports on Conservation Acquisition in Washington however, NEEA had yet to finalize its 2012-2013 savings results.

The following table documents the adjustments to the Company’s NEEA savings initially reported in the 2012 and 2013 Reports on Conservation Acquisitions filed in March, 2013 and 2014, respectively. The revised savings were provided by NEEA to PacifiCorp in a May 21, 2014, Memorandum, which explains the assumptions, methodology, and the impact on final reported savings. See Appendix 3 for detail.

The savings calculation adjustment is provided in Table 6.

**Table 6**

**Revised NEEA 2012 and 2013 Savings**



**Production Efficiency**

Years of Implementation

The Company began a detailed study of the potential energy savings from production efficiency (“PE”) in 2011; with the initial implementation of identified projects beginning in 2012. Final study work was completed in 2012.

Program Description

In 2011, the Company began studying potential energy efficiency upgrades to the electrical systems at the thermal and wind power production facilities. The Company fully owns one thermal plant that provides power to Washington State as well as four wind projects. The Company jointly owns two additional thermal plants that also provide power to Washington; Jim Bridger and Hermiston.

Program Details

Project work began in 2012 starting at the Chehalis power plant based on studies completed in 2011. Also in the 2012-2013 biennium the Company worked with joint owners at Hermiston and Jim Bridger to discuss approvals for projects identified as cost-effective. As part of this discussion, in 2013 a significant amount of analysis was devoted to understanding and vetting an appropriate methodology for determining cost effectiveness of projects at the production level. This work was done in collaboration with the Advisory Group and completed in early 2014. The PE methodology was then applied to the previously identified projects to be re-screened.

As part of the rescreen of projects, the lighting upgrade project that was forecast in 2011 was deemed to be not cost effective. A different project completed in the 2013 year at Jim Bridger allowed us to capture our projected energy savings for that year in place of the forecasted lighting upgrade.

The wind facilities owned by the Company showed no cost effective efficiency improvements available.

The following table details the specific projects completed in the 2012 – 2013 biennium.



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The biennial costs associated with production efficiency requirements was $296,442.50. The $231,495 production efficiency expenditures reported in the 2012 Annual Report on Conservation Acquisition is included in the $296,442.50 total.

Production efficiency results are included in the adjustment section since they were not previously included in 2012 or 2013 annual report(s).

**Distribution Efficiency**

Previous Activities

In the 2010-2011 biennium, the Company performed a detailed study of the potential energy savings from distribution efficiency (“DEI”) on a subset of Washington distribution circuits referred to as Tier 1 circuits. Study results indicated that cost effective energy savings from voltage reduction were possible, and the Company began planning a second study while performing detailed construction cost estimating on a pilot project to be implemented in the 2012-2013 biennium.

Current Biennium Activities and Findings

In the 2012-2013 biennium, voltage optimization projects were managed through a pilot. A second study was commissioned on a subset of circuits referred to as Tier 2. These circuits were less promising (based on the lessons learned during the Tier 1 analysis), and the Company sought to identify where the break point existed for projects not deemed cost effective. In total, the most promising 27% of the Company’s Washington circuits were studied for energy savings potential.

Analysis of the pilot data and each project’s cost effectiveness took place throughout 2012 and into the first quarter of 2013. Four circuits were included in the pilot and more than half of the total cost was associated with the required metering improvements. One small fixed capacitor was added to during the pilot with the remainder of the Tier 1 study recommended improvements focused on balancing load and adjusting voltage control settings. Total pilot cost was $269,855, and the collected data was evaluated with the Simplified Measurement and Verification Protocol approved by the Northwest Council’s Regional Technical Forum (“RTF”).

As detailed in the Company’s 2013 Integrated Resource Plan (Appendix E), post project review showed all four circuits failing the cost effectiveness test, and the total energy saved was estimated to be less than 10 percent of the value initially forecasted for the projects. Total savings could not be statistically confirmed.

The Tier 2 study, evaluated in early 2013, included some circuits electrically adjacent to promising Tier 1 candidate circuits. The costs associated with the required Tier 2 circuit improvements, coupled with the costs associated with the adjacent Tier 1 circuit improvements, showed that these most promising circuit-pair projects were not projected to be cost effective. The pilot findings also indicated that other candidate circuits’ potentials were overestimated from what the company might expect if the projects were implemented. Because the Company’s distribution system planning process already provides relatively low voltage settings, the available efficiencies from voltage reduction are very small, costly to implement and difficult to measure. Based on current operations and analysis available, the Company anticipates no further cost effective DEI energy savings are available in its Washington service territory.

The table below shows the biennial costs associated with Washington’s RCW 19.285 distribution efficiency requirements. The $146,618 DEI expenditures reported in the 2012 Annual Report on Conservation Acquisition is included in the $501,906 DEI Total.

|  |  |  |
| --- | --- | --- |
| **I-937 DEI Activities** | **2012 Cost** | **2013 Cost** |
| WA Studies Total | $ 233,873 | $ 6,672 |
| *Tier 1 Study* | *$ 32,027* | *$ 0* |
| *Tier 2 Study* | *$ 201,847* | *$ 6,672* |
| WA Pilot Implementation | $ 268,033 | $ 1,821 |
| *Walla Walla (Mill Creek)* | *$ 152,091* | *$ 812* |
| *Yakima (Clinton)* | *$ 115,942* | *$ 1,009* |
| **DEI Total** | **$ 501,906** | **$ 8,493** |

Ongoing and Future Distribution Efficiency

Pacific Power’s existing design practices have effectively allowed substantial voltage reduction for decades with energy savings being neither measured nor reported. The incremental cost to further reduce or optimize voltage levels is relatively high and is not currently justified by the predicted energy savings.

The Company’s DEI evaluation to date is a product of our current practices, together with industry knowledge and current technology costs. In order to stay current in these areas, Pacific Power updates and files the Smart Grid Annual Report with Washington each year. Voltage reduction and other distribution technologies are included in this document and reevaluated by engineering and management for each updated report. Additionally, the engineering staff investigates and shares industry best practices and improves its standards and guidelines as needed to ensure consistency. If cost-effective DEI opportunities arise in the future, due to improvements in equipment and CVR technology, measurement and verification protocols and/or project economics, the Company will include them in future conservation forecasts and biennial targets in compliance with WAC 480-109-010 and RCW 19.285.

**Adjustment Summary**

The net effect of all adjustments applied to the 2012-2013 biennial targets is a decrease of 590 MWh or 0.07 aMW. These adjustments include the effects of line losses. Table 7 provides detail by adjustment type in MWh and reporting year.

**Table 7**

**Adjustments by Type and Year (MWh at generation)**



Table 8 provides detail by adjustment type in kWh and reporting year.

**Table 8**

**Adjustments by Type and Year (kWh at generation)**



# Supporting Documents for Conservation

Provided below are links to supporting documents relied upon in support of the Company’s planning assumptions and associated reporting of actual savings results for the Biennial Conservation Target for 2012 and 2013.

1. Assessment of Long-Term, System-Wide Potential for Demand-Side and Other Supplemental Resources, Volumes I and II (March 31, 2011) – Conservation Potential Assessment

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

1. 2012 and 2013 Annual Report(s) on Conservation Acquisition

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

1. Revised Report on its Ten-year Achievable Conservation Potential and its Biennial Conservation Target for 2012 and 2013, filed in Docket UE-111880 on January 31, 2012

<http://www.utc.wa.gov/docs/Pages/DocketLookup.aspx?FilingID=111880>

1. Demand-side Management Business Plan(s) including November 2012 Update and October 23, 2013 Update filed in Docket UE-111880.

<http://www.utc.wa.gov/docs/Pages/DocketLookup.aspx?FilingID=111880>

1. Independent third-party process and impact evaluations completed during the 2012-2013 biennium, validating program results, assessing ex-post program savings and providing information used to inform future conservation potential assessments, conservation forecasts and the establishment of targets.

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

1. Collaborative group documents completed that are used to demonstrate Company’s and other utilities’ alignment with planning methodologies used by the Northwest Power and Conservation Council. This document with Company specific information is provided as Appendix 3 Comparison of Regional Methodologies of the Company’s Ten-year Achievable Conservation Potential and its Biennial Conservation Target for 2012 and 2013, filed in Docket UE-111880 on January 31, 2012.

<http://www.utc.wa.gov/docs/Pages/DocketLookup.aspx?FilingID=111880>

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# Appendices

## Appendix 1 – 2012-2013 Plan Condition Requirements and Compliance

## Appendix 2 – Washington Verification of Savings Review

## Appendix 3 – NEEA Memorandum of 2012-2013 Final Savings

1. Savings delivered by energy efficiency programs for end use customers constitute more than 99% of the reported savings. These savings along with their reported costs were used to calculate the cost effectiveness. The cost effectiveness result provided does not include savings or cost associated with the Distribution Efficiency or Production Efficiency Initiatives. [↑](#footnote-ref-1)
2. Washington Conservation Working Group Consensus Document as of June 30, 2011. [↑](#footnote-ref-2)
3. See Appendix 2 for Savings Verification Report in support of Docket UE-111880 Order 01 section (6)(f). [↑](#footnote-ref-3)