

# **Appendix C**

## APPENDIX

### Appendix C: NEEA 2023 Savings Report Memo

# Memorandum

3/20/2024

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CC: Stephanie Rider, Director, Data, Planning, and Analytics, NEEA; Susan Hermenet, Vice President, Research, Evaluation and Analytics, NEEA; Virginia Mersereau, Vice President, Corporate Strategy, Relationships and Communication, NEEA

SUBJECT: Pacific Power's 2023 Annual Savings Report

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NEEA is an alliance of utilities and energy efficiency organizations that pools resources and shares risks to transform markets toward energy efficiency that benefits consumers in the Northwest. The alliance works together to accelerate the innovation and adoption of energy-efficient products, services, and practices in the Northwest. By pooling together regional resources, NEEA:

- Leverages relationships with the Department of Energy, trade allies, and national and regional manufacturers to identify and advance new efficient technologies, product designs, test procedures, product specifications and standards to increase the availability and demand for energy-efficient products, services and practices,
- Conducts research and energy use analysis, market characterization studies, and stock assessments to help the region identify the best efficiency opportunities and inform utilities resource planning efforts,
- Defines and executes program strategies to remove market barriers leading to increased adoption of the most energy efficient products available,
- Builds relationships with midstream supply chain partners such as distributors, retailers, and trade allies to collect regional data and build market capability and infrastructure to increase availability within the Northwest of the most efficient products,
- Gathers, cleans, and analyzes sales, shipment, and distributor data to track markets and inform regional investment decisions.

NEEA's end goal is to make energy efficiency a self-sustaining standard of practice in markets. Codes and standards are a core element of locking in that permanent market change, so NEEA works at state and national levels to influence more efficient building codes and equipment efficiency standards to save customers energy and ensure that Northwest needs are represented in the process.

Utilities, energy efficiency administrators, and the Regional Technical Forum all benefit from NEEA's work through knowledge sharing, the development of new energy efficiency measures, and the resulting market changes leading to energy savings.

As such, Washington investor-owned utilities (WA IOUs) have asked NEEA to forecast and track savings in two-year periods as one benefit from the alliance's work. This memo reports these savings for 2022-2023 along with the two-year forecast NEEA provided in August 2021.

NEEA allocates the savings based on each utility's funding share<sup>1</sup> of NEEA's regional investment. The savings are above a common baseline established by the WA IOUs and are net of savings claimed through regional utility programs<sup>2</sup>. [Appendix A](#) documents NEEA's methodology to estimate savings. Details about baseline and technical assumptions are in the attached Excel spreadsheet.

Please contact Christina Steinhoff at [csteinhoff@neea.org](mailto:csteinhoff@neea.org) with any questions about this report.

## **2022-2023 Savings Estimate**

NEEA estimates that Pacific Power's savings for the 2022-2023 Biennium is 0.74 aMW. The results are within range of the original forecast (Table 1). The *2022-2023 Summary* worksheet in the attached spreadsheet documents the variances from the original forecast by program.

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<sup>1</sup> Funding share is the portion of NEEA budget provided by each stakeholder. NEEA calculates the shares using each electric funding utility's regional customer count and retail sales from the Energy Information Administration.

<sup>2</sup> Regional utility programs comprise programs run by the Bonneville Power Administration, the Energy Trust of Oregon and local utility programs. These programs provide NEEA an estimate of their annual incented units. NEEA multiplies savings rate and baseline saturation assumptions by the units to estimate local program savings. NEEA subtracts these values prior to reporting savings to its funders to avoid double counting.

**Table 1: 2022-2023 aMW Savings<sup>3</sup>**

	2022	2023	Total	Forecasted (August 2021)
<b>Total</b>	<b>0.35</b>	<b>0.39</b>	<b>0.74</b>	<b>0.77</b>
Program Measures	0.27	0.31	0.57	0.59
Residential	0.23	0.27	0.50	0.49
Commercial	0.04	0.03	0.07	0.08
Industrial/Agricultural	0.01	0.01	0.01	0.01
New Construction (Codes)	0.06	0.07	0.13	0.18
Residential	0.05	0.04	0.09	0.15
Commercial	0.01	0.03	0.04	0.02
Products (Standards)	0.02	0.02	0.03	0.01
Residential	0.00	0.00	0.01	0.01
Non-residential	0.01	0.01	0.03	0.00

*These are site-based, first-year savings. NEEA allocates the regional savings (Idaho, Montana, Oregon, and Washington) using funder shares. To avoid double counting savings, these values net out an estimate of savings the Bonneville Power Administration, the Energy Trust of Oregon and local utilities claim through their local programs.*

## 2023 Highlights

The first-year energy savings are the result of NEEA’s multi-year efforts on behalf of Pacific Power to transform markets to be more energy efficient through work that spans [in-market programs](#), [codes and standards](#), [emerging technology](#), as well as complementary [data collection and research efforts](#). The sections below highlight NEEA’s work in 2023 to maintain the savings stream over time.

### In-market Programs

NEEA operates a portfolio of Market Transformation programs in seven cross-sector groups—consumer products, building envelope, HVAC, lighting, motors, new construction, and water heating. The programs within these sectors intervene in markets to create lasting change by removing barriers and leveraging opportunities.

#### Consumer Products

##### Dryers

NEEA’s role as a founding member in a national coalition of efficiency advocates (Super-Efficient Dryer Initiative) promoted the introduction of advanced clothes dryers in North America. This work led to the first ENERGY STAR specification for dryers as well as the ENERGY STAR Emerging Technology Award for heat pump dryers in 2012. ENERGY STAR leveraged NEEA data to support revisions to the dryer testing protocol,

<sup>3</sup> The funders requested NEEA group savings as Program Measures, New Construction Codes, or Products Standards. Program Measures refers to energy savings from market transformation programs, where the savings associated with a change in an energy code or standard has been netted out, as requested by the funder. Codes and Standards refers to savings associated with either a Market Transformation program or adjacent market work covered by a state building energy code or a federal/state appliance standard where NEEA's market influence, technical knowledge and data are relevant and influence the proceedings.

and more recently, the establishment of an ENERGY STAR Most Efficient specification for heat pump dryers. In 2023, two manufacturers introduced combination washer/dryer units that utilize heat pump drying technology into the market.

### **Televisions**

At the beginning of 2023, NEEA and other efficiency advocates secured all major TV manufacturers to sign on to a voluntary agreement to meet standby mode power of <2 watts and to establish an on-mode power compliance level in early 2024. This was enabled through several years of NEEA's work funding development of a new test procedure that has now been adopted by ENERGY STAR, the DOE and the California Energy Commission and is currently in use by TV manufactures worldwide.

### **Retail Products Portfolio (RPP)**

During 2023, three new utility sponsors joined the ENERGY STAR RPP program, bringing the share of US households represented by program sponsors up to 24.2%. Achieving greater scale is one way NEEA and the ESRPP program increases the collective influence that the program can have on retailer assortment decisions and ultimately manufacturer product roadmaps and new ENERGY STAR specifications.

### **New Construction**

#### **Manufactured Homes**

NEEA completed a Transition Market Progress Evaluation Report to assess the market progress of the Northwest Energy Efficient Manufactured Housing (NEEM+)+ specification—a certification NEEA supports that is more stringent than ENERGY STAR. The study found that home sales of NEEM+ has been steady over the past two years and that NEEA should continue to monitor the market to ensure that the homes remain a viable alternative on an ongoing basis.

### **Standards and Test Procedures**

To speed up the rule-making process, NEEA and energy efficiency advocates entered into a multi-product agreement with the Association of Home Appliance Manufacturers (AHAM) to negotiate several appliance standards. AHAM agreed to more stringent efficiency levels in most cases. Meanwhile, NEEA and the advocates conceded more time for manufacturers to comply. The agreement helped avoid lawsuits that could have delayed the standards process for many products, including clothes washers, clothes dryers, and refrigerators.

Overall, NEEA responded to more than 27 requests for comment from the Department of Energy regarding Federal standards and test methods. These comment letters covered more than 25 products including consumer furnaces, water heaters, circulating pumps, and clothes dryers. NEEA's comments provided regional data and recommendations to help the DOE set appropriate rules that provide Northwest benefits and are supportable by the market.

Notably, the DOE adopted a new Electric Motors standard. NEEA influence the development of this standard through working with the National Electrical Manufacturers Association (NEMA) to find common ground and through providing comments throughout the rule-making process based on its experience with motor market transformation programs in the Northwest. NEEA now is planning for savings modeling and influence evaluation work to quantify the value of this achievement.

## **Building Energy Codes**

Draft results of a third-party review of NEEA's work show that NEEA is influencing code development both nationally and in the region by bringing proposals to decision makers in Oregon, Washington and to the Internal Energy Conservation Code (IECC), which is the basis for Montana and Idaho codes. NEEA is also filling gaps in the energy code process in each state. Additionally, more than half of commercial and residential market actors report that NEEA-supported training is positively influencing their knowledge, behaviors, or attitudes. NEEA expects to publish the report in Q2 2024.

## **Emerging Technology**

Six ENERGY STAR product categories went into effect, which NEEA provided input. Most significantly, Residential HVAC products, including central and ductless AC and heat pumps, went into effect in January 2023, and ENERGY STAR integrated several key pieces of feedback from NEEA. ENERGY STAR Version 5.0 for water heaters went into effect in April 2023, encompassing heat pump water heaters, whole home tankless, and high efficiency gas storage units. Work on updating the water heater specification began in 2021, and ENERGY STAR incorporated NEEA feedback on performance and connectivity in the final specification. The updated residential Windows, Doors, and Skylights specification went into effect in October 2023. NEEA played a significant role in advancing the specification through our leadership in the Partnership for Advanced Window Solutions. Residential Dishwashers and Light Commercial HVAC also went into effect in 2023, and ENERGY STAR added Residential Cooking products as a category in 2023. Lastly, a Clothes Dryers revision and a new Micro Heat Pump specification opened in late 2023.

## **Data Collection and Research**

### *Building Stock Assessments*

NEEA finished collecting building characteristic and energy consumption data on single-family and multi-family homes and will publish data and reports in Q1 2024. The Residential Building Stock Assessment (RBSA) provides data on the existing housing stock in the Northwest to help with planning. The 2022 RBSA includes the addition of tracking solar panels, electric vehicle chargers, presence of electric vehicles and accessory dwelling units. NEEA also began planning for the next Commercial Building Stock Assessment, which will be in field in 2024.

### *Market Data and Research*

Several programs are in the midst of their first market progress evaluation report, including the Commercial HVAC programs (High-Performance HVAC and gas Efficient Rooftop Units) and the Extended Motor Products program. These evaluations will bring increased understanding of the market opportunity for these measures, as well as NEEA's progress toward its Market Transformation goals. NEEA is also conducting several state energy code compliance and standard influence evaluations in the field.

### *Monitoring & Tracking*

NEEA is monitoring the progress in the ductless heat market. NEEA formally began its DHP program in 2008 with a goal to displace inefficient electric heating (such as baseboard heaters and inefficient electric forced-air furnaces) from single-family homes. [NEEA's Long-term Monitoring and Tracking Report](#) showed that the total number of counties with access to DHP installers has continued to increase to a total of 135, incented installations for DHPs continues to increase, and the total proportion of HVAC contractors installing DHPs in the Northwest has maintained a steady level.

## Appendix A: Methodology

### Background

Pacific Power, Avista Utilities Washington, and Puget Sound Energy developed a joint approach<sup>4</sup> to calculate savings from NEEA initiatives. As part of the utilities' biennium savings updates, NEEA provides a two-year electric energy savings forecast. The utilities subtract the savings from their conservation forecast to develop their Biennium Conservation Target.

### Savings Rates

This report uses:

- Savings rates and technical assumptions from the Regional Technical Forum (RTF) approved prior to September 1, 2021 for 2022 estimates and prior to October 2022 for 2023 estimates.
- If RTF savings rates are not available, the report uses savings rates from the *2021 Power Plan*.
- If those rates are not available, NEEA calculates savings rates an approximation of the *2021 Power Plan* baseline assumptions.

Table 2

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<sup>4</sup> The 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 remaining savings to the utilities based on their NEEA funder share percentage.



Table 1 sources the savings rates.

**Table 2: Savings Rate Sources for 2022-2023 Savings Report**

Product	Savings Rate Source
Ductless Heat Pumps	The 2023 assumptions for FAF come from version 3.1 updated in September 2021. The 2022 assumptions come from version v2 updated in 2018. The 2022 assumptions for single-family zonal-heated homes come from version 5.1 updated in 2020. The 2023 DHP Zonal source is Residential DHP for Existing Zonal v6.0, which was updated in April 2022.
Extended Motor Products	RTF. Jun 14, 2017. Efficient Pumps v 1.1 RTF. Aug 10, 2020. Circulator Pumps v 2.1
Heat Pump Water Heaters	The 2023 assumptions come from version 6.2 updated in June 2022. The 2022 assumptions come from version 4.2 updated in June 2019.
Manufactured Homes	RTF. 2020. ResMHNewHomesandHVAC_v4_1.xlsm. RTF. 2022. ResMHNewHomesandHVAC_v5_0.xlsm.
Refrigerators	NEEA calculates the savings rate using the same methodology as the RTF (RTF. January 2019. Residential Refrigerators and Freezers v5.1). However, NEEA includes savings from ENERGY STAR's Emerging Tech Award in the ENERGY STAR Most Efficient category. NEEA updated the baseline efficiency mix to match the 2021 sales weighted average efficiency mix. For more information go to neea.org→Portal Login→Savings Reports→Consumer Products.
Clothes Washers	RTF. 2020. ResClothesWashers_v7_1.xlsm.
Clothes Dryers	RTF. 2020. ResClothesDryers_v4.0.xlsm
Room Air Conditioners	NEEA calculation the savings using the sales weighted efficiency mix in 2021 as the baseline. For more information go to neea.org→Portal Login→Savings Reports→Consumer Products.
High Performance HVAC	Where available, installation-specific energy analysis is used to determine energy savings for observed units. Otherwise, energy savings rates established by Red Car Analytics (2022) are applied based on the characteristics of each installation. Red Car Analytics. 2022. Analysis of Expanded Efficiency Parameters for Very High Efficiency DOAS For more information go to neea.org→Portal Login→Savings Reports→HVAC
Luminaire Level Lighting Controls	NEEA uses the RTF Non-Residential Lighting Standard Protocol versions published in 2020 and 2021. The protocols reference estimates of hours of use and control savings fraction for Non-Residential applications analyzed in NonResidentialLighting_CSfandHOU_v2_1. NEEA assumes a 10% baseline to align with the 2021 Power Plan.
Televisions	NEEA has begun tracking the savings based on model-matching using purchased TV sales data for the Northwest and publicly available TV test data (tested by NEEA and other efficiency advocates in 2020-2022). The Savings rates are based on calculations reviewed by TRC Engineers in alignment with the 2021 Power Plan baseline period. <a href="#">Televisions: ENERGY STAR Version 9 Specification Influence Assessment and Baseline Assumptions Review</a>
Reduced Wattage Lamp Replacement	NEEA sources the Draft 2021 Power Plan. The final plan assumes 28W & 25W T8 Linear Fluorescent Lamps are part of the baseline. NEEA will still report the savings from these lamps because they were included in the targets set in August 2021.

*Note: The RTF updated all its workbooks in 2022 with the new ProCost tool. This table references the prior version to better show the date of the decision.*

For comparison against the targets, NEEA updates the savings rates if:

- The RTF makes an update after Sept. 1 of the year prior to the Biennium (e.g. 2021) and before Oct. 1 of the first year of the biennium (e.g. 2022); then, NEEA will update the forecast for the second year (e.g. 2023) with the new RTF UES.
- The UES is weighted based on tracked units (e.g. commercial building type, installs by climate zone, fuel mix, etc.).

- NEEA finalized savings analysis for a code or standard.

The attached spreadsheet contains sources and additional information regarding the savings rate calculations.

## New Measures

NEEA adds new measures to the savings analysis if:

1. NEEA worked on the measure.
2. NEEA did not have enough data to include the measure in the original target.

These include NEEA’s High-Performance HVAC program, which began after the original targets were set, and the Uninterruptible Power Supplies federal standard, which count against the *2021 Power Plan* targets.<sup>5</sup>

## Avoiding Double Counting

NEEA avoids reporting savings from units already counted through local utility programs by subtracting an estimate of the incentives associated with its Market Transformation efforts. NEEA surveys the Bonneville Power Administration, Energy Trust of Oregon and local utilities to estimate the overlap at a regional level and removes the utility’s funder share of this overlap prior to reporting energy savings.

## Allocation

NEEA allocates the 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 3 shows the funder shares.

**Table 3: Funder Share (Washington)**

Business Plan	Funding Share
2020-2024	2.55%
2015-2019	2.55%

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<sup>5</sup> NEEA and its partners’ influence on the UPS standard occurred primarily through their engagement in the California state standard for UPS, because the passing of the state standard led the U.S. Department of Energy to open proceedings for a federal standard. [Michaels Energy. 2022. Uninterruptible Power Supplies Standard Evaluation.](#)