Memorandum

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TO: Caleb Reimer, Cascade Natural Gas, Manager Energy Efficiency Programs; Kary Burin, Cascade Natural Gas, Energy Efficiency, Supervisor

CC: Becky Walker, Chief Program Officer; Stephanie Rider; Director Portfolio Management, Data Strategy and External Reporting, Nathan Martinez, Director, Market Analytics, Research and Evaluation; Virginia Mersereau, Vice President of Corporate Strategy and Communications

FROM: Christina Steinhoff, Principal Planning Analyst, NEEA

SUBJECT: Final 2024 Annual Natural Gas Savings Report

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 and businesses in the Northwest. At its heart, NEEA is a collaborative organization that works with all parts of the market to enable efficient technology choices for consumers: gathering and analyzing data to inform both regional power planning and utility programs, leveraging its relationships with mid and upstream market actors like manufactures and retailers, and improving how products are tested and perform in real life applications. Activities include:

- Providing data and insights to understand how the market is responding to the technology solutions to inform resource planning and identify new opportunities and product options for energy efficiency.
- Providing Cascade Natural Gas with an up-to-date, neutral, and representative characterization of existing Northwest building stock and energy trends, which inform market transformation programs and identify opportunities for private sector investment.
- Leveraging trusted relationships with the supply chain to share insights on how well new technologies perform, save energy, and reduce waste.
- Aggregating and leveraging the power of the region to identify and vet emerging technologies and then create the market conditions necessary for them to take hold. The alliance also helps the regional capture natural gas energy savings through these voluntary interventions and by informing codes and standards that represent consumer and business needs.

NEEA is currently building its portfolio for natural gas energy efficiency programs.

This memo provides more information about:

1. **2024 savings estimate** based on the early market transformation work of NEEA in commercial and residential new construction as well as its new Efficient Rooftop Units program.
2. **Regional Gas Portfolio Update** highlighting work NEEA completed in 2024 to build out the gas portfolio.
3. **Cost Effectiveness Update** provides a summary of NEEA's approach to verifying the cost effectiveness of its portfolio and the estimate for 2024.

Please contact Christina Steinhoff at csteinhoff@neea.org with any questions about this report.

2024 Savings Estimate

NEEA estimates Cascade Natural Gas' 2024 annual natural gas energy savings associated with its initiatives is 66,834 Annual Therms[1] (Table 1). These savings are above the NEEA baseline[2] 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 an estimate of service territory shares (Appendix A).

Table 1: 2024 Annual Report Net Market Effects Savings* Estimates (Annual Therms)

Commercial	10,162
Efficient Rooftop Units**	681
Product Standards	3,187
New Construction (Codes)	6,294
Residential	56,672
New Construction (Codes)	56,672
Total	66,834

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

** The Efficient Rooftop Units program is early in NEEA's Market Development phase (Appendix B), resulting is limited savings above the natural market baseline. Savings will increase and the program's market influence increases.

Regional Gas Portfolio Update

NEEA is developing and advancing new energy efficiency measures to add to its savings portfolio. Annual gas savings will increase over time as programs in the portfolio advance into full-scale

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

[2] NEEA estimates Baseline as the savings that would have occurred without NEEA, utility, and the Energy Trust of Oregon's market intervention.

market development (Appendix B). Table 2 lists NEEA's expectations for gas savings. The following section provides more detail about the progress toward meeting these goals.

Table 2: Savings Expectations

Program	Products	Status
Commercial New Construction	Specific proposals advanced in 2018 Washington State Energy Code & future codes	Savings phase out in 2025 with adoption of the 2021 WSEC as the code moves builders to choose electric options. NEEA is shifting focus to future code options for high performance gas technology such as gas water heaters and gas/electric combo heat pumps. NEEA will also conduct research to monitor changes in building practices over time.
Residential New Construction	Specific proposals advanced in 2018 Washington State Energy Code & future codes	
Efficient Rooftop Units (ERTU)	Efficient Rooftop Units (ERTU)	The program accelerates the adoption of efficient gas rooftop units in the like-for-like replacement market while working to influence the adoption of improved test procedures. NEEA is reporting savings from this program. In 2024, NEEA updated the specification to emphasize a fuel-neutral approach focusing on ERTU cabinet design and shell measures. This adjustment should help to gain better attention in the supply chain to secure commitments to this product and increase speed of market adoption
Standards	Commercial Kitchen Equipment (WA)	NEEA compiles critical market data and insights that inform voluntary local, state, and federal standards. No additional savings from new standards occurred in 2024.
Advanced Commercial Water Heating	Gas Heat Pump Water Heaters	The program moved into the Program Development stage of NEEA's Initiative Lifecycle (**Appendix B**) and is investing in research and field demonstrations that will inform market transformation strategy while validating the product performance and energy savings. NEEA will report any savings from field demonstration projects in 2025, with additional savings starting as early as 2026.
Gas High-efficiency Dedicated Outdoor Air Systems (DOAS)	Gas High-efficiency Dedicated Outdoor Air Systems (DOAS)	This program will focus on transforming the market for commercial gas hydronic systems. Due to the ability to build off the market relationships and progress made by the existing Very High Efficiency (VHE) DOAS program in the electric portfolio, NEEA is expecting to propose this program for advancement directly into the Market Development phase of the Lifecycle (**Appendix B**) in 2025.
Residential Dual-fuel Heating Ventilation and Air Conditioning (HVAC)	Dual-fuel system with a heat pump and gas furnace with controller	This program will be brought forward for consideration to advance to the Program Development phase of the Initiative Lifecycle (**Appendix B**) in Q3 2025.

Efficient Rooftop Units

The Efficient Rooftop Units program advanced to Market Development[3] 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.

In 2024, the program updated its measure specification to emphasize a fuel-neutral approach that focuses on the rooftop unit cabinet design and shell measures - cabinet insulation, low-leakage dampers, and heating/energy recovery. This new specification aligns with how builders select rooftop units where the heating type provided is an option after choosing product line and feature sets. The program made the change to enhance NEEA and partner influence to increase adoption of the most efficient options.

The program also worked to encourage manufacturers to develop and promote efficient rooftop units for the light commercial market. In 2024, one light commercial manufacturer designed and worked to bring an energy recovery ventilator product to market for use in their light commercial rooftop units. The manufacturer started production on initial products. NEEA continues to vet and support development of additional product lines to expand qualified choices to customers and drive down costs of efficient options.

Finally, the program completed a performance monitoring study for two efficient rooftop units installed in Portland in 2023. The study found that the efficient rooftop unit features contributed to the expected efficiency / energy savings, though it highlighted cost and compatibility barriers that need to be addressed to reach the like-for-like replacement market.

To measure savings, NEEA collects sales data annually from HVAC distributors and manufacturers in addition to data from the annual local utility program survey. NEEA is working to recruit additional distributors and manufacturer reps to gain a better view into efficient unit sales and expects improvement in market insight over time.

[3] 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.

Advanced Commercial Water Heating

NEEA's Advanced Commercial Water Heating program centers on utilizing gas heat pumps as the primary heat source in commercial central water heating systems. A gas heat pump functions by transferring heat from one area to another while intensifying the heat during this process. NEEA anticipates the technology will enable water heating applications to achieve efficiencies of greater than 1.0 Thermal Efficiency and hold the technical potential to save the Northwest region more than 22 million Therms over a 20-year projection.

NEEA completed market research in 2024 indicating that most decision makers see gas heat pumps as an exciting new option and are impressed with their features, such as good return on investment and low operating costs.[4] Findings from the research will inform NEEA's market transformation program planning and help identify key target markets for possible inclusion in future program efforts.

During 2025, NEEA is launching a North American Commercial Gas Hater Heating Market characterization funded by the North American Gas Heat Pump Collaborative and led by NEEA and is in the screening and selection process for 2 sites for field demonstrations of the technology.

Gas High-Efficiency Dedicated Outdoor Air Systems

NEEA's goal is to build a portfolio of the most impactful market transformation opportunities for HVAC systems across gas and electric technologies/practices. In 2024, NEEA started a plan to add a gas option to its Very High Efficiency Dedicated Outdoor Air System specification and program. The addition will allow NEEA to more swiftly transform the commercial market through broader market engagement and demand creation. NEEA expects to publish the first Market Progress and Evaluation report for the program in 2025.

Residential Dual-Fuel HVAC

This program is currently in the Concept Assessment phase of the Initiative Lifecycle (Appendix B). The solution would pair a heat pump with a gas furnace to deliver an efficient combined HVAC system. To date, NEEA has partnered on multiple dual-fuel modeling, lab and field-testing projects in addition to convening regional stakeholders to share information about the pilot projects underway. NEEA is expecting to build off these findings to bring forward a proposal to advance to the Program Development Phase in 2025.

[4] Lieberman Research. 2025. Market Research on Existing Water Heater in Select Commercial Buildings.

Efficient Residential Gas Water Heaters

In 2024, NEEA responded to policy directives in Washington by evolving the Natural Gas Market Transformation Portfolio to prioritize dual-fuel, fuel neutral, and commercial opportunities relevant to all funders. Because of this, as well as market headwinds that these products have been experiencing, NEEA is winding down activities in Efficient Residential Gas Water Heating. NEEA will continue engagement with North American Gas Heat Pump Collaborative, other utilities, and industry groups as a part of scanning to track the commercialization and market response to this product and its viability for inclusion in future building codes or product standards.

Cost Effectiveness Update

In addition to tracking and reporting the co-created energy savings, NEEA staff also conducts a benefit-cost assessment of the NEEA portfolio based on the benefit streams of programs in the market development phase. For the current natural gas portfolio, NEEA has one market transformation program that has advanced into market development: Efficient Rooftop Units. Leveraging regional assumptions and parameters from the Northwest Power and Conservation Council's ProCost tool, NEEA has assessed the benefit-cost ratio for this program at 1.1. As the new programs discussed in this memo are considered for advancement into the market development phase, having a benefit cost ratio at 1.0 or above is threshold criteria. NEEA will add those programs to a portfolio aggregation for this metric at that time.

Appendix A: Methodology to Forecast Savings

Allocation Methodology

NEEA allocates code savings for gas measures using a state/service territory approach (Table 3). 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%

NEEA used service territory allocations for the Efficient Rooftop Units savings because the program is new to the market and is tracking installations by service territory.

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 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.

Appendix B: Initiative Life Cycle

NEEA has a robust stage-gate process for managing its programs called the “initiative lifecycle”. The ILC provides a set of core business processes & tools that ensure standardized management of investment, risk and best practices. Figure 1 shows how initiatives move through the cycle (from left to right) as NEEA learns more about their promise and potential for the region, the barriers preventing that promise from being achieved, and ways to leverage the power of the region to remove those barriers.The end of each phase is marked by a formal management review called a milestone. NEEA formally solicits approval from Natural Gas Advisory Committees at key program milestones.

Figure 1: Initiative Lifecycle