Memorandum

March 31, 2018

TO: Jeff Stafford, Tacoma Power, Conservation Resources Management

CC: Stephanie Rider, Senior Manager, NEEA Planning;
Susan Hermenet, Director, NEEA Planning, Evaluation & Technology

FROM: Christina Steinhoff, Planning Analyst

SUBJECT: Final 2017 Annual Report

This report provides NEEA's electric energy savings estimate for 2015-2017 and a forecast for 2018-2021. Tacoma Power can report the 2016-2017 values as well as its share of Bonneville Power Administration's Remaining Savings as I-937 savings.[1] This memo summarizes the results and explain 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 Tacoma Power 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

Tacoma Power's 2017 (calendar year) energy savings associated with NEEA initiatives is 0.28 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.

[1] Contact Eliud Imbuye at the Bonneville Power Administration (BPA) for savings associated with investment in NEEA through the BPA.

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Table 1: Calendar Year Remaining Savings Estimate (aMW)

	Programs	2016	2017	Total (2016-2017)	2018 Forecast (with range)	
Residential	Ductless Heat Pumps	0.01	0.01	**0.02**	0.02	*(0.01-0.02)*
	Heat Pump Water Heaters	0.01	0.01	**0.02**	0.01	*(0.01-0.01)*
	Residential Lighting (LED)	0.23	0.17	**0.40**	0.16	*(0.12-0.16)*
	Residential Lighting (CFLs)	0.02	0.01	**0.03**	0.01	*(0.01-0.01)*
	Residential New Construction/Next Step Homes	0.01	0.02	**0.03**	0.01	*(0.01-0.01)*
	Other Codes (Multifamily)	-	0.00	**0.00**	0.00	*(0.0-0.0)*
	Refrigerators	0.00	-	**0.00**	-	*(0.0-0.0)*
	Clothes Washers	0.01	-	**0.01**	-	*(0.0-0.0)*
	Retail Product Portfolio (Clothes Washers)	-	0.01	**0.01**	0.01	*(0.01-0.01)*
	Retail Product Portfolio (Refrigerators/Freezers)	0.00	0.00	**0.00**	0.01	*(0.0-0.01)*
	Retail Product Portfolio (Room Air Conditioners)	0.00	0.00	**0.00**	0.00	*(0.0-0.0)*
	Retail Product Portfolio (Home Audio)	0.00	0.00	**0.00**	0.00	*(0.0-0.0)*
	Retail Product Portfolio (Air Cleaners)	-	0.00	**0.00**	-	*(0.0-0.0)*
	Super-Efficient Dryers	0.01	0.01	**0.02**	0.01	*(0.0-0.01)*
Commercial	**Building Operator Certification Expansion**	0.00	0.00	**0.00**	0.00	*(0.0-0.0)*
	Commercial Infrastructure Projects	0.00	-	**0.00**	-	*(0.0-0.0)*
	Commissioning Buildings	0.01	0.01	**0.02**	0.01	*(0.01-0.01)*
	Desktop Power Supplies	0.02	0.02	**0.04**	0.02	*(0.02-0.02)*
	Luminaire Level Lighting Controls	-	-	**-**	0.00	*(0.0-0.0)*
	Other Codes (Commercial)	-	-	**-**	0.01	*(0.0-0.01)*
	Other Non-Residential Standards	-	-	**-**	0.03	*(0.03-0.04)*
	Reduced Wattage Lamp Replacement	0.00	0.00	**0.00**	0.00	*(0.0-0.01)*
Industrial	Certified Refrigeration Energy Specialist (CRES)	0.00	0.00	**0.00**	0.00	*(0.0-0.0)*
	Drive Power	0.00	0.00	**0.00**	0.00	*(0.0-0.0)*
	Reduced Wattage Lamp Replacement	0.00	0.00	**0.00**	0.00	*(0.0-0.0)*
Total		0.33	0.28	**0.61**	0.32	*(0.25-0.34)*

- *These are annual, incremental site-based savings.*
- *Remaining Savings is Regional Savings from efficiency measures net of savings claimed through the Energy Trust of Oregon, the Bonneville Power Administration and local utility programs. The savings are above the baseline defined by the 7th Power plan.*
- *The forecast does not include programs NEEA is assessing including Industrial Product Labeling, Window Attachments, Manufactured Homes and Heat Pump Water Heater Split System.*

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 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.

Variance from Prior Report

The 2017 savings decreased by 0.1 aMW from the values NEEA reported to Tacoma in March. The update is based on final 2017 data.

Additional Value Delivery

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 Estimate 7th Power Plan Savings

Allocation Methodology

NEEA allocates the regional savings (Idaho, Montana, Oregon, and Washington) using funder shares. The shares vary based on the funding cycle. Savings from previous investments receive the previous funder share. Savings from current investments receive the current funder share. The funder shares are available in the attached spreadsheet.

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 annually to assure the savings count toward Power Plan targets.

Local Programs

To avoid double counting, the values exclude an estimate of savings the Energy Trust of Oregon, Bonneville Power Administration and local utilities claim through their programs. NEEA surveys these stakeholders every February to estimate the savings overlap. Then, NEEA subtracts theses savings from the regional value to calculate Remaining Savings.