

Memorandum

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CC: Stephanie Rider, Senior Manager, NEEA Planning;
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FROM: Christina Steinhoff, Planning Analyst

SUBJECT: 2017 Annual Savings Report

This report provides NEEA's electric energy savings estimates for 2010-2017. These savings estimates are part of NEEA's 2017 Annual Report. This memo summarizes savings results and explains changes from previous savings reports. The appendix provides a brief description of the savings allocation and baseline approaches.

Also attached is a spreadsheet providing additional detail about NEEA's savings calculations.

NEEA would like to thank Bonneville Power Administration for its partnership and continued support of the alliance. Please do not hesitate to contact Christina Steinhoff at 503.688.5427 with any questions about this report.

2017 Savings Estimate Summary

Bonneville's 2017 (calendar year) energy savings associated with NEEA initiatives is 9.7 aMW (Table 1). These energy savings are above the Northwest Power and Conservation Council's 7th Power Plan baseline and exclude an estimate of savings that Energy Trust of Oregon, Bonneville Power Administration and local utilities claim through locally run programs. NEEA allocates energy savings based on funder share.

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Table 1: Bonneville Power Administration's Final 2017 Savings Report

Savings Type	Site-based
Savings Level	Regional
Source of Historical	NEEA tracking (with updates)
Source of Projection	2017 Annual Report
Baseline	6th Power Plan (2010-2015) 7th Power Plan (2016-2021)

Power Plan Savings Forecast (aMW) Pulled: 3/31/2018



Fiscal Year Information

Historical	31.21	16.77	10.23				
Projections				10.61	11.17	11.52	12.30
	2015	2016	2017	2018	2019	2020	2021

Calendar Year Information

Historical	31.40	11.90	9.67				
Projections				10.92	11.25	11.61	12.53
	2015	2016	2017	2018	2019	2020	2021

Notes:

- *The savings are annual incremental site-based savings.*
- *The savings decline in 2016 from 2015 because the Council reset the baseline from 2009 to 2015. Much of the savings from NEEA's work in 2010-2015, such as codes and standards development, are counted in the 7th Power Plan baseline.*
- *The savings forecast does not include programs early in development.*

2017 savings come from a mixture of new programs, existing programs and prior investments.

- **New Programs:** New programs such as Next Step Homes, Super-Efficient Dryers, Certified Refrigeration Energy Specialist and Retail Products Portfolio account for more than 3.5 aMW of 2017 regional savings. These programs are still in early development. NEEA forecasts that the market adoption for products within these initiatives will increase and lead to more savings in the years to come.
- **Existing Programs:** Programs in NEEA's Market Development phase account for nearly 3.0 aMW of the 2017 regional savings. Much of the savings come from market transformation within the Heat Pump Water Heaters and Ductless Heat Pump markets. All major water heater manufacturers are now making and marketing multiple models of Heat Pump Water

Heaters. NEEA estimates that Heat Pump Water Heaters made up more than 6% of the total installations of water heaters in the Northwest in 2017 (existing and new construction). While the overall volume of regional DHP sales has continued to grow steadily, NEEA's market research and evaluation efforts have revealed that the greatest growth is happening in applications outside of NEEA's targeted markets (e.g. commercial, new construction, multifamily, and even gas-heated homes).

- Previously Funded Investments: Previous NEEA investments such as 80 Plus Power Supplies, CFLs, Commissioning and Efficient Motor Rewinds contributed nearly 4 aMW of the 2017 regional savings. Further improvements in energy efficiency from these products continue to bring savings to the region.
- Other Trackable Measures: NEEA manages the Regional Residential Lighting Model developed by Bonneville. This model allows NEEA to estimate savings from LEDs that are not being reported by local programs. These 'trackable measure' savings amounted to 15.5 aMW above the 7th Power Plan Baseline. In late April, NEEA will provide a separate report to BPA estimating the total change in energy consumption so Bonneville can assess the Momentum savings from lighting measures.

Update from the December Forecast

In December 2017, NEEA provided a savings forecast to Bonneville. Since that time, the savings estimates have been updated based on final 2017 sales and savings data as well as some new data for 2016.

2017

NEEA's 2017 savings estimate has decreased by 2.5 aMW from the forecast NEEA sent to Bonneville in December. Almost 2 aMW of this decline came from the residential lighting market. Specifically, the decline was primarily due to a greater number of utility programs providing incentives on a much higher proportion of LED lamps than previously forecast (67% compared to a forecasted 57%). Rapidly declining CFL lamp sales (1.8 million total compared to a forecast of 4 million) also impacted lighting savings as did a slight increase in the average wattage for both CFLs and LEDs.

The balance of the savings decline from NEEA's December forecast comes from commissioning (0.4 aMW). The market shifted towards new building commissioning and away from re-, on-going-, and retro-commissioning. In survey responses, individual commissioning firms noted that the demand for new building commissioning was extremely high, particularly in Washington, which caused them to shift their focus this year. This is likely because the new Washington code requires

new building commissioning. New building commissioning savings are counted in the 7th PP baseline.

The remaining savings decline was spread across programs where the market adoption was slightly lower than the December forecast.

2016

The 2016 savings estimate declined by 0.1 aMW from the December report. The decrease came from the Retail Products Portfolio program. This program collects retail sales data for refrigerators, clothes washers, freezers and other consumer product. Historical values can change because:

1. NEEA asks retailers resubmit their sales data due to of anomalies
2. NEEA adds new retailers to the database
3. NEEA's contractor continues to improve the model-matching process

Additional Value Deliver

In addition to Market Transformation programs, the alliance invests in infrastructure (i.e. training, tools and resources), data and research that do not directly deliver energy savings but do support regional efficiency programs, increase the market's ability to deliver greater efficiency and improve NEEA's ability to measure and verify energy savings. For example, in 2017 the alliance:

- Submitted Heat Pump Water Heater, Residential Lighting, Clothes Washers and Dryers data to the Regional Technical Forum to support measure development.
- Provided water heating, room air conditioning and clothes washer sales data Bonneville to support Momentum savings estimates.
- Provided T5 high output linear fluorescent lamp sales data from the alliance's Distributor Platform to the RTF to support for the midstream Non-Residential Lighting UES development.
- Supported expansion of distributor data collection (previously used exclusively for Ductless Heat Pump data) to include a range of equipment through joint effort with Bonneville.
- Completed the second comprehensive inventory of existing Northwest residential Buildings - the Residential Building Stock Assessment, to inform energy efficiency programs as well as regional power planning efforts
- Created the region's first shared emerging technology database to increase regional visibility into emerging technology activities across organizations and reduce development costs by avoiding redundancies

- Launched the first end-use load research effort in the region since the 1980's to support regional planning and efficiency program design
- Developed robust on-line resource centers (BetterBuilt NW, BetterBricks, and SEM Hub) to support and promote energy-efficient practices and to connect key market actors with energy efficiency information and efficiency programs
- Raised market capability for energy efficiency through targeted skills and knowledge training (e.g. industrial technical training, advanced lighting training, and code compliance training, etc.).
- Published 18 market research and evaluation reports to inform market transformation program design and provide critical data and analysis
- Facilitated regional coordination in the Commercial & Industrial Lighting and Consumer Products markets through regional steering committees

Appendix A: Methodology to Forecast 7th Power Plan Savings

Allocation Methodology

NEEA allocates regional savings (Idaho, Montana, Oregon, and Washington) using funder share of investment, which vary based on the funding cycle. Savings from previous investments receive the previous funder share. Savings from current investments receive the current funder share. Table 2 shows the funder shares.

Table 2: Funder Shares

Funder Share

Bonneville Power Administration

2015-2019	36.21%
2010-2014	35.71%
Previous (pre 2010 investments)	48.70%

Note: NEEA uses the 2015-2019 funder share for the 2020-2021 savings allocation.

Baseline and Technical Assumptions

This report uses the Northwest Power and Conservation Council's 6th Power Plan baseline for 2010-2015 and 7th Power Plan Baseline for 2016-2021. NEEA aligns components of its initiatives with measures in the Power Plan to establish a baseline from which to count savings. NEEA reviews the alignment with the Council.