



## 2022 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 activities, the 2022 Operations Plan is available on [neea.org](https://neea.org).

### PRIMARY BUSINESS PLAN STRATEGY: EMERGING TECHNOLOGY (ELECTRIC + NATURAL GAS)

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. Scanning activities uncover and vet technologies and practices that can meet the Northwest's efficiency needs and feed into alliance program work. Work via lab and field testing, or small-scale pilots ensure that these products save energy and meet the needs of Northwest consumers, including those in Washington. Once a technology is added to program work, emerging technology efforts continue to monitor and test products as they naturally evolve in the market to identify market barriers and inform opportunities for program enhancement. Scanning activities fall into two primary categories, those that are pre-program, and those that directly support an alliance program. 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 2022, after scanning the market to identify promising energy-efficient products, services and practices, NEEA staff conducted research, testing and vetting of a variety of opportunities. Key dual-fuel<sup>1</sup> and natural gas opportunities included:

1. **Combination Hot Water and Space Heat:** An integrated system that provides both space and water heating via a gas heat pump. In 2022, the alliance shifted its focus on the product to identify applications where the gas heat pump technology may be used for water heating or space heating as the primary use. This included working with a major manufacturer to field test combi units with boiler systems to demonstrate the performance and adaptability of these systems in existing homes and small commercial applications. Additionally, performance testing

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<sup>1</sup> As a dual-fuel organization, the alliance manages a portfolio of natural gas and electric Market Transformation initiatives.

of natural gas combi units continued in 2022 with the goal of demonstrating that the product generates a coefficient of performance (COP) greater than 1. Reaching this goal would ensure product efficiency, in turn helping utilities reach efficiency and carbon reduction goals. Results from the testing were promising and indicated a heating COP of approximately 1.30 in Northwest climate zones.

2. **Commercial Gas Dryers:** Commercial gas clothes dryers are typically configured with a single-stage burner and burn fuel to heat the ambient air. Existing systems reject up to 50-60% of the total energy input as wasted heat. NEEA staff are currently investigating commercial dryer modulation retrofit kits, which enable the current product to have a two-stage burner. This proposed system uses natural gas to drive a desiccant-based thermodynamic cycle, with simultaneous dehumidification, heating, and recirculation of dry, high temperature air back into the drum, reducing the overall energy needed to complete the drying cycle. In 2022, the alliance collaborated with a several of partners including utilities, major manufacturers and universities to understand the viability of the technology in the Northwest. More specifically, the alliance conducted research in collaboration with these entities to understand the energy savings potential of the commercial gas dryer technology. Findings will help determine whether the technology is a feasible energy-efficient option to pursue.
3. **High-Performance Windows:** Primary windows with three panes of glass, film or rigid plastic. There are two outside panes of standard thickness and one thinner pane in the middle. With strong support from NEEA, the ENERGY STAR® v7.0 Program Requirements for Residential Windows, Doors, and Skylights was finalized in Q4 2022 and will go into effect in October 2023, lowering the U Factor requirements from 0.27 to 0.22 for the Northern Climate Zone. The new specification supports the alliance's Market Transformation efforts in the Northwest for high-performance windows by providing manufacturers with the criteria to produce the most efficient products to put on the market.
4. **Hybrid Gas-Electric Heat Pump:** An integrated modulating gas heat pump and electric air conditioner (GHPAC) that uses natural refrigerants. The technology can provide heating and cooling with natural gas as the primary fuel source. In 2022, NEEA staff began evaluating the performance of this integrated system in a laboratory setting to validate the product's efficiency and performance. The technology is currently in the prototyping stage, and findings will determine the viability of a hybrid HPWH product in a real world application. Initial testing results indicated enhanced energy efficiency, with the product generating a COP greater than 1. Product development is anticipated to continue for the next several years.
5. **Machine Learning Systems for Building Controls:** A new group of products that apply artificial intelligence (AI) systems to track and optimize all building-system interactions that typically operate autonomously. This product automatically and continually controls equipment by adjusting, improving and optimizing a building's energy management without manual intervention. Machine Learning Systems analyze the changing conditions within a building such as use, occupancy, comfort, air quality, time of use rates and demand response to ensure efficiency over time. In 2022, NEEA staff planned two field tests on this product in Seattle, Wash. Early data collection demonstrates positive initial results.
6. **Paired Washer-Dryers:** These include compact washers with heat pump dryers, and front and top-load washers with electric- and natural-gas heated dryers. In 2022, NEEA staff developed a testing procedure to measure the total energy required by these products to wash and dry the

same load of laundry. The final [NEEA Dryer Test Procedure](#) and accompanying [Analysis and Rationale report](#) became available on neea.org in 2023.

**Conducting Product Research:** In 2022, the alliance commissioned and published three reports examining emerging natural gas technologies, which are available on neea.org:

- [Perfect Pairings? Testing the Energy Efficiency of Matched Washer-Dryer Sets](#)
- [Energy Savings from Efficient Rooftop Units in Heating Dominated Climates](#)
- [Summary of Field Evaluation of Non-Glass Interior Secondary Window Attachments](#)

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

In 2022, NEEA operated a portfolio of Natural Gas Market Transformation programs that included two gas-only programs: Efficient Rooftop Units and Efficient Gas Water Heaters, and one dual-fuel program: High-Performance Windows. In addition to its Market Transformation programs, the alliance develops and implements enabling infrastructure programs that build market capability, awareness and demand for energy-efficient natural gas products, services and practices. In 2022, the alliance's BetterBricks Infrastructure program supported its natural gas efforts. 2022 activities for the alliance's Natural Gas initiatives are listed below:

**BetterBricks** – Launched in 1999, BetterBricks leverages its long-standing relationships and communication channels to support alliance programs by providing access to target-market audiences, including building owners, property managers, building staff, architects, designers, engineers and contractors. Multiple alliance programs utilize BetterBricks as a central investment to help overcome market barriers, including by raising awareness and demand for energy-efficient technologies in commercial buildings. In 2022, BetterBricks continued supporting its long-standing partners by providing their constituents with ample educational opportunities and resources. BetterBricks also formalized a partnership with the U.S. DOE's Better Buildings Initiative by becoming a Better Buildings Affiliate. As a Better Buildings Affiliate, the alliance is able to partner with a leading energy organization to increase awareness of the BetterBricks program's suite of energy efficiency tools, resources and information both within the Northwest and more broadly. This partnership also opens the door to inform the educational efforts of the Better Buildings program and build additional awareness around technologies supported by the alliance, as well as to bring national recognition to the thought leaders and industry-leading projects in the Northwest.

**High-Performance Windows** – The alliance's High-Performance Windows program accelerates the adoption of high-performing windows by advancing the latest ENERGY STAR criteria and influencing leading manufacturers to scale production of windows that reach a minimum 0.22 U-value. To spread awareness of high-performance window solutions in the Northwest, the alliance conducted a builder pilot that engaged with a small green builder in Washington who had only on occasion installed standard triple-pane windows. By the pilot's end, the builder committed to installing thin triple-pane, high-performance windows as their standard offering in new homes. Additionally, to support the proliferation of high-performance windows in the Northwest, the alliance participates in the national Partnership for Advanced Window Solutions (PAWS) Collaborative. PAWS promotes cost-effective, high-performance window solutions for the nation's new and existing building stock. By doing so, the collaborative aims to accelerate the national availability and adoption of advanced and highly efficient

windows and window attachments that improve occupants' comfort and reduce building energy use. Funded by the U.S. DOE, PAWS is facilitated by NEEA and includes government agencies and research organizations, regional energy-efficiency groups, utilities, builders and window-solutions manufacturers.

**Efficient Gas Water Heaters (EGWH)** – This program works to 1) develop the market for efficient gas water heating products, 2) bring a natural gas heat pump water heater (GHPWH) to market, and 3) influence the passage of a Federal Standard by 2030. Residential GHPWHs are projected to have the technical potential to save more than 100 million annual therms. In 2022, the alliance completed the Water Heater Pricing Research study, a two-phase study that sought to better understand price sensitivity of Northwest homeowners regarding efficient water heaters. Findings from the report, which is [available on neea.org](https://www.neea.org), will help the program team mitigate delays in the product's commercialization. In addition, the program led the North American Gas Heat Pump Collaborative's GHPWH Committee to co-fund multiple projects that will prime the market and help understand utility commitment (inside and outside the region) for the technology. Finally, in 2022 the program worked to influence a major North American water heater manufacturer to begin commercialization of a GHPWH product that meets the needs of the colder Northwest climate.

**Efficient Rooftop Units** – The Efficient Rooftop Unit (RTU) program works to increase the efficiency of RTUs through product differentiation, which can ultimately assist in elevating Federal standards. After the publication of the [Efficient RTU specification](#) in 2021, the alliance worked with manufacturers in 2022 to support development and promotion of efficient RTUs with the goal of increased product availability. Also in 2022 the alliance evaluated the performance of efficient RTU products by concluding a field trial in Montana and beginning one in Portland, Ore. Managed by Montana State University's Integrated Design Lab, the first trial (located in Winifred, Mont.) evaluated an efficient RTU unit over nine months, concluding in June 2022, with a final report completed in Q3 2022. The second nine-month trial is anticipated to begin in 2023 in Portland, Ore. This trial is testing two RTU models, one of standard efficiency and one high-efficiency model. The results from both test sites will influence plans to promote and accelerate the adoption of high-performing efficient RTUs.

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

In 2022, 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 alliance's Codes and Standards work relies on and closely coordinates with the strategies and activities of the alliance's Market Transformation programs.

**Codes** – The Codes work provides ongoing training and technical assistance on current and upcoming commercial and residential Washington energy codes. In 2022, the alliance delivered nearly 40 live trainings on topics related to the 2018 Washington State Energy Codes (WSEC), serving more than 2,700 attendees. The alliance additionally offered 23 on-demand trainings and videos, 10 of which were specific to the 2018 WSEC codes, which accrued more than 2,600 views throughout the year. Additionally, NEEA staff convened a working group with code experts to develop and submit more than 25 proposals to the State Building Code Council. NEEA staff further participated in the energy code Technical Advisory Group (TAG), which was tasked with reviewing all proposals submitted. Throughout the year, the alliance continued to maintain and improve the WSEC commercial code compliance tool, which helps builders and engineers verify their building design's compliance with the current commercial code, including by offering technical support for the Total System Performance Ratio

(TSPR) analysis tool used to calculate the TSPR for Washington State’s performance-based energy code compliance path for HVAC systems. Finally, NEEA staff gathered market data about the initial impacts of the first year of WSEC-R on new-construction single-family homes. The final report can be found on [neea.org](https://www.neea.org).

**Standards** – In 2022, NEEA staff collaborated with partners to submit more than 70 comment letters in response to the U.S. DOE’s issuing multiple Requests for Information (RFIs) and NOPRs, initiating appliance and equipment standard rulemaking for more than 50 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.

## PRIMARY BUSINESS PLAN STRATEGY: MARKET INTELLIGENCE

NEEA’s Market Intelligence strategy is delivered by the Analytics, Research and Evaluation Division, which is composed of three distinct functions: Market Research and Evaluation; Data, Planning and Analytics; and Energy-use Studies. In 2022, NEEA’s Market Intelligence activities were focused on continuing to: 1) accurately assess results from alliance Market Transformation efforts; 2) provide research and market intelligence to support program and business planning needs of internal and external stakeholders; 3) bring more visibility to Market Transformation outcomes and market progress indicators in addition to energy savings; and 4) build capacity for in-house data management and analysis.

**Market Research and Evaluation (MRE)** – MRE provides actionable insights for alliance 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 2022, the alliance delivered four market research or evaluation reports to support the alliance’s natural gas programs, all of which are publicly available on [neea.org](https://www.neea.org):

- [Efficient Rooftop Unit Tiers Market Research](#)
- [Washington 2015 Commercial Construction Code Evaluation Study](#)
- [High-Performance Windows Market Characterization Study](#)
- [Review of Market Share Forecast and Key Assumptions for Efficient Rooftop Units](#)

**Stock Assessments** – In 2022, the alliance’s efforts included the completion of recruitment for the upcoming Residential Building Stock Assessment (RBSA), a comprehensive study of single-family building equipment and characteristics, as well as multifamily units and buildings. NEEA staff held three webinars over the course of the year to present information to stakeholders, including Cascade Natural Gas, that included the study’s revised recruiting approach to adapt to the continuation of the COVID-19 pandemic. Data collection for the RBSA is complete as of 2022, with accompanying data and reports anticipated to publish in Q3 2023. Multifamily recruitment and site visits took place in 2022, but the study required rescoping due to low recruitment rates, partially because of COVID-19. As a result, the multifamily workgroup decided to de-emphasize the collection of data for central systems in multifamily buildings. Multifamily data collection began in Q4 2022 with additional recruiting in Q1 2023. Also in 2022, NEEA staff kicked off planning for the upcoming Commercial Building Stock Assessment (CBSA). Similar to RBSA, the CBSA is a regional study that collects detailed information to understand the drivers of energy consumption in commercial buildings.

## 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 (EFX)** – EFX is an annual conference hosted in collaboration with Bonneville Power Administration and the Northwest Power and Conservation Council. In April 2022, the event was held virtually due to the ongoing COVID-19 pandemic. With 14 breakout sessions and one keynote, the conference covered a range of topics, including equity in energy efficiency, dual-fuel opportunities, the 2021 Power Plan, energy storage and demand flexibility. More than 350 energy professionals from the Northwest and across the nation participated in the two-day conference to trade ideas and share best practices. More information on the conference, including details for the upcoming first-ever hybrid conference on May 2 – 3, 2023, can be found [on neea.org](https://www.neea.org).

**ConduitNW.org** – In September 2022, the Conduit website was sunsetted by NEEA and Bonneville Power Administration leadership. However, key site functionality, such as the RETAC Database, has been migrated from the site for continued use. More information is available [on neea.org](https://www.neea.org).

### REGIONAL COORDINATION

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

**Board of Directors:** Monica Cowlshaw

**Natural Gas Advisory Committee:** Monica Cowlshaw

**Natural Gas Board Committee:** Monica Cowlshaw

**Cost Effectiveness Advisory Committee:** Caleb Reimer

**Residential Building Stock Assessment Working Group:** Caleb Reimer

**Commercial Building Stock Assessment Working Group:** Caleb Reimer

### ADDITIONAL INFORMATION

For additional information, NEEA's [2022 Quarterly Performance Reports, newsletters](https://www.neea.org) and the [2021 Annual Report](https://www.neea.org) are available online at [neea.org](https://www.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 in Seattle on March 13 – 14, 2023. Meeting details will be posted on [neea.org](https://www.neea.org) in advance.

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

# Memorandum

March 23, 2023



TO: Monica Cowlshaw, Cascade Natural Gas, Manager Energy Efficiency & Outreach;  
Phillip Hensyel, Cascade Natural Gas, Energy Efficiency Economic Analyst

CC: Peter Christeleit, Manager of Natural Gas Portfolio and Strategy, NEEA; Stephanie Rider, NEEA, Director, Data, Planning, and Analytics; Becky Walker, NEEA, Vice President, Market Development and Transformation; Susan Hermetet, Vice President, Research, Evaluation and Analytics, NEEA; Virginia Mersereau, Senior Manager of Strategy, NEEA Corporate Strategy

FROM: Christina Steinhoff, Principal Planning Analyst, NEEA

SUBJECT: Final 2022 Annual Natural 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 2022. NEEA allocates the savings based on a combination of Cascade Natural Gas's funding share of its regional investment and state/service territory allocations. 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 contact Christina Steinhoff at [csteinhoff@neea.org](mailto:csteinhoff@neea.org) with any questions about this report.

## 2022 Savings Estimate Summary

NEEA estimates Cascade Natural Gas’s 2022 annual natural gas energy savings associated with its initiatives is 81,397 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 regional utilities claim through locally run programs. NEEA allocates energy savings based on funder share for voluntary programs and an estimate of service territory shares for codes and state standards ([Appendix A](#)).

**Table 1: 2022 Annual Report Net Market Effects Savings\* Estimates (Annual Therms)**

Program	2022
<b>Total Savings</b>	<b>81,397</b>
Building Codes	78,486
Residential (2018 WSEC)	70,862
Codes (2018 WSEC-C)	7,623
Standards	2,912
Commercial Packaged Boilers & Washington Commercial Cooking equipment standards	2,912
Programs	TBD
Efficient Rooftop Units**	TBD

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

\*\*NEEA will report savings from non-incented units for 2022 as early as September 2023.

## Regional Gas Savings Portfolio

NEEA is in its fourth year of reporting natural gas savings. Annual gas savings will increase over time as programs in the portfolio advance into full-scale market development and as new programs are added. Table 2 lists NEEA’s expectations for gas savings. The following section provides more detail about the progress toward meeting these goals.

<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: Savings Expectations**

<b>Program</b>	<b>Products</b>	<b>Year Expected for Reporting</b>
Commercial Code	Specific proposals advanced in WA 2018 code	2021
Residential Code	Residential Codes WA 2018	2021
Efficient Rooftop Units	Efficient Rooftop Units	2022 (Available in Q4)
Standards	Commercial Boilers, Commercial Kitchen Equipment (WA)	2022
High-Performance Windows	Windows	2023/2024
Efficient Gas Water Heater	Gas Heat Pump Water Heater	2025

### **Residential New Construction (Code)**

Washington’s 2018 residential code went into effect in February 2021. The code includes fuel normalization credits that favor the use of electric fuels over natural gas. NEEA completed a post code adoption market research report<sup>3</sup> in May 2022 to assess the early effects of the credits on building practices. The study, which was based on 178 approved permits for single-family homes throughout the state, showed that approximately 12% of the builders chose natural gas space heating and water heating. Previously, most builders selected natural gas.

NEEA has since conducted a follow-up study to allow more time for builders to adjust to the new code and to collect data on single-family homes that have been built under the code. The new study used data from virtual home audits to assess compliance with the code and explore gas use throughout the home, including whether homes built under code have gas hookups, dual-fuel systems, and gas appliances. NEEA is using the draft results for both the 2022 savings estimate and to update the 2021 estimates.

The draft results estimate that the compliance rate is between 76-78% and that 18% of the new homes are using gas as the primary source for space heating. NEEA will present the full results of the study to the Natural Gas Advisory Committee later this year.

NEEA expects the share of homes with gas as the primary fuel source will continue to remain low over the next few years. Washington also adopted the 2021 WSEC in late 2022. Currently, builders do not have commercially available natural gas HVAC and water heating products to help them meet this new code that goes into effect in July 2023. The implication for NEEA’s gas portfolio is a reduction in the current savings forecast of approximately 0.36 MM Therms statewide from NEEA’s Q3 2022 update. The reduction will show up in the 2024 annual savings estimates to

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<sup>3</sup> <https://neea.org/resources/washington-residential-post-code-market-research-report>

NEEA's Washington funders. Meanwhile, NEEA is working on opportunities to propose new efficient gas products for the next code advancement. These include:

- Gas Heat Pumps
- Dual-fuel Heat Pumps
- Efficient Gas Water Heaters

NEEA expects at least one manufacturer to begin selling residential Gas Heat Pumps in 2023. This product might be the best opportunity to add as an option in the WSEC 2024. NEEA will contribute to the code path by testing the products as soon as they become commercially available. If they work well, the gas team could develop a Market Transformation program to increase adoption prior to the next code update.

NEEA will also continue to monitor advancement in other gas products such as hearths, backup generators, and kitchen equipment that can be used in residential new construction.

Finally, NEEA will monitor the effects this new code has on fuels selection in residential homes.

### **Commercial Codes**

The 2022 savings come from work on the 2018 Washington State Energy Code, which went into effect in February 2021. The share of new construction floor area permitted under the code begins to ramp up from the code effective date. The savings analysis comes from NORESO.<sup>4</sup> NEEA also worked on code proposals for the 2021 Washington State Energy Code, which was approved in late 2022. Similar to the process on the residential side, NEEA will monitor the effects the new code will have on the adoption of gas-fuel products in commercial new construction.

### **Efficient Rooftop Units**

The Efficient Rooftop Units program advanced to Market Development<sup>5</sup> in late 2022. The program's goal is to accelerate the adoption of efficient gas rooftop units in the like-for-like replacement market while working to influence the adoption of improved test procedures and more stringent federal standards.

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<sup>4</sup> NORESO. 2022. 2018 Washington State Energy Code Energy Savings Analysis for Nonresidential Buildings.

<sup>5</sup> The purpose of this phase is to create lasting market change through direct market interventions designed to remove barriers, leverage market opportunities and tap influencers and existing channels for diffusion. Interventions are strategic, planned and adaptively managed as market dynamics change and more information is gained. During annual planning, NEEA staff look for the most impactful market levers and activities that could bolster or accelerate the achievement of alliance MT goals.

To measure savings, NEEA collects sales data annually from HVAC distributors and manufacturers in addition to data from the annual local utility program survey. The HVAC sales data for 2022 will likely not be available until summer because of the time needed for recruitment and data submission. NEEA expects the data collection process to improve over time as the number of participating manufacturers and distributors grows. Pending on-time HVAC sales data delivery, NEEA will report savings for 2022 as early as September 2023.

Currently, the program is forecasting 62,000-150,000 therms of Co-Created Savings for this Business Plan (2022-2024). Approximately a third of those savings will be net of local utility programs (20,500-50,000).

### **Standards**

NEEA is reporting Net Market Effects savings from the Washington commercial equipment appliance standard based in draft evaluation results from Michaels Energy. The company determined that NEEA and its partners had a primary role in providing regional data and generating alignment among stakeholders on the Oregon and Washington commercial kitchen equipment standards. The draft evaluation allocates 10 percent of the savings to above baseline adoption. NEEA will publish the full results in late May 2023.

### **High Performance Windows**

The program goal is to stimulate national builder and consumer demand for high-performance windows, and manufacturers meeting that demand with scaled production. Influencing the ENERGY STAR specification to 0.22 U-value performance level and including in building codes will all serve as primary vehicles for rapid market diffusion to reach the long-term goal over 50% of windows sold in the Northwest at 0.20 U-value or less. NEEA is aiming for the program to be in Market Development in late 2023 or 2024.

### **Efficient Gas Water Heaters**

The program is in early development and has a technical potential of 100-200 MM Therms for Oregon, Washington and Northern Idaho. While there are still many unknowns, NEEA is evaluating the likelihood of a product launch for a Gas Heat Pump Water Heater by 2025. This will likely be preceded by a large scale North American field study which will include the first units installed in the NW. NEEA will provide forecasted savings when a product launch timeline is more certain.

## Appendix A: Methodology to Forecast Savings

### Allocation Methodology

NEEA allocates code savings for gas measures using a state/service territory approach. The approach uses EIA residential consumer sales for Residential Codes and nonresidential volume for Commercial Codes.

Table 3: State Code Savings Allocation Share

Sector	WA	OR	ID
Residential	15.84%	0.00%	0.00%
Commercial	17.02%	0.00%	0.00%

For voluntary programs, NEEA allocates regional savings (Idaho, Oregon, and Washington) using shares of investment by funder (Table 4).

Table 4: Funder Shares Savings Allocation of Regional Savings for Cascade Natural Gas

Business Plan	Gas Funding Share
2020-2024	9.22%

### 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.