

Memorandum



Aug. 14, 2015

TO: Dan Johnson, Director of Energy Efficiency, Avista Utilities

FROM: Christina Steinhoff, Planning Analyst

CC: Stephanie Rider, Senior Manager, NEEA Planning; Susan Hermetet, Director of Planning, Evaluation and Technology

SUBJECT: 2016-2017 Biennial Savings Forecast Final

Avista Washington, Pacific Power Washington and Puget Sound Energy have a joint approach to claim savings from NEEA initiatives. As part of the utilities' biennial savings updates, NEEA provides a two-year electric energy savings forecast.¹ The utilities subtract the savings estimates from the first two years of their ten-year electric conservation potential to determine their Biennial Conservation Target.

Below are NEEA's values for the 2016-2017 Biennial Conservation Target. Appendix A documents how NEEA developed the values and the attached Excel spreadsheet contains the baseline and technical assumptions.

Please contact Christina Steinhoff at 503.688.5427 with any questions about this report.

2016-2017 Biennial Savings Forecast

NEEA forecasts Avista Washington's share of annual electric energy savings associated with its initiatives for 2016-2017 is 0.71 aMW (Table 1). The energy savings forecast is above the Northwest Power and Conservation Council's (Council) draft 7th Power Plan baseline and exclude an estimate of savings the Energy Trust of Oregon, Bonneville Power Administration, and local utilities claim through their programs. NEEA allocates the savings using funder shares.

¹ Under the joint agreement, these utilities agreed that NEEA would develop a Total Regional Savings estimate using baseline and technical assumptions from the most recent Power Plan. NEEA would remove estimated savings counted by the utilities, the Bonneville Power Administration and the Energy Trust of Oregon. NEEA would allocate the estimated savings to these utilities based on their NEEA funder share percentage.

Table 1: Preliminary Biennial Remaining Savings Estimate

Sector	Initiative	2016		2017		Biennial Target
		Regional Savings	Remaining Savings	Regional Savings	Remaining Savings	Remaining Savings
Residential	Ductless Heat Pumps	0.20	0.06	0.24	0.10	0.15
Residential	Heat Pump Water Heaters	0.03	0.02	0.04	0.02	0.04
Residential	Residential Lighting	0.24	0.11	0.21	0.12	0.23
Residential	Residential New Construction ¹	0.01	-	0.05	0.03	0.03
Multiple Sectors	Standards ²	-	-	-	-	-
Commercial	Building Operator Certification Expansion	0.04	0.02	0.04	0.03	0.05
Commercial	Reduced Wattage Lamp Replacement	0.06	0.05	0.11	0.10	0.15
Commercial	Commissioning	0.02	0.02	0.02	0.02	0.04
Commercial	Commercial Codes	0.00	0.00	0.01	0.01	0.01
Industrial	Drive Power Motor Rewinds	0.00	0.00	0.00	0.00	0.00
Total		0.61	0.29	0.72	0.43	0.71

¹Includes a savings forecast for the next Washington and Oregon code.

²2016 and 2017 savings from NEEA's standards work are either in the 7th Power Plan load forecast or in the measure baseline. (See Appendix B)

NEEA does not report savings forecasts for initiatives that are pre Market Development Phase². These initiatives include the following:

- RETA Operator Certification*
- Clothes Dryers*
- Commercial Real Estate and Existing Building Renewal*
- Luminaire Level Lighting Controls*
- Retail Products Portfolio*



Appendix A: Methodology to Set Biennial Targets

Allocation Methodology

NEEA allocates the regional savings 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. Table 2 shows the funder shares.

Table 2: Avista Washington's Funder Share for the 2016-2017 Savings Forecast

Funder Share

Avista Washington

Current	4.03%
2010-2014	3.89%
Previous (pre 2010 investments)	2.77%

Note: Avista's Washington funding share is 70% of its total NEEA funding share (Idaho plus Washington).

Baseline and Technical Assumptions

Because the Council will not have a final 7th Power Plan until the first quarter of 2016, this report uses the 7th Power Plan baseline and technical assumptions available as of August 12, 2015. NEEA met with Council staff in June 2015 to align its measures. NEEA will use these assumptions to report actual savings against the targets.

Appendix B: Standards included in the 7th Power Plan

Table 3: Compliance Date of Standards included in the 7th Power Plan Load Forecast or Measure Baseline

Sector	Product Regulated	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
All	Battery Charger Systems					✓						
	External Power Supplies							✓	✓			
	General Service Fluorescent Lamps			✓		✓				✓		
	General Service Incandescent Lamps			✓	✓	✓						✓
	Incandescent Reflector Lamps								✓			
	Metal Halide Lamp Fixtures								✓			
Residential	Boilers			✓								
	Central Air Conditioners and Heat Pumps						✓					
	Clothes Dryers						✓					
	Clothes Washers						✓			✓		
	Dehumidifiers			✓								
	Dishwashers				✓						✓	
	Furnace Fans										✓	
	Microwave Ovens							✓				
	Pool Heaters				✓							
	Refrigerators/Freezers					✓						
	Room Air Conditioners					✓						
	Water Heaters							✓				
Commercial	Automatic Ice Makers	✓								✓		
	Boilers			✓								
	Clothes Washers				✓							
	Packaged AC and Heat Pumps (65-760 kBtu/hr)	✓									✓	
	Packaged AC and Heat Pumps (<65 kBtu/hr)									✓		
	Packaged Terminal AC and Heat Pumps	✓								✓		
	Refrigerated Beverage Vending Machines			✓								
	Refrigeration Equipment	✓		✓					✓			
	Single Package Vertical AC and Heat Pumps	✓								✓		
	Walk-in Coolers and Freezers						✓		✓			
	Water and Evaporatively Cooled CAC and HP				✓	✓						
	Water Heaters										✓	
	Water Source Heat Pumps		✓							✓		
Commercial/ Industrial	Distribution Transformers							✓		✓		
	Pumps											
	Small Electric Motors						✓					
	Electric Motors	✓						✓				

Note: NEEA staff members actively participated in the rule making process of the **bolded** standards listed.



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MEMORANDUM

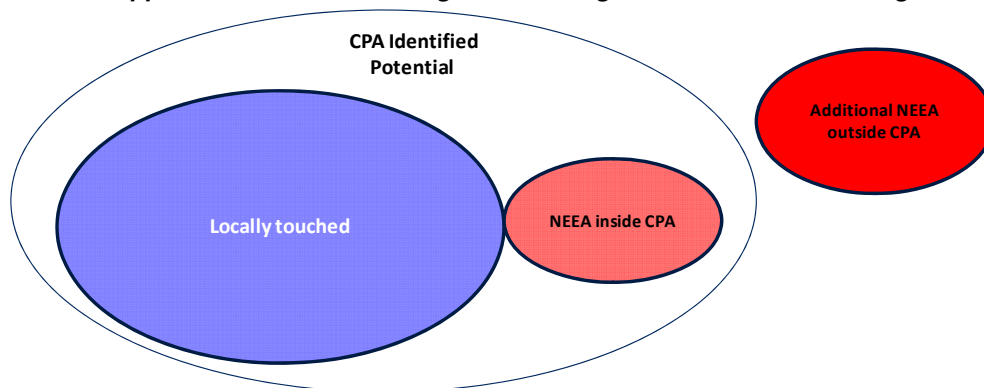
To: Mike Dillon
From: Bridget Kester
CC: Ingrid Rohmund, David Costenaro
Date: September 22, 2015
Re: NEEA Pro-rata Savings Projection

Background

Avista Utilities has requested that AEG quantify the projected savings from the Northwest Energy Efficiency Alliance (NEEA) measures within Avista's Conservation Potential Assessment (CPA) for the 2016-2017 biennium. This question relates to the Washington Utility and Transportation Commission (WUTC) regulatory treatment of NEEA savings and the extent to which they fulfill Avista's I-937 target.

Avista's 10-year achievable conservation potential for Washington from the most recent CPA is 44.6 aMW. The biennium target is determined by taking 20% of the 10-year potential. Based on the CPA, the biennium target is 8.92 aMW. A portion of this target will come from the measures that are driven by NEEA. This exercise will separate out the NEEA measures that were included in the CPA so the correct pro-rata share is allocated to Avista. The impact from some of the NEEA measures, such as heat pump water heaters is expected to grow significantly later in the forecast as customers become more familiar with the technology and costs come down. Therefore Avista would like to separate out the NEEA measures from the 10-year potential estimate in order to develop a more accurate biennium target for Avista Utilities.

Figure 1 *General Approach for Characterizing NEEA Savings in Relation to CPA Target*



NEEA Measures Within the CPA

NEEA projects savings for a variety of measures, some of which are included in the CPA. Table 1 provides a list of all measures for which NEEA projects savings.

Table 1 NEEA Projected Savings, 2016-2017

Sector	Initiative	2016		2017		Biennial Target
		Regional Savings	Remaining Savings	Regional Savings	Remaining Savings	Remaining Savings
Residential	Ductless Heat Pumps	0.20	0.06	0.24	0.10	0.15
Residential	Heat Pump Water Heaters	0.03	0.02	0.04	0.02	0.04
Residential	Residential Lighting	0.24	0.11	0.21	0.12	0.23
Residential	Residential New Construction ¹	0.01	-	0.05	0.03	0.03
Multiple Sectors	Standards ²	-	-	-	-	-
Commercial	Building Operator Certification Expansion	0.04	0.02	0.04	0.03	0.05
Commercial	Reduced Wattage Lamp Replacement	0.06	0.05	0.11	0.10	0.15
Commercial	Commissioning	0.02	0.02	0.02	0.02	0.04
Commercial	Commercial Codes	0.00	0.00	0.01	0.01	0.01
Industrial	Drive Power Motor Rewinds	0.00	0.00	0.00	0.00	0.00
Total		0.61	0.29	0.72	0.43	0.71

¹ Includes a savings forecast for the next Washington and Oregon code.

² 2016 and 2017 savings from NEEA's standards work are either in the 7th Power Plan load forecast or in the measure baseline. (See Appendix B)

NEEA does not report savings forecasts for initiatives that are pre Market Development Phase². These initiatives include the following:

- RETA Operator Certification*
- Clothes Dryers*
- Commercial Real Estate and Existing Building Renewal*
- Luminaire Level Lighting Controls*
- Retail Products Portfolio*

NEEA Initiatives with savings identified as inside the CPA

- **Residential, Heat Pump Water Heaters and Lighting:** The CPA analyzed these measures and found associated cost-effective savings potential. Therefore AEG recommends that these NEEA initiatives be considered as means to achieve savings identified within the CPA.
- **Commercial, Building Operator Certification Expansion:** These NEEA initiatives are a means to reach building operators and encourage them to implement measures that were explicitly modeled within the CPA, such as various equipment retrofits or control and operational strategies. Therefore AEG recommends that these NEEA initiatives be considered as means to achieve savings identified within the CPA.
- **Commercial, Reduced Wattage Lamp Replacement:** The CPA analyzed these measures and found associated cost-effective savings potential. Therefore AEG recommends that these NEEA initiatives be considered as means to achieve savings identified within the CPA.
- **Commercial, Commissioning:** The CPA analyzed these measures and found associated cost-effective savings potential. Therefore AEG recommends that these NEEA initiatives be considered as means to achieve savings identified within the CPA.
- **Industrial, Drive Power Motor Rewinds:** The CPA includes measures for efficient motor rewinds. Therefore AEG recommends that these NEEA initiatives be considered as means to achieve savings identified within the CPA.

NEEA Initiatives with additional savings

- **Residential, Ductless Heat Pumps:** The CPA evaluated ductless heat pumps, but did not identify cost-effective savings for this measure based on the inputs used. AEG recommends that the NEEA projected savings should be considered additional savings.
- **Residential, New Construction:** The CPA baseline assumes that all new construction is built to meet energy codes. Therefore, no potential is associated with codes and standards in the CPA. NEEA's reported savings should be classified as additional savings.
- **Multiple sectors, Standards:** The CPA baseline assumes that all new equipment purchases meet minimum appliance standards. Therefore, no potential is associated with codes and standards in the CPA. NEEA's reported savings should be classified as additional savings.
- **Commercial, Commercial Codes:** The CPA baseline assumes that all new construction is built to meet energy codes. Therefore, no potential is associated with codes and standards in the CPA. NEEA's reported savings should be classified as additional savings.

Table 2 shows the results of the analysis for each NEEA initiative for 2016 and 2017 compared with the projected savings from NEEA. Where the CPA included a directly comparable measure, we provide the CPA savings potential in the column labeled "CPA Savings 2016-2107 aMW." If the CPA identified savings for a NEEA measure, the savings are included in the column "NEEA Savings Inside the CPA." If the savings identified by NEEA exceed the amount identified by the CPA, the remaining savings are allocated to the column labeled "NEEA Additional Savings." If the savings from the CPA exceed the savings from NEEA, the savings identified by NEEA are included in the column "NEEA Savings Inside the CPA." The remaining savings are potential that Avista could achieve outside of NEEA.

Table 2 Comparison of NEEA Projected Savings and the CPA by NEEA Measure

Sector	Initiative	NEEA Savings 2016-2017 aMW	CPA Savings 2016-2017 aMW	NEEA Savings Inside the CPA	NEEA Additional Savings
Residential	Ductless Heat Pumps	0.15	-	-	0.15
Residential	Heat Pump Water Heaters	0.04	0.00	0.00	0.04
Residential	Residential Lighting	0.23	1.26	0.23	
Residential	Residential New Construction	0.03	Included in baseline	-	0.03
Multiple Sectors	Standards	-	Included in baseline	-	-
Commercial	Building Operator Certification Expansion	0.05	Included in other measures	0.05	
Commercial	Reduced Wattage Lamp Replacement	0.15	1.09	0.15	
Commercial	Commissioning	0.04	0.03	0.03	0.01
Commercial	Commercial Codes	0.01	Included in baseline		
Industrial	Drive Power Motor Rewinds	0.00	-	-	0.00
Total		0.71	2.38	0.47	0.23

For both the residential and commercial sectors, the amount of savings identified in the CPA for lighting exceeds the amount identified by NEEA. The additional savings are savings that could be achieved by Avista in addition to the NEEA savings. In order to calculate the percent of the 10-year potential we calculated the ratio of the CPA savings that are attributed to NEEA. For the residential sector 19% of the CPA lighting savings are due to NEEA. For the commercial sector, 14% of the lighting savings are due to NEEA. We then applied these percentages to the 10-year potential in 2025 to calculate the savings that are due to NEEA measures.

Table 3 shows the projected 10 year savings in the CPA for each of the NEEA measures. The percentage is then allocated to develop an estimate of CPA savings due to NEEA measures in 2025. As shown, the estimated savings in 2025 from NEEA measures is 4.53 aMW. In order to develop the biennium target, the 10-year potential from 2025 is divided by five. The end result is that 0.91 aMW of the biennium target is attributed to NEEA.

Table 3 Allocation of 10 Year Potential to NEEA Measure

Sector	Initiative	Projected CPA Savings 2025 (aMW)	% of CPA Savings for NEEA	CPA Savings from NEEA Measures 2025 (aMW)	Biennium aMW in CPA from NEEA measures
Residential	Ductless Heat Pumps	-	100%	-	-
Residential	Heat Pump Water	0.21	100%	0.21	0.04
Residential	Residential Lighting	5.74	19%	1.06	0.21
Residential	Residential New	-	100%	-	-
Multiple Sectors	Standards	-	100%	-	-
Commercial	Building Operator Certification	-	100%	-	-
Commercial	Reduced Wattage Lamp Replacement	14.87	14%	2.11	0.42
Commercial	Commissioning	1.09	100%	1.09	0.22
Commercial	Commercial Codes	-	100%	-	-
Industrial	Rewinds	0.05	100%	0.05	0.01
Total		21.96		4.53	0.91

Conclusions and Summary

The CPA identified 44.6 aMW of conservation savings by 2025 in Avista's service territory in Washington. A portion of those savings are a result of savings from efforts by NEEA. AEG identified where the CPA overlaps with NEEA savings in order to separate the NEEA savings from the savings attributed to Avista. According to rules in Washington, the biennium target should be determined by looking at the 10-year conservation target and dividing by five. In order to do this, AEG looked at the results of the 10-year projection for the measures identified in the CPA as overlapping with NEEA. In 2025, ten years from the start of the forecast, the overlap in savings with NEEA accounts for 4.53 aMW. As a result, 0.91 aMW of the 8.92 aMW biennium target identified in the CPA are attributed to NEEA measures. Table 4 below summarizes the allocation of savings from the CPA. NEEA savings account for 10% of the total potential biennium target. As a result the modified biennium target for Avista is 8.01 aMW.

Table 4 Summary of CPA Savings and Biennium Target

Source of Savings	2025 Savings (aMW)	Biennium Target (aMW)	% of Total Savings
NEEA	4.53	0.91	10%
CPA Non-NEEA	40.06	8.01	90%
CPA Total	44.60	8.92	100%