

APPENDIX

Appendix C: NEEA Report Memo

Memorandum

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

SUBJECT: 2022 Annual Savings Report (Washington)

NEEA is an alliance of utilities that pools resources and shares risks to transform markets toward energy efficiency for the benefit of consumers in the Northwest. NEEA's role is to establish technology and market conditions that advance energy efficiency in markets in a sustainable way.

Energy savings are enabled by the alliance's market transformation programs, codes and standards work, and investment in tools, training, resources, data and research to support greater efficiency. The programs seek to affect sustainable changes in markets, which then result in energy savings.

The Washington investor-owned utilities (WA IOUs) have asked NEEA to establish a savings forecast for each biennium as one benefit from the alliance's work. This memo reports these savings against the two-year forecast sent to Pacific Power in August 2021.

NEEA allocates the savings based on Pacific Power's funding share¹ of its regional investment. The savings are above a common baseline established by the WA IOUs and are net of savings claimed through regional utility programs². 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 with any questions about this report.

¹ 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.

² Regional utility programs are the Bonneville Power Administration, 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 subtract these values prior to reporting savings to its funders to avoid double counting.

2022 Savings Estimate

NEEA estimates that Pacific Power’s savings are **0.30 aMW** for Program Measures. The results are greater than the original target (Table 1) estimated in August 2021. Program Measures do not include savings from NEEA’s work on codes and standards. Standard savings provide an additional 0.02 aMW and codes provides and an additional 0.06 aMW for a total of **0.38 aMW**. The attached spreadsheet shows how the savings varied by program.

Table 1: aMW Savings in Comparison to the Targets

| | Targets | Actuals |
|-------------------------|-------------|-------------|
| Total | 0.35 | 0.38 |
| Program Measures | 0.27 | 0.30 |
| Residential | 0.22 | 0.25 |
| Commercial | 0.04 | 0.04 |
| Industrial/Agricultural | 0.01 | 0.01 |
| Codes | 0.08 | 0.06 |
| Residential | 0.07 | 0.05 |
| Commercial | 0.01 | 0.01 |
| Standards | 0.00 | 0.02 |
| Residential | 0.00 | 0.00 |
| Non Residential | 0.00 | 0.01 |

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.

Program Measures: savings from energy efficiency measures NEEA worked on.

Codes and Standards: savings from codes and standards NEEA worked on. Program Measures can result in a code or standard. As requested by the Washington investor-owned utilities, these savings are reported separately as codes and standards.

Highlights

The 2022 savings are above the target primarily because of the three programs described below. More information about the variance by program is available in the attached spreadsheet.

Heat Pump Water Heaters

Regional sales of Heat Pump Water Heater in 2022 increased by approximately 16% over the prior year while incentives by local utilities decreased. The net effect is an increase the share of the regional savings NEEA reports back to utilities.

In 2022, NEEA completed the ‘Boring but Efficient’ awareness campaign, which led to an increase in awareness and drove successful conversions to heat pump water heaters for customers inside the NEEA’s service territory. At a national level, we saw the introduction of Demand Response Testing to achieve Energy STAR and ANSI/CTA-2045 standards, both of which are met by heat pump water heaters currently on the market. Additionally, NEEA participated in the development of a joint recommendation to DOE alongside industry and consumer advocates which will affect the upcoming national water heater standard. NEEA will continue to work in the water heating market to sustain the momentum. HPWHs are also an option that builders commonly use to meet the Washington residential building codes.

Retail Products Portfolio

Adoption of ENERGY STAR Most Efficient refrigerators increased significantly since NEEA set the targets in 2021. NEEA supported this efficiency level through midstream incentives and through promoting advancements in the ENERGY STAR test procedure to better differentiate efficient products.

Over time, NEEA expects savings from its Retail Products Portfolio to increase as a share of the portfolio savings. In 2022, manufacturer shipments of appliances decreased for refrigerators and laundry equipment. ENERGY STAR and ENERGY STAR Most Efficient product market share remained strong across all categories in 2022, but is showing some signs of slowed growth, especially for laundry equipment.

Looking forward, NEEA is anticipating Televisions savings could bring significant savings in 2023. NEEA's television efforts began several years ago, resulting in a NEEA-developed test procedure to better estimate energy usage. The test procedure was adopted by ENERGY STAR and the Consumer Technology Association (CTA-2045-C and D) and is scheduled for adoption by the U.S. DOE in 2023. Additionally, as part of NEEA's work on TVs, major manufacturers have agreed to a voluntary agreement to provide their TV energy performance, which will provide consumers with more transparent information on TV energy consumption and inform future midstream incentives through the program. The voluntary agreement will also provide energy use estimates to provide more accurate tracking of energy savings from the new ENERGY STAR specification. We expect to begin reporting market progress for ENERGY STAR Televisions in 2023, which has been a large focus for the program in recent years.

XMP Pumps

Market adoption of efficient pumps in commercial applications is meeting expectations. Moreover, NEEA continues to improve its data collection effort, compiling more detailed information about the pumps, which has helped increase the savings NEEA can report. One aspect of the program is to differentiate efficient pumps and circulators through the usage of energy rating labels. NEEA interviewed market actors in 2022 to develop this market transformation strategy and increase adoption of energy efficient pumps and circulators.

Appendix A: Methodology

Background

Pacific Power, Avista Washington, and Puget Sound Energy developed a joint approach³ 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.

Unit Energy Savings (UES)

This report uses:

- Savings rates and technical assumptions from the Regional Technical Forum (RTF) approved prior to September 1, 2021.
- 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 2Table 1 sources the savings rates.

³ 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 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 assumptions for single-family zonal-heated homes come from version 5.1 updated in 2020. |
| 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 nea.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 nea.org →Portal Login→Savings Reports→Consumer Products. |
| High Performance HVAC | Savings are based on pilot products. Red Car Analytics. 2022. Analysis of Expanded Efficiency Parameters for Very High Efficiency DOAS For more information go to nea.org →Portal Login→Savings Reports→HVAC |
| Luminaire Level Lighting Controls | NEEA uses the RTF Non-Residential Lighting Standard Protocol and assume a 10% baseline to align with the 2021 Power Plan. |
| 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, etc.);
- Or, 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.

NEEA added some savings from its High-Performance HVAC program, which began after the original targets were set, to the current 2022 savings estimates.

Avoiding Double Counting

NEEA avoids double counting by surveying the Bonneville Power Administration, Energy Trust of Oregon and local utilities about their local programs. This report has a forecast of local program units that it uses to avoid over-reporting savings. NEEA multiplies the savings rate and baseline saturation assumptions by the units to forecast local program savings. The regional savings minus the local program savings are the savings NEEA reports to the Washington Investor Own Utilities.

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 2 shows the funder shares.

Table 2: Funder Share

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