

2014-2015

Biennial Conservation Report

Washington

Filed June 1, 2016

Table of Contents

[Introduction 3](#_Toc449524758)

[Executive Summary 4](#_Toc449524759)

[Energy Independence Act (I-937) Commerce Conservation Report 5](#_Toc449524760)

[Biennial Target Compared to Actual 7](#_Toc449524761)

[Savings Reporting Adjustments 9](#_Toc449524762)

[UES Baseline Analysis 14](#_Toc449524763)

[Supporting Documents for Conservation 18](#_Toc449524764)

[Appendices 19](#_Toc449524765)

[Appendix 1 – 2014-2015 Plan Condition Requirements and Compliance 19](#_Toc449524766)

[Appendix 2 – Washington Verification of Savings Review 19](#_Toc449524767)

[Appendix 3 – NEEA Memorandum of 2014-2015 Final Savings 19](#_Toc449524768)

# Introduction

Pacific Power & Light Company (Pacific Power or Company), a division of PacifiCorp, submits this 2014-2015 Biennial Conservation Report to the Washington Utilities and Transportation Commission (Commission) and the Energy Independence Act (I-937) Commerce Conversation Report to Washington Department of Commerce (Commerce) in response to reporting requirements established as part of the Energy Independence Act. The report is consistent with RCW 19.285.70 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 RCW 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 the revised WAC 480-109-100(3) and Condition (8)(e) in Docket UE-132047, 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, with adjustments as appropriate to account for new information, and biennial target was filed with and approved by the Commission in Docket UE-132047.

# Executive Summary

The Company has achieved its 2014-2015 Biennial Conservation Target as set forth in Docket UE-132047, PacifiCorp’s Ten-Year Conservation Potential and 2014-2015 Biennial Conservation Target.

A summary of 2014-2015 electric conservation targets, expenditures and savings results are provided below.



Consistent with the conditions established by the Commission in Docket UE-132047 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 2014-2015 Biennial Conservation savings was 1.73[[1]](#footnote-1)[[2]](#footnote-2).

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-132047. Appendix 1 of this report 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.”[[3]](#footnote-3) Consistent with this approach, the results provided in the Company’s 2014 and 2015 Annual Reports on Conservation Acquisition have been adjusted, incorporating the key planning assumptions used in establishing the 2014-2015 target. The adjustments are discussed in detail in the following sections.

**wattsmart Business**

The Washington Savings Verification and Reporting Process Review identified a discrepancy in savings associated with a specific lighting project.[[4]](#footnote-4)

During one of the seven lighting project site visits that had post-inspections completed, the visit revealed significantly lower operation hours for a specific set of fixtures than what was reported. Specifically, 8,064 hours was used in estimating the program savings when actually the set of fixtures were in use only 10 hours per day, five days per week, which was also the case in the baseline condition. Since the sample size was too small to generalize the finding to a broader population of lighting measures, the third party review team concluded that the savings adjustment should only be applied to the measure in which it was observed and not be applied generally.

The resulting adjustment represents a decrease of 21,858 kWh at site for this project, reducing savings from 35,497 kWh to 13,639 kWh. Adjustment for 2015 is a decrease of 23,941 kWh at generation.

**Home Energy Reports**

A third party impact evaluation has recently been completed on Washington’s Home Energy Reports program for program years 2014-2015. Results from the evaluation provided verifiable energy savings that were achieved by customers who were participants in Home Energy Reports program for the Legacy, Expansion, and Refill waves.

As a result, the Company is adjusting the reported savings from this program to reflect the verified net savings from the evaluation. The most significant reason for the increase to savings is a result of the reduction taken in the Company’s reporting system of a seven percent reduction to the savings reported by OPower to the Company. This adjustment was applied during the initial planning and delivery phases of the program to account for potential “overlap” between customer actions that are behavioral and directly attributable to the Home Energy Reports and longer term actions such as appliance replacements or lighting upgrades. The adjustment was applied before program specific evaluation results being available. Now that two evaluations have been completed and measured the extent of the overlap between the Home Energy Reports program savings and savings reported through other programs, the seven percent placeholder was removed as part of the application of ex-post evaluation results the savings previously reported.

The impact on savings reporting adjustments is provided in Tables 1 and 2.

**Table 1**

**2014 Home Energy Reports Adjustment Calculations**



**Table 2**

**2015 Home Energy Reports Adjustment Calculations**



**Northwest Energy Efficiency Alliance (NEEA)**

NEEA estimated savings in the Company’s Washington service territory resulting from its initiatives based on the same baseline assumptions used in the development of the Company’s 2014-2015 biennial conservation target.[[5]](#footnote-5) NEEA’s savings are relative to the Northwest Power and Conservation Council’s 6th Plan baselines for 2014 and proxy 7th Plan baselines for 2015. Consistent with the Company’s 2014-2015 Biennial Conservation Plan, 2014 savings identified by NEEA were adjusted to better align with the Company’s 2013 Conservation Potential Assessment, as shown in Table 3 below.

**Table 3**

**NEEA 2014-2015 Savings Calculations**



Savings reported from NEEA initiatives in the Company’s 2014 and 2015 annual reports were based on preliminary estimates provided by NEEA at the time those reports were created. The savings calculation adjustment is provided in Table 4.

**Table 4**

**Revised NEEA 2014 and 2015 Savings**



**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. 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, Jim Bridger and Hermiston and Colstrip unit 4 that also provide power to Washington.

Program Details

Project work began in 2014 at the Hermiston power plant based on studies completed in 2011. Before construction, the Company required approval from the other plant owners for projects initially identified as cost-effective using the methodology described in Appendix 2—*Production Efficiency Economic Evaluation Methodology* of the Company’s Demand-side Management 2014-2015 Business Plan.

The Heating ventilating and Air Conditioning (HVAC) upgrades and the compressed air system upgrades at the Hermiston plant included in the proposed 2014-2015 target[[6]](#footnote-6) were completed after joint owner approval was received. The lighting project at Hermiston assessed in the Cascade Energy study (revision: March 12, 2013) was not originally included in the target based on initial economics but was completed during the biennial period after updated pricing led to a re-assessment of cost effectiveness and the joint owners approving their share of the expenditures.

 Table 5 details the specific projects completed in the 2014-2015 biennium.

**Table 5**

**2014-2015 Production Efficiency Projects**

|  |  |  |
| --- | --- | --- |
| **Projects** | **Expenditures** | **Savings (MWh)** |
| Lighting | $2,096 | 0.56 |
| HVAC Upgrade | $364 | 0.34 |
| Air Compressor Upgrades | $897 | 1.46 |
| **TOTAL** | **$3,357** | **2.36** |

Note: Expenditures and savings are adjusted by PacifiCorp ownership (50%) and Washington allocation (22.47%) consistent with planning assumptions utilized in the 2014-2015 Biennial Conservation Target Report, p. 25.

No production efficiency expenditures or savings were reported in 2014 Annual Report pending final project installations and reconciliation of expenditures which was complete in 2015. Production efficiency results are included as adjustments since they were not previously included in 2014 or 2015 annual report(s).

**Adjustment Summary**

The net effect of all adjustments applied to the 2014-2015 biennial savings is an increase of 4,110 MWh. These adjustments include the effects of line losses.

Table 6 provides detail by adjustment type in kWh and reporting year.

**Table 6**

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



# UES Baseline Analysis

As explained on Page 11 of the Company’s 2014-2015 Biennial Conservation Plan, consistent with reporting in previous biennia and the general consensus of parties to the 2011 Washington Conservation Work Group meetings, the savings reported in this document utilize the same baseline and other planning assumptions (i.e., “frozen) used to set the 2014-2015 biennial conservation target[[7]](#footnote-7). Planning assumptions were held constant over the biennial period to mitigate potential risk associated with updating savings assumptions based on RTF Unit Energy Savings (UES), program evaluation results, or other sources of savings values.

To quantify the level of risk associated with “floating” assumptions, the Company performed a parallel savings analysis to estimate what savings would have been during the 2014-2015 biennial period if assumptions were allowed to float. To perform this analysis, the Company chose to replicate Puget Sound Energy’s method of updating UES values once during the biennial period, effective January 1st of the second year based on updated information available by October 1st of the first year. The Company shared the proposed methodology with its DSM Advisory Group on March 18, 2015, and Advisory Group members agreed that the method was appropriate for the purpose of this risk assessment.

Table 7 shows the results of the floating UES analysis for affected measures. All of the updated UES values shown below are the result of RTF updates between October 2013 and September 2014. As shown, the total impact on reported 2015 savings is 3,300 MWh at site, or 3.3 percent of savings claimed towards satisfying the Biennial Conservation Target. While the percentage impact was relatively small during the 2014-2015 biennium, the analysis illustrates that many measures are affected by RTF updates and that floating UES values with these updates does create risk for a utility in meeting its biennial conservation target.

**Table 7**

**Impacts of Floating UES Values**

| **Program** | **Measure Name** | **Unit** | **Frozen UES (kWh/unit)** | **Updated UES (kWh/unit)** | **UES Change (kWh/unit)** | **2015 Unit Count** | **Floating UES Impact (kWh)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Home Energy Savings | Clothes Washers 3.2 MEF - Electric DHW & Electric Dryer | Measure | 143 | 211 | 68 | 117 | 7,956 |
| Home Energy Savings | Clothes Washers 3.2 MEF - Electric DHW & Gas Dryer | Measure | 54 | 84 | 30 | 0 | 0 |
| Home Energy Savings | Clothes Washers 3.2 MEF - Gas DHW & Electric Dryer | Measure | 106 | 151 | 45 | 39 | 1,755 |
| Home Energy Savings | Clothes Washers 3.2 MEF - Gas DHW & Gas Dryer | Measure | 16 | 24 | 8 | 7 | 56 |
| Home Energy Savings | Refrigerator (CEE Tier 2) Any Style | Measure | 46 | 47 | 1 | 1 | 1 |
| Home Energy Savings | Refrigerator (CEE Tier 3) Any Style | Measure | 85 | 88 | 3 | 1 | 3 |
| Home Energy Savings | Air Sealing - Any Electric Heating System | Sq. ft. |  0.46  |  0.45  |  (0.01) | 2,764 | (28) |
| Home Energy Savings | Attic Insulation - Any Electric Heating System - No Existing Insulation | Sq. ft. | 2.24  |  2.14  |  (0.10) | 40,673 | (4,067) |
| Home Energy Savings | Attic Insulation - Any Electric Heating System | Sq. ft. | 0.70  |  0.26  |  (0.44) | 108,356 | (47,677) |
| Home Energy Savings | Floor Insulation - Any Electric Heating System | Sq. ft. | 1.29  |  0.76  |  (0.53) | 50,056 | (26,530) |
| Home Energy Savings | Wall Insulation - Any Electric Heating System | Sq. ft. | 1.52  | 1.32  |  (0.20) | 22,620 | (4,524) |
| Home Energy Savings | Energy Savings Kit - CFL | Measure | 60 | 32 | (28) | 961 | (26,908) |
| Home Energy Savings | Energy Savings Kit - LED | Measure | 63 | 40 | (23) | 95 | (2,208) |
| Home Energy Savings | Energy Savings Kit - Basic - 1 Bathroom | Measure | 268 | 240 | (28) | 2,024 | (56,672) |
| Home Energy Savings | Energy Savings Kit - Basic - 2 Bathrooms | Measure | 465 | 437 | (28) | 3,083 | (86,324) |
| Home Energy Savings | Energy Savings Kit - Best - 1 Bathroom | Measure | 271 | 248 | (23) | 119 | (2,766) |
| Home Energy Savings | Energy Savings Kit - Best - 2 Bathrooms | Measure | 468 | 445 | (23) | 403 | (9,366) |
| Home Energy Savings | Energy Savings Kit - Better - 1 Bathroom | Measure | 268 | 240 | (28) | 21 | (588) |
| Home Energy Savings | Energy Savings Kit - Better - 2 Bathrooms | Measure | 465 | 437 | (28) | 77 | (2,156) |
| Home Energy Savings | Ductless Heat Pump | Measure | 3,500 | 2,861 | (639) | 84 | (53,676) |
| Home Energy Savings | Manufactured Homes Ductless Heat Pump | Measure | 3,500 | 2,861 | (639) | 5 | (3,195) |
| Home Energy Savings | New Homes Ductless Heat Pump | Measure | 3,500 | 2,861 | (639) | 7 | (4,473) |
| Home Energy Savings | ENERGY STAR Fixture - CFL - Downstream | Measure | 49 | 12 | (37) | 38 | (1,410) |
| Home Energy Savings | ENERGY STAR Fixture - CFL - Upstream | Measure | 49 | 12 | (37) | 237 | (8,795) |
| Home Energy Savings | ENERGY STAR Fixture - LED - Downstream | Measure | 49 | 12 | (37) | 916 | (33,991) |
| Home Energy Savings | ENERGY STAR Fixture - LED - Upstream | Measure | 49 | 12 | (37) | 15,228 | (565,083) |
| Home Energy Savings | CFLs - General Purpose - Retail | Measure | 16 | 10 | (6) | 187,393 | (1,206,811) |
| Home Energy Savings | LEDs - General Purpose (Omnidirectional) - Retail | Measure | 16 | 10 | (6) | 87,288 | (543,804) |
| Home Energy Savings | CFLs - Specialty - Retail | Measure | 17 | 12 | (5) | 37,093 | (177,305) |
| Home Energy Savings | LEDs - Specialty (Decorative and Directional) - Retail | Measure | 29 | 20 | (8) | 47,886 | (389,313) |
| Home Energy Savings | HPWH - Tier 1 - 50 to 75 gallons - Any Heat Type - Unheated Buffer Location  | Measure | 881 | 887 | 6 | 3 | 18 |
| Home Energy Savings | HPWH - Tier 1 - 50 to 75 gallons - Electric Furnace Heated Home - Interior Location  | Measure | 556 | 556 | 0 | 2 | 0 |
| Home Energy Savings | HPWH - Tier 1 - 50 to 75 gallons - Heat Pump Heated Home - Interior Location | Measure | 1,189 | 1,189 | 0 | 5 | 0 |
| Home Energy Savings | HPWH - Tier 1 - greater than 75 gallons - Any Heat Type - Unheated Buffer Location | Measure | 1,811 | 1,817 | 6 | 3 | 18 |
| Home Energy Savings | HPWH - Tier 2 - any tank size >= 50 gallons - Any Heat Type - Unheated Buffer Location | Measure | 1,786 | 1,794 | 8 | 7 | 56 |
| Home Energy Savings | HPWH - Tier 2 - any tank size >= 50 gallons - Gas Heated Home - Interior Location | Measure | 1,726 | 1,724 | (2) | 2 | (4) |
| Home Energy Savings | New Homes HPWH - Tier 1 - 50 to 75 gallons - Heat Pump Heated Home - Interior Location | Measure | 1,189 | 1,189 | 0 | 13 | 0 |
| Home Energy Savings | New Homes HPWH - Tier 2 - any tank size >= 50 gallons - Heat Pump Heated Home - Interior Location | Measure | 1,297 | 1,243 | (54) | 7 | (378) |
| Home Energy Savings | New Homes HPWH - Tier 2 - any tank size >= 50 gallons - Zonal Electric Heated Home - Interior Location | Measure | 994 | 952 | (42) | 0 | 0 |
| **Home Energy Savings Total** |  |  |  |  |  |  | **(3,248,187)** |
| wattsmart Business | Anti-Sweat Heater Controls - Low Temp | Linear ft. | 378 | 230 | (148) | 399 | (59,264) |
| wattsmart Business | Anti-Sweat Heater Controls - Med Temp | Linear ft. | 233 | 369 | 136 | 28 | 3,746 |
| **wattsmart Business Total** |  |  |  |  |  |  | **(55,518)** |
| **Portfolio Total** |  |  |  |  |  |  | **(3,303,705)** |

# 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 2014 and 2015.

1. Assessment of Long-Term, System-Wide Potential for Demand-Side and Other Supplemental Resources, Volume 1 through Volume 5 – Conservation Potential Assessment

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

1. 2014 and 2015 Annual Report(s) on Conservation Acquisition

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

1. Report on its Ten-year Achievable Conservation Potential and its Biennial Conservation Target for 2014 and 2015, filed in Docket UE-132047 on November 1, 2013.

<http://www.utc.wa.gov/docs/Pages/DocketLookup.aspx?FilingID=132047>

1. Demand-side Management Business Plan(s) including November 2014 Update filed in Docket UE-132047.

<http://www.utc.wa.gov/docs/Pages/DocketLookup.aspx?FilingID=132047>

1. Independent third-party process and impact evaluations completed during the 2014-2015 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>

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Appendices

## Appendix 1 – 2014-2015 Plan Condition Requirements and Compliance

## Appendix 2 – Washington Verification of Savings Review

## Appendix 3 – NEEA Memorandum of 2014-2015 Final Savings

1. The cost effectiveness result includes non-energy benefits for the Company Achieved Conservation savings. The Total Achieved Conservation savings, including NEEA, is 1.75. [↑](#footnote-ref-1)
2. Low Income Weatherization program is not included in the portfolio cost effectiveness analysis per WAC 480-109-100(10)(b). [↑](#footnote-ref-2)
3. Washington Conservation Working Group Consensus Document as of June 30, 2011. [↑](#footnote-ref-3)
4. See Appendix 2 of this report for the Savings Verification Report in support of Docket UE-132047 Order 01 section (6)(f). [↑](#footnote-ref-4)
5. See memo from NEEA, Appendix 3 of this report. [↑](#footnote-ref-5)
6. The original target included a range (in MWh) which reflected uncertainty in the production efficiency forecast. The Commission approved the Company’s proposed target as a single number equal to the lower end of the range. The lower end of the range reflected a 0 MWh contribution from Production Efficiency. The Commission approval did not explicitly remove Production Efficiency from the target and the Company is reporting these savings and costs to fully reflect Company initiatives undertaken in compliance with I-937. [↑](#footnote-ref-6)
7. Exceptions to frozen assumptions include using ex-post evaluation results for Home Energy Reports and updating savings for measures impacted by new minimum building code or efficiency standard requirements. [↑](#footnote-ref-7)