

# Memorandum

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FROM: Ryan Brown, NEEA, Manager, Planning and Analytics

SUBJECT: Final 2020 Annual Gas 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. 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.

As such, Cascade Natural Gas has asked NEEA to report savings based on an established agreement. Based on that agreement, NEEA provides annual tracking and reporting of savings resulting from long-term market transformation efforts.

This memo provides the final energy savings estimates for 2020. NEEA allocates the savings based on Cascade Natural Gas' funding share of its regional investment. The savings are above NEEA's market transformation baseline and are net of savings claimed through regional utility programs. Details about baseline and technical assumptions are in the attached Excel spreadsheet.

Please do not hesitate to contact Ryan Brown at [rbrown@neea.org](mailto:rbrown@neea.org) with any questions about this report.

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## 2020 Savings Estimate Summary

NEEA estimates Cascade Natural Gas’s 2020 annual gas energy savings associated with its initiatives is 14,654 Annual Therms<sup>1</sup> (Table 1). These savings are above the NEEA baseline<sup>2</sup> and exclude an estimate of savings that Cascade Natural Gas and other utilities claim through locally run programs. NEEA allocates energy savings based on funder share.

Table 1: 2020 Annual Report Net Market Effects Savings Estimates (Annual Therms)

Program	Gas Program Measures (Net Market Effects)
Efficient Gas Water Heaters	-
Next Step Homes	14,654
Condensing Rooftop Units	-
<b>Total Savings</b>	<b>14,654</b>

Net Market Effects = Total Regional Savings - Local Program Savings - Baseline Savings

## Regional Gas Savings Portfolio

This is the second year in which NEEA is reporting natural gas savings. Annual gas savings will increase over time as the programs in the portfolio advance into full-scale market development and as new programs are added to the portfolio. Table 2 describes the expectation for gas savings streams reported by NEEA during the 2020-2024 business plan period.

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<sup>1</sup> The term Annual Therms refers to the fact that NEEA reports first-year savings only in order to represent a sustained reduction in load.

<sup>2</sup> NEEA estimates Baseline as the savings that would have occurred without NEEA, utility, and the Energy Trust of Oregon’s market intervention.

Table 2: 2020-2024 Expectations for Gas Savings Streams

Program	Products	Year Expected for Reporting	Notes
Efficient Gas Water Heater	Gas Heat Pump Water Heater	2022	<ul style="list-style-type: none"> <li>Expecting North American Field Demonstration by 2022</li> </ul>
Residential New Construction (formerly Next Step Homes)	Residential Codes	2021	<ul style="list-style-type: none"> <li>Reporting savings from residential building code changes effective after 2019</li> <li>Reviewing fuel choice forecast</li> </ul>
	Above Code Homes	TBD	<ul style="list-style-type: none"> <li>Revisiting savings reporting for above code homes pending strategy refinement and further evaluation (likely no savings for 2021)<sup>3</sup></li> </ul>
Efficient Rooftop Units	Efficient Rooftop Units	2021	<ul style="list-style-type: none"> <li>Expanding the program from CRTUs is in development, additional products expected to be added to reports in 2021</li> </ul>
Commercial Code	Specific proposals advanced in WA 2018 code	2021	<ul style="list-style-type: none"> <li>Evaluating NEEA influence</li> </ul>
Standards	Commercial Boilers Commercial Warm Air Furnaces Pre-rinse spray valves	TBD	<ul style="list-style-type: none"> <li>Evaluating NEEA influence</li> </ul>

The 2020 net market effects savings come from Next Step Homes. This program develops and increases market adoption of energy efficient advanced building practices for single-family homes, ultimately influencing and accelerating code adoption. While NEEA’s natural gas portfolio began funding Next Step Homes in 2019, this program has been funded by NEEA’s electric portfolio for many years. In market transformation the investment comes upfront to create the conditions in the market for the savings stream to follow later. The savings being reported in 2020 come from above-code building activity only. As future residential codes are adopted, NEEA will analyze and report the savings from increased energy efficiency.

<sup>3</sup> NEEA is continuing to refine its program strategy and market transformation logic for the Residential New Construction program. The program’s long-term vision is to achieve Zero Energy Ready energy codes for single-family new construction homes by the year 2030. The program aims to influence above code practices to demonstrate market capability and measure availability in order to advance codes. A third-party will evaluate NEEA’s influence on specific above code home building activity based the updated product-focused strategy that NEEA is currently defining. This may lead to NEEA reporting above-code savings in future years. In the meantime, NEEA will discontinue reporting above code savings in 2021 pending further strategy refinement and evaluation.

## Appendix A: Methodology to Forecast Savings

### Allocation Methodology

NEEA allocates regional savings (Idaho, Oregon, and Washington) using shares of investment by funder. These shares vary by 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 Shares

Business Plan	Gas Funding Share
2019	9.30%
2020-2024	9.22%

Gas savings from NEEA’s electric-funded programs (electric-only and dual-fuel), such as Residential New Construction, come from the whole Northwest (Montana, Idaho, Oregon, Washington), whereas gas savings from gas-funded programs cover the region of just the gas funders (Avista Idaho, Oregon and Washington).

### Baseline, Local Programs and Technical Assumptions

This report follows NEEA’s method of measuring gas energy savings from market transformation efforts. The baseline is an estimate of the market adoption without intervention by NEEA, Energy Trust of Oregon and utilities. Prior to reporting the savings above the baseline, NEEA removes the savings counted through the local programs. This effort helps funders avoid double counting energy savings.

The technical assumptions come from third-party research including NEEA contracted research and the Regional Technical Forum. Details are available within the spreadsheet accompanying this memo.



## 2020 Annual Report for Cascade Natural Gas

### INTRODUCTION

The Northwest Energy Efficiency Alliance (NEEA or "the alliance") is a nonprofit organization working in collaboration with Cascade Natural Gas and more than 140 other Northwest utilities and energy efficiency organizations to accelerate the innovation and adoption of efficient products, services and practices throughout the region. With funding and engagement from Cascade Natural Gas and these other entities, the alliance intervenes in the market to create lasting change by removing barriers and leveraging opportunities to accelerate the adoption of cost-effective energy efficiency.

For additional information about alliance programs and approved alliance activities, the 2020 Operations Plan is available on [neea.org](http://neea.org).

### PRIMARY BUSINESS PLAN STRATEGY: EMERGING TECHNOLOGY

To ensure the continued availability of energy-efficient products, services and practices to Northwest consumers, the alliance identifies emerging energy efficiency opportunities and works with manufacturers and the market to test and validate product performance and energy savings. These efforts are coordinated through the Regional Emerging Technology Advisory Committee (RETAC) and the Natural Gas Advisory Committee (NGAC), which are facilitated by NEEA staff.

In 2020, the alliance continued to maintain the region's only shared emerging technology database. The database, which is housed on ConduitNW.org, increases regional visibility into emerging technology activities across organizations and reduces development costs by avoiding redundancies. In 2020, more than 25 regional emerging technology projects and products were added to the database.

In addition, NEEA staff scanned the market in 2020 to identify promising new energy-efficient products, services and practices. NEEA staff conducted activities related to the following natural gas opportunities in 2020:

- 1. Combination Hot Water and Space Heat:** This product is an integrated system that provides both space and water heating. It can be used in both electric and natural gas applications. In 2020, the alliance conducted testing to demonstrate the performance and adaptability of combination systems in existing homes and commercial applications. Installer, operator and homeowner experiences were documented to enhance understanding of market barriers and opportunities for these products. Findings helped validate the performance of the product and will inform strategies for emerging high-efficiency products.
- 2. Gas Dryers:** NEEA staff updated assets from the former gas dryers Market Transformation program to prepare for future opportunities to work with manufacturers and opportunistically influence test procedures, voluntary specifications, and Federal Standards.

**Conducting Product Research:** In 2020, the alliance commissioned and published two reports examining emerging natural gas technologies, which are available on neea.org:

- [Robur Heat Pump Field Trial](#)
- [Energy Modeling of Commercial Gas Rooftop Units in Support of CSA P.8 Standard](#)

## **PRIMARY BUSINESS PLAN STRATEGY: EFFECTIVE PORTFOLIO EXECUTION (NATURAL GAS)**

In 2020, NEEA operated a portfolio of Natural Gas Market Transformation programs that included two gas-only programs; Efficient Gas Water Heaters and Efficient Rooftop Units, and one dual fuel program: Residential New Construction (formerly Next Step Homes). 2020 activities for the alliance's Natural Gas initiatives are listed below:

**Efficient Gas Water Heaters** – The Efficient Gas Water Heater (EGWH) program is working to develop the market for efficient gas water heating products, bring a gas heat pump water heater (GHPWH) to market and ultimately influence the passage of a Federal Standard by 2030. In 2020, the program continued to co-fund a North American GHPWH field demonstration in coordination with energy efficiency organizations, a major manufacturer and multiple utilities across North America. The goals of this forthcoming demonstration project are to verify cold climate product performance of GHPWHs, inform utility program development and prepare for market entry of the first commercialized product (anticipated in 2022). The program also participated in the North American Gas Heat Pump Collaborative, which launched in January and includes over 14 utilities in the U.S. and Canada. The Collaborative's mission is to develop and implement activities to accelerate the adoption of gas heat pump technologies in North America. Participation in the Collaborative enables the program to leverage the collective market reach in our work with market partners and more easily engage co-funding for projects in the GHPWH initiative. To reduce risk related to limited technology options, the program team finalized a strategy to review currently known technologies while also seeking out new gas heat pump technologies for use in a residential GHPWH. Together with similar activities taking place in the market, this activity is expected to increase likelihood of a commercialized GHPWH that meets price, performance and scalability targets.

**Efficient Rooftop Units (formerly Condensing Rooftop Units)** – The Efficient Rooftop Unit (RTU) program aims to increase the efficiency of RTUs through product differentiation and ultimately Federal Standards. Formerly focused on condensing rooftop units (C-RTUs), the program transitioned to a broader rooftop unit approach in 2020 because of installation challenges with C-RTUs and new opportunities from evolving test procedures. The alliance has been working as part of a bi-national, cross-industry committee to revise the CSA Group's P.8 standard for Thermal Efficiencies of Industrial and Commercial Gas-Fired Package Furnaces to more accurately represent the overall energy consumption of the entire commercial gas-fired packaged unit. To inform these efforts, the alliance published an energy modeling study to better understand the operating modes and energy consumption of different equipment. The program also continued building manufacturer relationships and began defining the Efficient RTU product and target market. At the end of the 2020, the program partnered with Nicor Gas, a gas utility in Illinois, to analyze the P.8 modeling results to better understand the annualized energy impact of various efficiency options, which will inform the product definition and manufacturer engagement activities. This partnership will continue in 2021 with Nicor co-funding several additional program development activities.

**Residential New Construction (formerly Next Step Homes)** – In 2020, following an independent, third-party assessment, the Next Step Homes program underwent an internal review to realign the program strategy with an updated program vision, current market status and integration with NEEA’s Codes Program. This review resulted in the decision to transition the program goal from increasing participation in utility residential above-code programs to focus on activities that will more directly influence future code advancement. As the alliance’s only dual fuel program, the newly renamed Residential New Construction (RNC) program focuses on removing barriers to the adoption of above-code efficiency measures in new construction and collecting market evidence that will support future code advancement. To accelerate market adoption, the RNC program influences builders and key subcontractors to adopt above-code technologies and best practices. In 2020 the program held 13 interactive webinars and trainings to enhance technical education for builders in the Northwest. These trainings attracted more than 700 participants, with two of the trainings focused on Washington, including a four-part webinar series called Chasing Points that focused specifically on Washington residential code updates (2018 WSEC). Finally, in 2020 the program began to transition Performance Path program implementation to utilities. The Performance Path allows builders flexibility in meeting the energy code requirements by providing various combinations of design strategies, components and technologies to choose from. To ensure a seamless transition, the program held roundtable discussions with utility partners to provide details on transition scope, timeline, program evolution and current changes. The program anticipates the full transition to be complete in Q1 2021.

## **PRIMARY BUSINESS PLAN STRATEGY: CODES AND STANDARDS**

In 2020, NEEA continued to influence the development and successful implementation of energy codes, appliance and equipment standards, and test procedures to materially improve efficiency outcomes. The Codes and Standards program relies on and is closely coordinated with strategies and activities with the alliance’s Market Transformation programs and above-code new construction programs, including Residential New Construction.

**Codes** – NEEA provides training and technical assistance on both current and upcoming commercial and residential Washington energy codes. In 2020, the alliance delivered more than 45 webinars and virtual and on-demand trainings to more than 5,000 attendees across the Northwest. In addition, the alliance published a Washington Commercial Code Roadmap, which identifies key measures that include gas measures and potential energy savings of technologies and strategies that will be considered for adoption in current and future code cycles. Feasibility of Gas Heat Pump Water Heaters were evaluated for inclusion in the WSEC additional efficiency packages when the technology is commercialized. Lastly, NEEA staff convened a working group with code experts and conducted several rounds of brainstorming sessions in support of the 2021 Washington commercial code cycle including proposals that save gas heating.

**Standards** – In 2020, The U.S. Department of Energy (U.S. DOE) issued a large number of Requests for Information (RFIs) and Notices of Proposed Rulemaking (NPRs), initiating appliance and equipment standard rulemaking for more than 40 rulemaking activities covering nearly 40 electric and natural gas products. NEEA staff collaborated with partners to respond to more than 30 of these RFIs in 2020, including six related to natural gas products. These responses included regional sales data, lab testing results, field validation data and other technical data to support recommendations for enhanced test procedures and improved efficiency levels. In addition, the alliance worked with a bi-national, cross-industry committee to revise the CSA Group’s P.8 standard for Thermal Efficiencies of Industrial

and Commercial Gas-Fired Package Furnaces. In 2020, a new draft test procedure for the CSA P.8 standard was produced that captures and more comprehensively describes commercial gas furnace performance. NEEA participated in lab testing in collaboration with Natural Resources Canada in the testing of three RTUs to confirm and support the draft test procedure. The more robust test procedure will result in more efficient gas products coming to market and result in electric and gas efficiency.

## PRIMARY BUSINESS PLAN STRATEGY: MARKET INTELLIGENCE

Market Intelligence activities are conducted by the Market Research and Evaluation, Data, Planning and Analytics and Energy-use Studies teams. Together, these teams comprise NEEA's Analytics, Research and Evaluation Division. In 2020, this division focused on building capacity for in-house data management and analysis, growing quality data sets and insights to share with regional partners, and increasing visibility to Market Transformation outcomes and market progress indicators in addition to energy savings.

**Market Research and Evaluation** – Market Research and Evaluation (MRE) provides actionable insights for Market Transformation programs throughout their lifecycles and conducts formal evaluations of programs in market development. These research and evaluation efforts provide data and analytical services for the benefit of Cascade Natural Gas customers. In 2020, the alliance delivered two market research or evaluation reports to support natural gas programs, all of which are publicly available at [neea.org](http://neea.org):

- [Gas Tankless Water Heater Combined Research Report](#)
- [HVAC Market Actor Profile Report](#)

**Stock Assessments** – In 2020, NEEA staff began planning for the next Residential Building Stock Assessment (RBSA 2022), a comprehensive study of residential buildings in the region. And, for the first time, alliance natural gas funders are helping to fund the RBSA 2022. While the timeline for RBSA 2022 is subject to change due to uncertainties related to the COVID-19 pandemic, data collection is currently anticipated to be complete in 2022, with data and reports anticipated to be published in early 2023. The RBSA is a comprehensive inventory of existing Northwest buildings managed by NEEA staff approximately every five years. Cascade Natural Gas is a participating member of the RBSA 2022 working group.

## PRIMARY BUSINESS PLAN STRATEGY: CONVENE AND COLLABORATE

The alliance's Convene and Collaborate strategy is carried out by NEEA's Stakeholder Relations, Corporate Strategy and Communications Division.

**Efficiency Exchange** – Due to the COVID-19 pandemic, the alliance pivoted its annual Efficiency Exchange conference, hosted in collaboration with Bonneville Power Administration and the Northwest Power and Conservation Council, to a virtual webinar series. More than 430 energy professionals in the Northwest participated across all three webinars to convene, trade ideas and share best practices. More information on the virtual webinar series can be found [on Conduit](#).

**ConduitNW.org** – Developed in partnership with the Bonneville Power Administration, the Conduit website facilitates information-sharing, coordination and collaboration among energy efficiency stakeholders in the Northwest. 2020 marked the first year that the Conduit platform existed as a file and



resource sharing platform after its transition in 2019 from its previous state as an online community. In 2020, the website continued its core functionality and activities that have been identified as critical to regional Market Transformation efforts. These include the RETAC Database, Efficiency Exchange website, and the file sharing functionality for regional working groups.

### **REGIONAL COORDINATION**

Alliance programs are coordinated through regional working groups and committees, whose membership includes representatives from Cascade Natural Gas staff. NEEA staff formally solicits input from the Natural Gas Advisory Committee (NGAC), the body responsible for overseeing the alliance's Market Transformation portfolio, at critical program decision-points. NEEA staff are grateful for the time and energy Cascade Natural Gas staff dedicate to participating in these forums and on NEEA's Board of Directors, including:

**Board of Directors:** Monica Cowlshaw

**Natural Gas Advisory Committee:** Monica Cowlshaw

**Natural Gas Board Committee:** Monica Cowlshaw

**Cost Effectiveness Advisory Committee:** Phillip Hensyel

### **ADDITIONAL INFORMATION**

For additional information, NEEA's [2020 Quarterly Performance Reports](#), [newsletters](#), [NGAC meeting materials](#), and the [2019 Annual Report](#) are available online at [neea.org](http://neea.org).

NEEA staff encourage stakeholder participation and appreciate input at all NEEA board meetings, committee meetings and energy efficiency events around the region. The next NEEA Board of Directors meeting will be held virtually on March 15-16, 2021. Meeting details will be posted on [neea.org](http://neea.org) in advance.

Please direct questions or comments about this report to [info@neea.org](mailto:info@neea.org).