Market Research & Evaluation
Request for Proposals:
RFP #52469
Commercial HVAC Market Progress Evaluation Reports

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1 Introduction

About the Northwest Energy Efficiency Alliance

The Northwest Energy Efficiency Alliance (NEEA) is an alliance of more than 140 utilities and energy efficiency organizations working on behalf of more than 13 million energy consumers. NEEA is dedicated to accelerating both electric and natural gas energy efficiency, leveraging its regional partnerships to advance the adoption of energy-efficient products, services and practices.

On behalf of the alliance, NEEA designs and implements programs that aim to transform the market around energy efficient products and practices in the Northwest region (Idaho, Montana, Oregon, and Washington). NEEA's market transformation programs invest in a suite of market intervention strategies intended to remove barriers and exploit market opportunities to accelerate the adoption of cost-effective energy efficiency. Examples of interventions that NEEA's programs have carried out in the market include: training installers on new and emerging technologies; engaging with manufacturers to influence product design and hasten commercialization of new higher efficiency models; incentivizing distributors to stock more efficient products and to provide full category sales data to NEEA in order to analyze trends in market share; coordinating with ENERGY STAR® and other energy efficiency labels to influence the labeling criteria, product categories receiving labels, and testing procedures; implementing awareness campaigns to targeted adopters of a technology or practice, and others. Looking back across NEEA's history, examples of the products that have been the focus of NEEA's market transformation programs are lighting products, such as compact fluorescent light bulbs; heat pump water heaters; HVAC technologies, such as ductless heat pumps; home appliances such as heat pump dryers and front-loading clothes washers; industrial equipment such as motors, fans, and compressors; and efficient windows. Examples of energy efficient practices that NEEA's programs have addressed include strategic energy management, green motor rewinds, and efficient home building.

Since 1997, NEEA and its partners have saved enough energy to power more than 985,000 homes each year. As the second-largest resource in the Northwest, energy efficiency can offset most of our new demand for energy, saving money and keeping the Northwest a healthy and vibrant place to live. See www.neea.org for more information.

2 Background

NEEA began studying commercial HVAC technologies to determine opportunities for market transformation in approximately 2017. After years of testing and research, NEEA established its Heating, Ventilation, and Air Conditioning (HVAC) Product Group in 2019 and then advanced two commercial HVAC technologies into formal market transformation programs in 2022. These programs are High Performance HVAC (HP HVAC) and Efficient Roof Top Units (RTUs). Though both are commercial HVAC programs, as described below, they serve different, complementary markets.

2.1 High Performance HVAC

The HP HVAC Program is currently focused on an HVAC system approach, very high efficiency Dedicated Outside Air System (DOAS). This approach includes four system elements, two for equipment and two for design. The equipment requirements[1] are:

1) A very-high efficiency energy or heat recovery ventilator (E/HRV) to serve the ventilation load, and
2) *ENERGY STAR*™ or equivalent high-efficiency heating and cooling equipment to serve the heating and cooling load

The two required design practices are:

1) Partially or fully decoupling the ventilation air (i.e., the ventilation air is controlled and delivered independently from the heating/cooling air, which implies that the ducting for each is independent), and
2) "Rightsizing" the heating and cooling system (i.e., the E/HRV enables the heating and cooling systems have less capacity than is customary and still perform as desired).

This very high efficiency approach to DOAS design and installation has been demonstrated to reduce commercial building HVAC energy use by an average of 69% (when compared to a code-minimum system) and up to 35% whole building saving depending on adherence to the design practices, the features of the building (e.g., type, vintage), and its climate zone. The Program's ultimate goal is to increase the efficiency required in commercial buildings across NEEA's region until commercial energy codes require the same efficiency as has been demonstrated using this system approach.

Because the approach requires separation of ventilation from heating/cooling, very high efficiency DOAS is best suited for new construction and major renovation projects in existing buildings. NEEA's target market includes five types of electrically heated/cooled commercial buildings: school, retail, office, assembly, and residential care (e.g., nursing homes).

During 2023 and 2024, NEEA's HP HVAC Program team will focus its market engagement efforts on the following market actors[2]:

- E/HRV Manufacturers: Program staff are continuing to work with manufacturers to vet their E/HRVs for compliance with NEEA's specifications, and determine a path to compliant equipment development, where applicable.
- HVAC System Designers: Specifically, mechanical engineers working as manufacturer representatives and their network of design engineers. NEEA is incentivizing select manufacturer's representatives to encourage their promotion of eligible equipment and the very high efficiency system DOAS approach in their sales and networking.
- Local, Regional, and National Utilities: Many utilities have existing incentives for efficient heating/cooling equipment. NEEA is working with utilities to support their design of incentives and/or general awareness building for ventilation strategies that align with very high efficiency DOAS.

[1] Detailed requirements for all four components can be found on page 2 of the Very High Efficiency DOAS Equipment and Design Practices for Optimal Efficiency.

[2] See Appendix B (High Performance HVAC Program Logic Model) for more details about Program strategic interventions, outputs, and outcomes.

- Local, Regional and National Energy Efficiency Organizations (e.g., Institute for Market Transformation and New York State Energy Research and Development Authority): NEEA is advising and supporting such organizations on the use of very high efficiency DOAS to help meet their current and future sustainability goals and mandates, particularly for small- to medium-sized buildings.
- HVAC Industry Organizations (e.g., the American Society of Heating, Refrigeration, and Air-Conditioning Engineers): Program staff are engaging with these influencer institutions to raise awareness of this system approach.

2.2 Efficient RTUs

RTUs are rooftop forced-air systems that package the evaporator, condenser coils and heating components into a single unit for commercial buildings to serve the building's heating, cooling, and ventilation requirements. A packaged RTU contains all the components needed to provide conditioned air and ventilation in one "box" located on the roof of a building. They typically house an expansion device or heating burner, evaporator coil, compressor, air-cooled condenser, and fan. RTUs are the default choice for most commercial buildings and are relatively cheap and easy to replace by swapping one for another via a "like for like" replacement.

The Efficient RTU Program aims to increase the efficiency of RTUs sold by 20 percent over the 2020 market average through product differentiation and, ultimately, federal standards. The specification includes three product measures, which are organized into two tiers:

1) Tier 1 Efficient RTUs include improved air dampers to reduce the amount of unconditioned air entering when closed and casing insulation. Alternately, an RTU can qualify for Tier 1 by demonstrating equivalent efficiency via a performance calculator.

2) Tier 2 Efficient RTUs include Tier 1 upgrades plus either a condensing gas furnace (Tier 2 CGF) or an energy recovery ventilator (Tier 2 ERV).

- A CGF heat exchanger captures the latent heat in the combustion exhaust, increasing the heating efficiency of gas-fired RTUs to 90–95 percent.[3]
- An ERV preheats incoming ventilation air with a sensible or latent heat exchanger to recover energy from the exhaust air stream. The ERV may be integrated into the RTU box or bolted on to the outside of the box.

NEEA's target market for ERTUs is **existing commercial buildings with gas heating**. During 2023 and 2024, the Program will focus its market engagement efforts on manufacturers; manufacturer representatives; distributors; HVAC contractors, including those that specialize in maintenance of commercial HVAC systems; regional, national, and Canadian gas utilities; commercial building decision makers (e.g., owners or facility managers); and corporate building decision makers (e.g., large retail chain building portfolio managers). See Appendix C (ERTU Program Logic Model) for more details about our strategic interventions, outputs, and outcomes.

[3] Schuetter, S., LeZaks, J., & Lord, M. (2016). *Commercial roof-top units in Minnesota: Characteristics and energy performance.* Madison, WI: Seventhwave. Retrieved from https://mn.gov/commerce-stat/pdfs/card-seventhwave-rtu.pdf

3 Overall Evaluation Information

Section 3 provides information relevant to both the HP HVAC and ERTU evaluation studies. Program implementation, specific evaluation tasks, relevant data, MPIs to be assessed, and timelines vary between the two programs. Section 4 provides information specific to the HP HVAC evaluation while Section 5 is specific to ERTU evaluation.

NEEA evaluates all its market transformation programs with external, third-party evaluation studies. Since NEEA's programs are guided by program theories, which are laid out in detailed logic models, the term "theory-based evaluations" is used to describe these evaluations. Instead of considering the impact in terms of units sold, average megawatts saved, or number of individuals served, NEEA's theory-based evaluations consider the extent to which programs are influencing a given market in the way anticipated by the market transformation theory (also referred to as a program theory, or theory of change). NEEA's evaluations are longitudinal, mixed-method studies that combine results from multiple evaluation activities including: large sample size surveys, interviews, focus groups, observational and ethnographic research, mystery shopping, etc. The results of these evaluations provide supporting evidence that programs are achieving their market transformation goals in the way anticipated by the program theory. Such goals might include accelerating market adoption of more efficient products, increasing the rate of installers' recommendation of a product, increasing the share of regional distributors that stock a product, increasing the number of utilities that are offering incentives for the product, or increasing retailers' awareness of a specific efficiency label for a product. Each HVAC program has developed a logic model and Market Progress Indicators (MPIs) to measure progress on outcomes (see Appendices B and C for each program's logic model and Appendices D and E for their full sets of MPIs).

The winning bidder will complete external evaluation studies and a public Market Progress Evaluation Report (MPER) for each program. NEEA's goals in combining both program evaluations into a single contract are to streamline data collection (e.g., sometimes a single survey may be used to collect data relevant to both programs), maximize budget and administrative efficiency, and reduce burdens placed on market actors working in commercial buildings and HVAC in NEEA's region.

NEEA welcomes proposals from individual firms as well as from partnering firms with complementary skills, experience, and expertise. Note that proposed staffing is a significant factor in bidder selection. NEEA has a strong preference for evaluation teams that include staff with formal training in social science research and analytic methods, as well as at least one staff member with adult learning, curriculum/training material design, and/or workforce training evaluation expertise. Staff bios should clearly describe staff training and experience relevant to their roles on the evaluation team, including fields of study and degrees attained.

This RFP covers MPER #1 for both the HP HVAC Program and the ERTU Program. NEEA reserves the right to award the subsequent MPER #2 to the selected contractor upon successful completion of MPER #1 at NEEA's sole discretion.

3.1 Evaluation Objectives

Each program's overarching evaluation objectives are the same:

1) Provide timely and actionable formative evaluation findings and recommendations to enable continuous improvement of the program;

2) Provide summative evaluation by assessing market transformation progress as measured by program MPIs; and
3) Qualitatively assess program influence on observed market transformation.

NEEA expects external formative evaluation to be ongoing for at least the first half of the contract (approximately July 2023 through March 2024). The formative evaluation must provide feedback and recommendations that can be put to use quickly to refine program implementation. Formative evaluation findings will be delivered primarily to NEEA and its implementation contractors (e.g., external firms who co-design and deliver trainings on NEEA's behalf) directly; only a high-level summary of key formative findings and recommendations will be inclued in each program MPER. Bidders should anticipate collecting and analyzing all data needed for formative evaluation.

The external summative evaluation will include primary and secondary data collection and analyses. Secondary data sources may include but are not limited to data collected by NEEA and the implementation or technical contractors working on its behalf. External summative evaluation findings and recommendations will be delivered via each program's MPER as well as presentations to NEEA staff and to NEEA's Cost Effectiveness and Evaluation Advisory Committee (CEAC). MPERs will include detailed appendices with evaluation methodologies, data collection instruments, sample/disposition information, and analytic steps for all data and analysis completed by the external evaluator. Conclusions and actionable recommendations are required for summative evaluation findings, as well.

Many of each program's MPIs require tracking change over time. Prior NEEA research has provided baseline information for some MPIs (e.g., awareness of very high efficiency DOAS before the HP HVAC Program began was nil because the system did not exist in the US until NEEA introduced it). In other cases, data collection in 2023 will set baseline rates from which to calculate change in subsequent years.

To address the third overarching evaluation objective, the evaluation team is expected to review NEEA's internal documentation of influence on market actors and markets (e.g., meeting notes, emails, documents co-written with market actors) to assess if any amount of observed market transformation (such as that measured by each program's MPIs) can reasonably be ascribed to NEEA's influence. The awarded evaluation team is expected to fill gaps in NEEA's internal documentation via interviews with key market actors. This is strictly a qualitative assessment of whether or not NEEA had any influence on particular outcomes, rather than a quantitative calculation of the degree or extent of influence. (NEEA funds separate influence evaluations for such calculations.)

Each MPER will also have tables to track outputs completed to date (e.g., number of training sessions held) and outcome progress to date (e.g., increase in the number of manufacturers with qualifying HVAC equipment). These tables will appear as report appendices. Data and analysis sources must be carefully annotated in these tables to provide full transparency of data and analytic sources. NEEA and the awarded evaluation contractor will work collaboratively to design the output and MPI tracking tables for each program.

3.2 Research Design

Bidders must provide an evaluation design addressing all of each program's formative evaluation questions as well as program MPIs. As detailed in Sections 4 and 5 below, the evaluations require the following major primary data collection efforts:

1. Annual survey of commercial HVAC contractors (including maintenance contractors)
2. Annual survey of commercial HVAC system designers (including manufacturer representatives)
3. Annual survey of commercial HVAC distributors
4. Bi-annual survey of commercial building decision makers (HVAC system buyers, starting in 2023)
5. Qualitative data collection for formative evaluation with the following audiences: commercial HVAC system designers, commercial HVAC contractors, commercial building decision makers, and commercial HVAC distributors

Additional minor primary data collection is also required (e.g., website and document reviews). **Proposals may include additional or alternative methodologies to those mentioned in this RFP; however, all methodologies must include a clear and compelling rationale.** Iterative and design research methodologies are welcome to address formative evaluation questions and may be included as long as they meet the project timeline (Section 3.6 below) and budget requirements (Section 3.5 below). Virtual and/or in-person data collection efforts are acceptable[4]. **The research design must make clear not only each data collection approach, but also the related sample sizes, audiences, analyses, and their relationship to our evaluation questions and MPIs.**

NEEA will work closely with the winning bidder to finalize the evaluation design based on their proposal and will work as a collaborator with the awarded evaluation team to assist with study-related decision making and troubleshooting.

3.3 Respondent Recruiting

NEEA will assist with recruiting by providing contact lists of all audiences and when possible, reaching out to individuals with whom it has an existing relationship to provide a "warm introduction" to the awarded evaluation team. Although NEEA updates its recruiting lists periodically, bidding firms should anticipate list errors. **An updated set of recruiting lists with dispositions and contact information for each contacted individual (whether they participated in the evaluation or not) is a required deliverable**. Bidders must budget for and provide incentives to all evaluation participants, such as gift cards for focus group participation. Bidders may propose lottery or raffle prizes. Incentive amounts must be sufficiently large to garner participation from the professional and trade audiences included in this scope (e.g., more than their usual hourly wage).

Market actors working in HVAC in the Northwest have experienced unprecedented demand for their skills in recent years; the labor market is exceptionally tight and work hours are long. Bidders should anticipate that recruiting will be time consuming and challenging. **Bidders are advised to include a recruiting professional or subcontracted firm in the proposed**

[4] In-person work should be conducted in alignment with NEEA's COVID-19 Safety Policy and Guidelines: https://neea.org/resources/neea-covid-19-safety-policy-and-guidelines.

evaluation team. Recent NEEA research suggests that email and even phone outreach is generally ineffective to recruit large numbers of HVAC contractors, commercial building decision makers, and HVAC system designers. **Bidders must plan and budget for multi-modal outreach and data collection to HVAC contractors, commercial building decision makers, and HVAC system designers, such as by phone *and* mail, including multiple rounds of outreach (e.g., 3-5 contact attempts per firm or individual) to hundreds of individuals** (see Tables 3 and 6 below for estimated population and sample sizes for various market actors). Additional outreach ideas are a welcome addition to proposals.

NEEA maintains close relationships with its funding utilities and coordinates research and data collection with them. In the event bidders can augment NEEA's recruiting lists, bidders should anticipate providing one week for NEEA and utility review of all recruiting lists before data collection begins.

Finally, to reduce bias in participant samples, NEEA prefers (but does not require) blind recruiting in which participants are not informed of NEEA's involvement until data collection is complete (e.g., at the end of each interview or survey).

3.4 Deliverables

Deliverables for each program's evaluation are:

1. A virtual, informal kickoff meeting with each program team to discuss the initial work plan as described in the proposal
2. Ongoing (e.g., biweekly) check-in meetings with the Senior Market Research and Evaluation Scientist
3. Final work plan, including timeline, recruitment, data collection, analysis, and reporting approaches for all data collected for the study
4. Draft and final recruiting language for all needed recruiting
5. Draft and final data collection instruments for all needed data collection
6. Periodic sharing of formative evaluation findings via memos, briefs, and/or informal presentations
7. Clean and de-identified data files (e.g., interview transcripts, spreadsheet of survey data, marked-up engagement materials, etc.)
8. Draft and final report (up to 40 pages excluding appendices) with appendices for all data collection instruments, detailed methodology, table of progress on outputs, and table of progress on outcomes and MPIs.
9. Presentations of findings to NEEA staff (informal) and NEEA stakeholders (formal)

The following deliverables may be shared by both programs:

10. Updated recruiting lists showing sample recruiting outreach and dispositions
11. Documentation of incentives provided to evaluation participants

Bidders may include additional deliverables that add value to NEEA.

3.5 Budget

Proposal costs should be provided on a time and materials basis. Bidders must provide the total and task budgets for major elements of work (e.g., project kickoff, data collection, data analysis, reporting, project management) for each program and each calendar year separately (e.g., one budget table for ERTUs and one for HP HVAC). If the proposed design cannot address the full scopes for both market progress evaluations, bidders should indicate additional budget needed to cover any missing scope elements.

Budgets must encompass:

- All logistics associated with executing the research tasks such as, but not limited to: travel, facilities, scheduling, online data collection platforms, etc.
- Preparing identified deliverables, including copy editing and layout/design of formal presentations and reports
- All subcontractors
- Allocation of resources to tasks
- Distribution and cost of honorariums/incentives for evaluation participation

NEEA's maximum total budget for these evaluations is $390,000, including up to $120,000 for work completed in 2023 and $270,000 for work completed in 2024.

3.6 Timeline

Here is a partial and tentative timeline for the scope of work in this RFP:

5/25/2023	Contract award date
6/15/2023	HP HVAC study kickoff
7/10/2023	ERTU study kickoff
9/5/2023	Annual surveys begin
11/30/2023	Receipt of clean and de-identified annual survey data files
9/9/2024	Annual surveys begin
10/31/2024	HP HVAC MPER 1 (Final)
11/29/2024	Receipt of clean and de-identified annual survey data files
12/2/2024	ERTU MPER 1 (Final)

In addition, bidders should expect formative evaluation work and deliverables to be completed between late summer 2023 and spring 2024.

Bidders may propose to stagger annual survey administrations such that surveys for the different market actors are completed in a series instead of in parallel each September. However, the annual HVAC contractor survey must occur during the fall "shoulder season" and annual administrations should fall 12 months apart.

All work must be completed by December 31, 2024.

4 High Performance HVAC Evaluation Scope

4.1 Formative Evaluation

The HP HVAC team has prioritized four sets of formative evaluation questions for this scope:

1. What are system designers' reactions to NEEA's *draft* training materials and engagement materials? How can the materials be improved? What questions remain for them after reviewing the materials? What else do they need to be able to design and sell very high efficiency DOAS to their clients?
2. What are system designers' reactions to NEEA training sessions and/or presentations? How can the sessions be improved? What questions remain for them after the sessions? What else do they need to be able to design and sell very high efficiency DOAS to their clients?
3. How are designers finding out about very high efficiency DOAS? Are particular channels for learning about the system (e.g., from NEEA newsletters or blog posts, from manufacturer representatives' training sessions, from NEEA training sessions, etc.) more effective at getting designers to design and sell it? How can outreach strategies and/or tactics be improved?
4. Why are proposed very high efficiency DOAS abandoned? What are the primary barriers to system adoption? How can NEEA overcome these barriers?

To the extent possible, formative data collection should leverage the same data collection tools and processes as needed for summative evaluation (see below). For example, the annual survey of system designers which could address both formative and summative needs. However, separate tools and processes may be required to meet deadlines and provide sufficient quality of data and analysis. NEEA will provide program materials (e.g., draft presentation materials) and information (times and dates of training sessions) needed for formative evaluation. See Table 1 (HP HVAC Example Formative Evaluation Approaches) below for possible approaches to these formative evaluation questions. NEEA welcomes alternative methods and analyses proposed by bidders.

Table 1. HP HVAC Example Formative Evaluation Approaches

Evaluation Question Set	Participants	Possible Data Collection	Possible Analyses	Possible Deliverable(s)	Timing
1	System designers	Document review/ critique Focus group Interviews	Compilation of all suggested revisions Qualitative or mixed methods	Document mark-up from each reviewer Brief summary or memo of findings Informal presentation	Completed before 1-2 key presentations, no later than Q1 2024
2	System designers who attend a training session or presentation	Document review/ critique Focus group Interviews Brief survey of attendees	Compilation of all suggested revisions Qualitative or mixed methods	Document mark-ups Brief summary or memo of findings Informal presentation	Completed within 1 month of 1-2 key presentation or trainings, no later than Q2 2024

Evaluation Question Set	Participants	Possible Data Collection	Possible Analyses	Possible Deliverable(s)	Timing
3	System designers NEEA newsletter recipients NEEA website visitors	Survey Review of NEEA mailing list Web engagement data	Mixed methods Network analysis	Annual brief summary or memo of findings Annual network maps or flow charts Informal presentation	Annual system designer survey to be completed each September
4	System designers	Survey	Qualitative or mixed methods	Annual brief summary or memo of findings	Annual system designer survey to be completed each September

4.2 Summative Evaluation and Approaches

The HP HVAC Program has developed 30 MPIs to assess gauge short-, mid-, and long-term progress on its outcomes. The planned evaluation scope for HP HVAC is limited to 13 short-term MPIs and four MPIs for which NEEA needs ongoing, annual data collection and analysis. Data collection, analysis, and reporting responsibilites for these MPIs will be distributed across NEEA, NEEA contractors, and the awarded evaluation firm as noted in Table 2 below. NEEA outreach/engagement documentation records communication between NEEA and other market actors (e.g., utilities, manufacturers, traing institutions) such as email correspondence, meeting agendas and notes, informal interviews, co-authored documents, etc.

Table 2. HP HVAC Summative Evaluation Responsibilities by MPI

MPI	Secondary Data from NEEA and/or NEEA contractors	Awarded Evaluator Primary Data Collection	Awarded Evaluator Deliverable(s)
1a. Increasing # of priority institutions use or reference NEEA-developed materials (e.g., specification, presentation slides, handouts, etc.) for trainings or certifications.	Outreach/ engagement documentation; materials provided to NEEA	Surveys or interviews of priority institution staff; training materials.	Final report; MPI tracking table entry
1b. Increasing # of priority utilities, qualifying E/HRV manufacturers and/or reps use NEEA messaging in their promotions.	Outreach/ engagement documentation; materials provided to NEEA	Web scraping or web scan of websites; promotional materials	Final report; MPI tracking table entry
2a. Increasing # of priority HVAC suppliers, utilities, and/or energy efficiency organizations offer incentives for qualifying E/HRVs.	Annual NW utility survey; Outreach/ engagement documentation; materials provided to NEEA	Interviews or surveys only if needed to demonstrate NEEA influence.	Final report; MPI tracking table entry

MPI	Secondary Data from NEEA and/or NEEA contractors	Awarded Evaluator Primary Data Collection	Awarded Evaluator Deliverable(s)
3a. Increasing # of manufacturers produce qualifying ERVs and/or HRVs.	Outreach/ engagement documentation	Manufacturer product lists or catalogs; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
3b. Increasing # of larger manufacturers offer qualifying ERVs and/or HRVs.	Outreach/ engagement documentation	Manufacturer product lists or catalogs; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
3c. Priority manufacturers have at least one qualifying ERV and/or HRV with 500-1000 cfm and 1000-5000 cfm capacities.	Outreach/ engagement documentation	Manufacturer product lists or catalogs; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
3d. Priority manufacturers have at least one qualifying ERV and/or HRV at a lower price point.	Outreach/ engagement documentation	Manufacturer product lists or catalogs; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
4a. ASHRAE Technical Committee TC 5.5 updates heat and energy recovery chapter in its HVAC Systems and Equipment Handbook based on NEEA input on VHE DOAS principles.	Outreach/ engagement documentation	ASHRAE HVAC Systems and Equipment Handbook Chapter 26; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
4b. ASHRAE Learning Institute (ALI) updates its Air-to-Air Energy Recovery Fundamentals seminar based on NEEA input on VHE DOAS principles.	Outreach/ engagement documentation	ALI Air-to-Air Energy Recovery Fundamentals seminar materials; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
5a. EXP18 E/HRV test procedure is drafted.	Outreach/ engagement documentation	EXP18 E/HRV test procedure from the Canadian Standards Association; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
6a. WSEC and CA Title 24 include DOAS in base commercial energy codes.	Outreach/ engagement documentation	WSEC and CA Title 24; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
6b. WSEC and CA Title 24 increase sensible effectiveness of E/HRVs.	Outreach/ engagement documentation	WSEC and CA Title 24; interviews only if	Final report; MPI tracking table entry

MPI	Secondary Data from NEEA and/or NEEA contractors	Awarded Evaluator Primary Data Collection	Awarded Evaluator Deliverable(s)
		needed to demonstrate NEEA influence	
6c. WSEC base code includes more VHE DOAS elements until all 4 key elements are included.	Outreach/ engagement documentation	WSEC; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
7a. Increasing # of commercial HVAC designers and/or manufacturer representatives can identify at least three of the four system elements.	N/A	Annual HVAC system designer survey	Final report; MPI tracking table entry
8a. Supply chain audiences increasing designing, promoting, and installing very high efficiency DOAS	N/A	Annual HVAC system designer survey	Final report; MPI tracking table entry
8d. Increasing sales of qualifying E/HRVs.	Annual HVAC supplier sales data collection	N/A	N/A. MPI tracking table entry by NEEA.
8e. Increasing number of VHE DOAS installations.	Collection of permit data, building plans, incentive paperwork, and code compliance documentation (in WA state)[5]	Annual HVAC system designer survey	Clean and de-identified data file (by mid-November each year); Summary of survey findings in final report; MPI tracking table entry by NEEA and evaluator

4.3 HP HVAC Samples/Audiences

The HP HVAC MPI Table (Table 2 above) names or implies several audiences for summative evaluation; only system designers (manufacturer representatives and mechanical engineers) are needed for formative evaluation. See Table 3 below for details about each audience needed for the evaluation.

Table 3. HP HVAC Summative Evaluation Sample/Audience Details

Sample or Audience	Examples	Estimated Population Size	Sampling Requirements
Priority institutions	National and local ASHRAE chapters; PHIUS	~15 institutions	All must be included in sampling

[5] Although NEEA is collecting these data and will be completing exploratory analyses with them, it is not anticipated that the awarded evaluator will use them for the external evaluation. Instead, it is anticipated the awarded evaluator will be using only the annual HVAC system designer survey for this MPI.

Sample or Audience	Examples	Estimated Population Size	Sampling Requirements
Priority Utilities	NEEA direct funders; NYSERDA	~15	All must be included in sampling
Qualifying E/HRV manufacturers	Tempeff; Greenheck	6-10	All must be included in sampling
Qualifying E/HRV manufacturer representatives	Mechanical Sales, Inc.; Air Reps	~7	All must be included in sampling
Priority HVAC suppliers/manufacturers	Johnson Controls; Trane (Ingersoll Rand)	~13 (inclusive of qualifying E/HRV manufacturers)	All must be included in sampling
Priority energy efficiency organizations	NYSERDA, PHIUS	15-20	All must be included in sampling
E/HRV manufacturers	Daikin Applied; Greenheck	10-20	All must be included in sampling
Larger E/HRV manufacturers	Johnson Controls; Trane (Ingersoll Rand)	4	All must be included in sampling
ASHRAE Technical Committee TC 5.5	N/A	~30	All must be included in sampling
ASHRAE Learning Institute decision makers	N/A	5-10	All must be included in sampling
EXP18 committee members	N/A	10-15	All must be included in sampling
WSEC committee members	N/A	10-15	All must be included in sampling
CA Title 24 committee members	N/A	10-15	All must be included in sampling
System designers	Mechanical engineers from firms like Ecotope as well as manufacturer representatives	Up to 1,000	For formative evaluation: Small sample sizes useful for qualitative and descriptive analysis are acceptable. For summative evaluation: Must be a representative sample of the

Sample or Audience	Examples	Estimated Population Size	Sampling Requirements
			regional population with a desired 90% confidence and 10% precision

5 ERTU Evaluation Scope

5.1 Formative Evaluation

The ERTU Program team has prioritized four sets of formative evaluation questions for this scope:

1. How are manufacturers, distributors, HVAC contractors, and commercial building decision makers learning about ERTUs? How does information about ERTUs flow between market actors? To what extent is NEEA influencing these market actors and how is any influence occurring? What could further promote dissemination of information about ERTUs?
2. What is driving ERTU demand and adoption? What non-energy benefits, value propositions, and/or business cases are resonating with market actors? What interventions, if any, are contributing to increased demand and sales? What are any patterns or trends in adoption? What could accelerate demand and adoption?
3. What barriers or issues lead to ERTU abandonment or lack of interest in ERTUs? What are the barriers/issues for each ERTU tier? How can NEEA overcome these barriers/issues?
4. What is the installed cost of an ERTU (Tier 1, Tier 2, and bolt-on ERVs) quoted to potential or actual system buyers?

To the extent possible, formative data collection should leverage the same data collection tools and processes as needed for summative evaluation. However, separate tools and processes may be required to meet deadlines and provide sufficient quality of data and analysis. NEEA will supply draft value proposition statements, business cases, etc. to support formative evaluation. See Table 4 (ERTU Example Formative Evaluation Approaches) for possible approaches to these formative evaluation questions. NEEA welcomes alternative methods and analyses proposed by bidders.

Table 4. ERTU Example Formative Evaluation Approaches

Evaluation Question Set	Participants	Possible Data Collection	Possible Analyses	Possible Deliverable(s)	Timing
1	Manufacturers Distributors HVAC contractors Commercial building decision makers	Surveys Interviews	Qualitative or mixed methods Network analysis	Brief summary or memo of findings Informal presentation	Findings by Q1 2024

Evaluation Question Set	Participants	Possible Data Collection	Possible Analyses	Possible Deliverable(s)	Timing
2	Distributors HVAC contractors Commercial building decision makers	Document review/ critique of NEEA materials Focus group Interviews Surveys	Compilation of all suggested revisions Qualitative or mixed methods	Document mark-ups Brief summary or memo of findings Informal presentation	Findings by Q2 2024
3	Distributors HVAC contractors Commercial building decision makers	Surveys Interviews	Qualitative or mixed methods	Brief summary or memo of findings Informal presentation	Findings by Q2 2024
4	HVAC contractors Commercial building decision makers	Document review (bids for ERTUs) Surveys Interviews	Quantitative	Brief summary or memo of findings Informal presentation	Findings by Q2 2024

5.2 Summative Evaluation

The ERTU Program team has developed 38 MPIs to assess short-, mid-, and long-term progress on its intended outcomes. The planned scope for ERTUs is limited to 22 short-term MPIs and nine MPIs for which NEEA needs ongoing, annual data collection and analysis. As with HP HVAC, data collection, analysis, and reporting responsibilites for these MPIs will be distributed across NEEA, NEEA contractors, and the awarded evaluation firm as noted in Table 5 below. The final report should be complete and ready for publication by the end of Q4 2024.

Table 5. ERTU Summative Evaluation Responsibilities by MPI

MPI	Secondary Data from NEEA and/or NEEA contractors	Awarded Evaluator Data Collection Role(s)	Awarded Evaluator Deliverable(s)
1a. Increasing # of large maintenance contractors recommend qualifying equipment year-over-year	N/A	Annual HVAC contractor survey	Final report; MPI tracking table entry
1b. Increasing # of national and/or regional agreements and/or	Outreach/ engagement documentation	Annual HVAC contractor survey; interviews with corporations; review of agreements and/or policies	Final report; MPI tracking table entry

MPI	Secondary Data from NEEA and/or NEEA contractors	Awarded Evaluator Data Collection Role(s)	Awarded Evaluator Deliverable(s)
procurement policy changes year-over-year			
1c. Increasing # of national and/or regional purchases through purchase agreements year-over-year	Outreach/ engagement documentation	Interviews with corporations; interviews with manufacturers and/or distributors	Final report; MPI tracking table entry
1d. Increasing # of corporations include qualifying equipment in their national and/or regional building specifications year-over-year	Outreach/ engagement documentation	Interviews with corporations; review of building specifications	Final report; MPI tracking table entry
2a. Voluntary standard and QPL based on NEEA's specification are adopted by a partner/owner.	Outreach/ engagement documentation; NEEA Codes & Standards Tracker	Voluntary standard documentation; QPL documentation; interviews with standard and/or QPL owners only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
2b. Standard is updated on a regular basis by its owner.	Outreach/ engagement documentation; NEEA Codes & Standards Tracker	Voluntary standard documentation; interviews with standard owner only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
2c. QPL is updated on a regular basis by its owner.	Outreach/ engagement documentation; NEEA Codes & Standards Tracker	QPL documentation; interviews with QPL owners only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
3a. Increasing # of the top five manufacturers produce at least one light commercial Tier 1 ERTU model (performance or prescriptive path).	Outreach/ engagement documentation	Manufacturer product lists or catalogs; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
3b. Increasing # of the top five manufacturers produce at least one light commercial Tier 2 ERTU model (performance or prescriptive path).	Outreach/ engagement documentation	Manufacturer product lists or catalogs; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
3c. Increasing # of manufacturers offer bolt-	Outreach/ engagement documentation	Manufacturer product lists or catalogs; interviews only if	Final report; MPI tracking table entry

MPI	Secondary Data from NEEA and/or NEEA contractors	Awarded Evaluator Data Collection Role(s)	Awarded Evaluator Deliverable(s)
on E/HRVs for 3-25 ton RTUs.		needed to demonstrate NEEA influence	
3d. Distributors offer an increasing # of Tier 2 ERTU options (models or with bolt-on E/HRV).	Outreach/ engagement documentation	Distributor product lists or catalogs; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
3e. Manufacturers produce an increasing # of light commercial Tier 1 ERTU models.	Outreach/ engagement documentation	Manufacturer product lists or catalogs; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
3f. Manufacturers produce an increasing # of light commercial Tier 2 ERTU models.	Outreach/ engagement documentation	Manufacturer product lists or catalogs; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
3g. At least one manufacturer offers a value Tier 1 ERTU model.	Outreach/ engagement documentation	Manufacturer product lists or catalogs; interviews only if needed to demonstrate NEEA influence	Final report; MPI tracking table entry
4a. Increasing # of distributor sales managers (across branches) are aware of NEEA's specification and/or at least one ERTU model.	N/A	Annual distributor survey or interviews	Final report; MPI tracking table entry
4b. Increasing # of distributor sales managers (across branches) are aware of whole unit efficiency for heating.	N/A	Annual distributor survey or interviews	Final report; MPI tracking table entry
4c. Increasing # of HVAC contractors (including maintenance contractors) are aware of NEEA's specification and/or at least one ERTU model.	N/A	Annual HVAC contractor survey	Final report; MPI tracking table entry
4d. Increasing # of HVAC contractors (including maintenance contractors) are aware of whole unit efficiency for heating.	N/A	Annual distributor survey or interviews	Final report; MPI tracking table entry
4e. Increasing # of distributor sales managers (across branches) can name at least one value proposition for any ERTU.	N/A	Annual distributor survey or interviews	Final report; MPI tracking table entry

MPI	Secondary Data from NEEA and/or NEEA contractors	Awarded Evaluator Data Collection Role(s)	Awarded Evaluator Deliverable(s)
4f. Increasing # of commercial building decision makers can name at least one value proposition for any ERTU.	N/A	Annual commercial building decision maker survey or interviews	Final report; MPI tracking table entry
4g. Increasing # of HVAC contractors (including maintenance contractors) can name at least one value proposition for any ERTU.	N/A	Annual distributor survey or interviews	Final report; MPI tracking table entry
4h. Increasing # of HVAC contractors (including maintenance contractors) perceive of ERTUs as like-for-like replacements for traditional ERTUs.	N/A	Annual HVAC contractor survey or interviews	Final report; MPI tracking table entry
5a. Distributors stock an increasing # of Tier 1 ERTU models.	Outreach/ engagement documentation	Annual distributor survey or interviews	Final report; MPI tracking table entry
5b. Distributors stock an increasing # of Tier 2 ERTU models.	Outreach/ engagement documentation	Annual distributor survey or interviews	Final report; MPI tracking table entry
5c. Distributors stock an increasing # of bolt-on E/HRVs.	Outreach/ engagement documentation	Distributor interviews and/or surveys	Final report; MPI tracking table entry
5d. Increasing year-over-year sales of Tier 1 ERTUs.	Annual HVAC supplier sales data collection	Annual HVAC contractor survey	N/A. MPI tracking table entry by NEEA.
5e. Increasing year-over-year sales of Tier 2 ERTUs.	Annual HVAC supplier sales data collection	Annual HVAC contractor survey	N/A. MPI tracking table entry by NEEA.
5f. Increasing year-over-year bolt-on E/HRV installations.	Annual HVAC supplier sales data collection	Annual HVAC contractor survey	Clean and de-identified data file (by mid-November each year); Final report; MPI tracking table entry by NEEA and evaluator
6a. An increasing number of NW gas utility commercial HVAC programs (NEEA and non-NEEA) include products that meet the standard in their specifications,	Outreach/ engagement documentation NEEA Annual Local Programs Survey	N/A	N/A. MPI tracking table entry by NEEA.

MPI	Secondary Data from NEEA and/or NEEA contractors	Awarded Evaluator Data Collection Role(s)	Awarded Evaluator Deliverable(s)
messaging, and/or incentives.			
6b. At least 80% of NW gas utility commercial HVAC programs include products that meet the standard in their specifications, messaging, and/or incentives.	Outreach/ engagement documentation NEEA Annual Local Programs Survey	N/A	N/A. MPI tracking table entry by NEEA.
6c. An increasing number of priority extra-regional gas utility commercial HVAC programs include products that meet the standard in their specifications, messaging, and/or incentives.	Outreach/ engagement documentation	Web scan of utility websites; review of utility program documentation; interviews with utility program managers only if needed	Final report; MPI tracking table entry

5.3 ERTU Samples/Audiences

Audiences for the ERTUs evaluations are named in Tables 4 and 5 above. See Table 6 below for additional details about each audience needed for the ERTU evaluations.

Table 6. ERTU Formative and Summative Evaluation Sample/Audience Details

Sample or Audience	Examples	Estimated Population Size	Sampling Requirements
Large maintenance contractors	McKinstry	TBD. May number in the hundreds.	Must be a representative sample of the regional population with a desired 90% confidence and 10% precision
Corporations	TBD	TBD	All must be included in sampling
Voluntary standard holder	Consortium for Energy Efficiency (CEE)	1	All must be included in sampling
Top 5 manufacturers	Lennox Trane Carrier Daikin Rheem	5	All must be included in sampling
Manufacturers	AAON Nortek Modine Greenheck York	12	For formative evaluation: Small sample sizes useful for qualitative and descriptive analysis are acceptable.

Sample or Audience	Examples	Estimated Population Size	Sampling Requirements
			For summative evaluation: All must be included in sampling
Distributors	Air Reps Airefco Mar-Hy Gensco	14	For formative evaluation: Small sample sizes useful for qualitative and descriptive analysis are acceptable. For summative evaluation: All must be included in sampling
Distributor sales managers	Staff at branch offices for the 14 distributors	~100	Must be a representative sample of the regional population with a desired 90% confidence and 10% precision
HVAC contractors	HVAC installation firms	3000-4000 (inclusive of large maintenance contractors)	For formative evaluation: Small sample sizes useful for qualitative and descriptive analysis are acceptable. For summative evaluation: Must be a representative sample of the regional population with a desired 90% confidence and 10% precision
Commercial building decision makers for HVAC purchases	Building owners Facility managers	TBD. There are ~75,000 commercial buildings in the program target market.	For formative evaluation: Small sample sizes useful for qualitative and descriptive analysis are acceptable. For summative evaluation: Sample sizes to allow for descriptive statistics for each state and for the region overall
Priority extra-regional gas commercial HVAC programs	Minnesota Center for Energy and Environment	5	All must be included in sampling

6 Proposal Requirements

6.1 Proposal Format

6.1.1 Executive Summary of Research Design

Include the key strategies and approach to completion of the scope of the work, proposed total cost, and the reasons NEEA should select your team. Identify any subcontractors and note their roles on the team.

6.1.2 Tasks and Deliverables

Provide a detailed description of the specific methodologies, sampling, and analytic approaches to complete the scope. Include project management activities as well. Identify all major phases and milestones for the project and the associated deliverables.

6.1.3 Project Timeline & Cost Estimate

Provide the proposed timeline for all major phases and milestones of the project broken out by proposed task and associated deliverables. **Include the cost estimate for each task.** A breakout of any direct costs and an hourly rate sheet for the project period should be included in the Proposal Appendix section.

6.1.4 Proposal Appendix

- Hourly Rate Sheet for all proposed project team members with estimated hours by task
- Company background & qualifications, including for subcontractors.
- Project team & team bios for all team members, **including for subcontractors**. Describe team structure, team members' roles on the proposed evaluation studies, past team efforts on similar work, years of experience and other relevant qualifications.

7 Proposal Submission

Bidder shall submit (1) electronic copy of the proposal by the end of business day listed in the RFP schedule below.

7.1 RFP Schedule

3/1/2023	Intent to bid submission due by
3/15/2023	Email questions for clarification submitted by
3/24/2023	Email answers provided by
4/7/2023	Video conference to discuss potential design (at bidder request) by
4/21/2023	Proposals due by
5/10/2023	Selection of finalists by
5/24/2023	Video conference with each finalist held by
5/25/2023	Anticipated contract award date

7.2 RFP Point of Contact

All correspondence, included but not limited to, questions and submissions shall be directed to:

Lauren Bates, Senior Market Research and Evaluation Scientist
lbates@neea.org

7.3 Intent to Respond

All Intent to Respond forms (see Appendix A) must be received no later than by the end of business day listed in the RFP Schedule.

Only those parties submitting the Intent to Respond form will be provided with updates to the RFP, have questions responded to and have their proposals considered.

8 Selection and Insurance Requirements

Bidding firms will be rated among others in terms of the overall responsiveness to the RFP including, but not limited to:

1) Demonstrated understanding evaluation objectives, nuances, and potential roadblocks to meeting objectives
2) The thoughtfulness and appropriateness of the proposed design used to accomplish the desired results of the project
3) Thoughtfulness and appropriateness of respondent recruitment approach and ability to address potential issues
4) How well deliverable examples and descriptions meet the stated needs and intended use
5) Overall value for expenditure
6) Evidence of innovation/creativity in both overall design, recruitment, and deliverables
7) Ability to communicate complex ideas/concepts in a clear and succinct fashion
8) The experience and qualifications of the individuals specifically proposed to execute and manage the project
9) The experience of the firm or team of firms making the proposal
10) The capability to execute the plan, including past experience and aptitude for collaboration

Proposals will be evaluated by the NEEA Senior Market Research and Evaluation Scientist and other NEEA staff with the perspective and expertise needed to select an appropriate evaluation team. NEEA is under no obligation to provide work to any vendors responding to this solicitation, nor is there any obligation or intent implied to reimburse any party for the cost of preparing a proposal in response to this RFP.

8.1 Preferred Insurance

Firms interested in working with NEEA should be aware of the following insurance requirements for all NEEA vendors.

Vendors must maintain adequate and reasonable insurance covering their performance under any offered contract, including, but not limited to Commercial General Liability insurance of at least $1,000,000/occurrence, Business Automobile Liability insurance, and any workers' compensation and unemployment insurance required by law. Professional Liability and Cyber Liability insurance may also be required. NEEA may request a copy of such insurance policies prior to awarding work.

See sample terms and conditions for additional information about minimum insurance requirements: https://neea.org/img/documents/sample-neea-contract-terms-and-conditions.pdf.

Appendix A: Intent to Respond Form

RFP #: 52469

Project Title: Commercial HVAC Market Progress Evaluations 1
NEEA Point of Contact: Lauren Bates (lbates@neea.org)

PLEASE TYPE OR PRINT:

Company	
Address	
City, State, Zip	
Contact Name	
Contact Title	
Phone #	
E-mail	

The company named above intends to submit a proposal in response to NEEA's request for proposal listed above. Deadline for submitting the Intent to Respond form is end of business day of date listed in the RFP schedule.

List any Disadvantaged Business Enterprise (DBE) certifications and the state of the certifications below:

_____

_____

_____

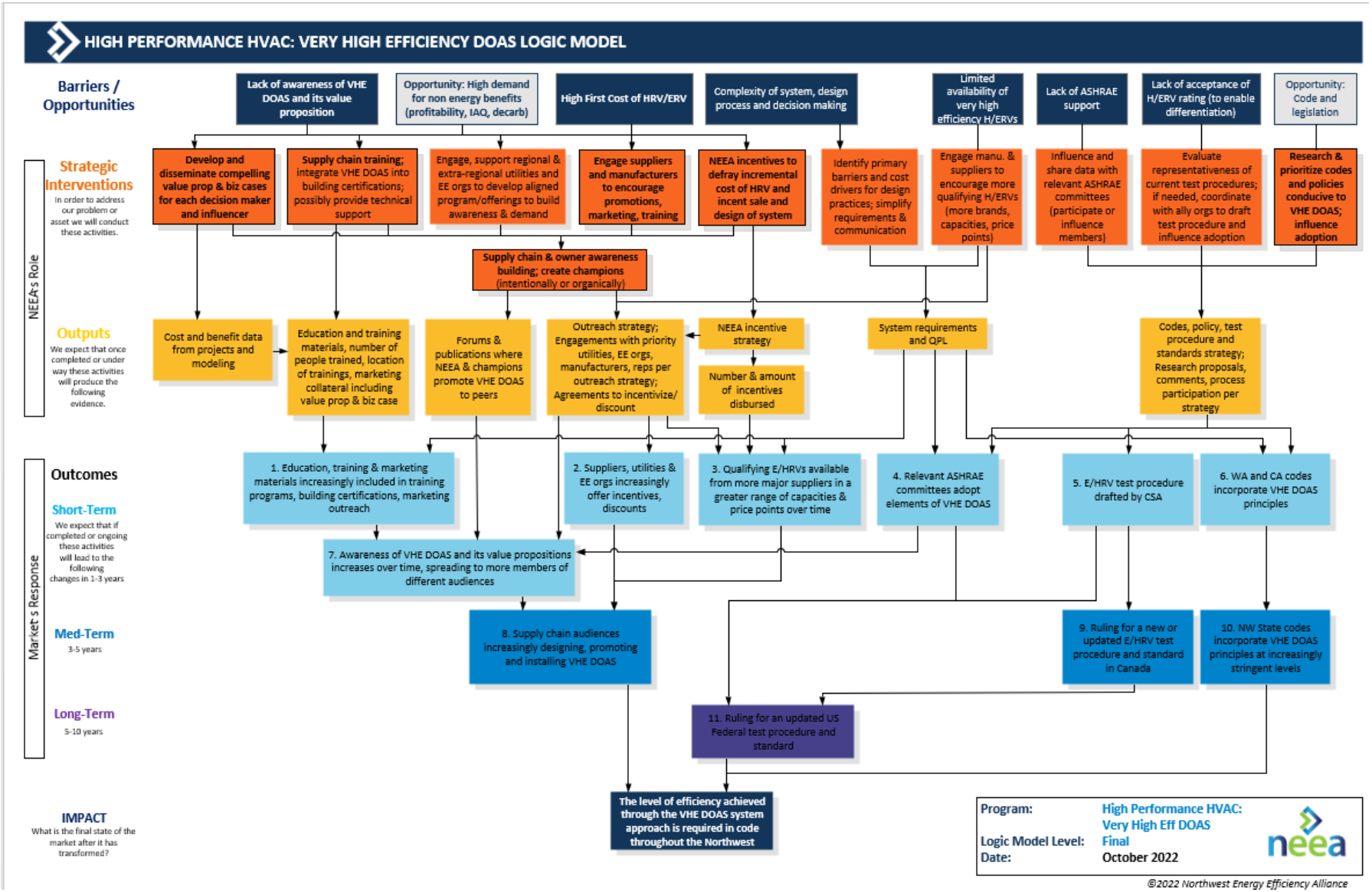
Signature of Authorized Representative _____

Print Name _____

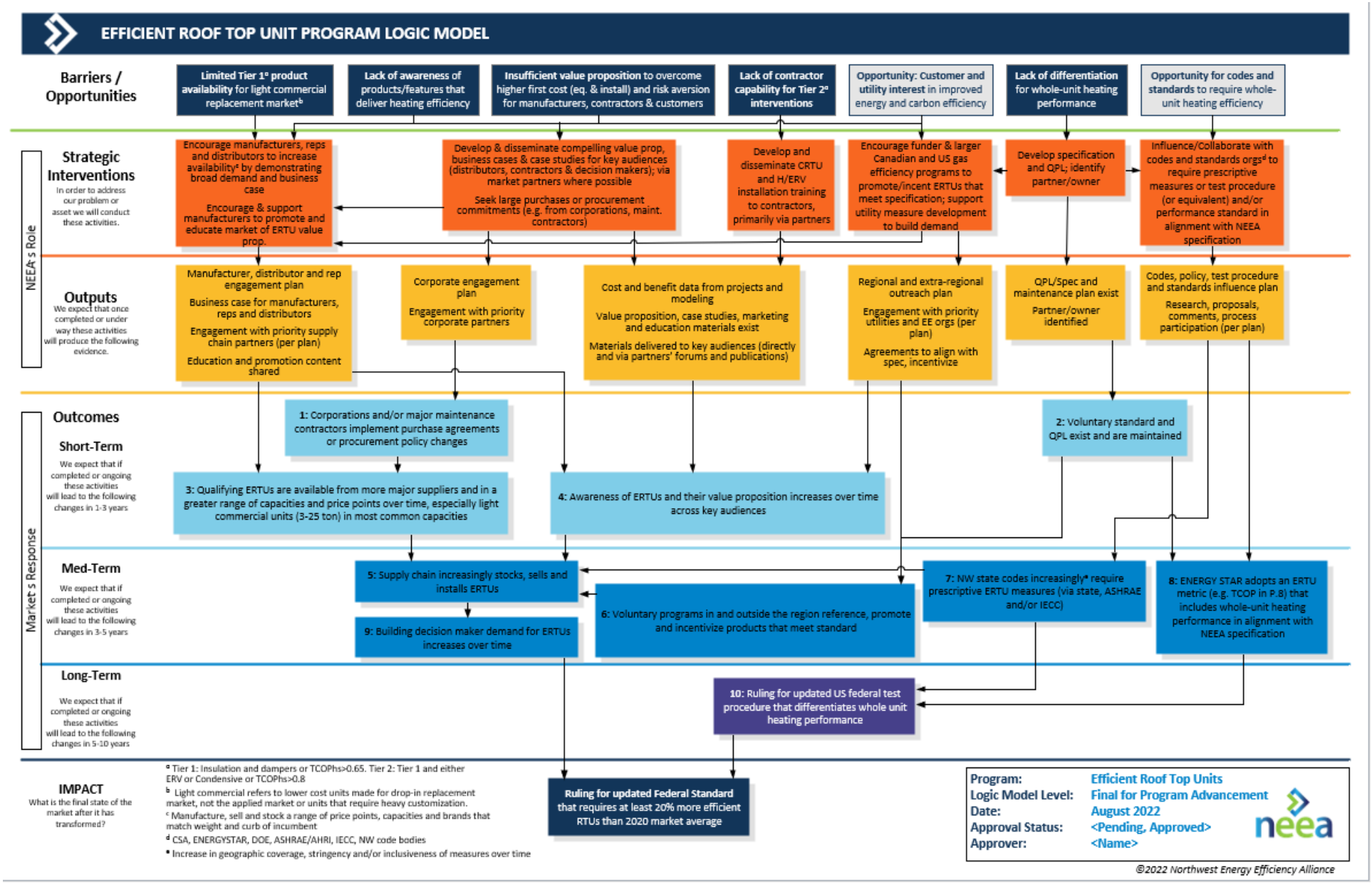
Title _____

Date _____

Appendix B: High Performance HVAC Program Logic Model



Appendix C: ERTU Program Logic Model



Appendix D: HP HVAC MPIs

#	Outcome	MPIs
I	Education and training materials, and marketing collateral are increasingly included in non-NEEA training programs, building certifications, and marketing outreach	a. Increasing # of priority institutions use or reference NEEA-developed materials (e.g., specification, presentation slides, handouts, etc.) for trainings or certifications. b. Increasing # of priority utilities, qualifying E/HRV manufacturers and/or reps use NEEA messaging in their promotions.
II	Suppliers, utilities, and energy efficiency organizations increasingly offer incentives and/or discounts	a. Increasing # of priority HVAC suppliers, utilities, and/or energy efficiency organizations offer incentives for qualifying E/HRVs.
III	Qualifying E/HRVs become available from more major suppliers and in a greater range of capacities and price points over time	a. Increasing # of manufacturers produce qualifying ERVs and/or HRVs. b. Increasing # of larger manufacturers offer qualifying ERVs and/or HRVs. c. Priority manufacturers have at least one qualifying ERV and/or HRV with 500-1000 cfm and 1000-5000 cfm capacities. d. Priority manufacturers have at least one qualifying ERV and/or HRV at a lower price point.
IV	Relevant ASHRAE committees adopt elements of VHE DOAS	a. ASHRAE Technical Committee TC 5.5 updates heat and energy recovery chapter in its HVAC Systems and Equipment Handbook based on NEEA input on VHE DOAS principles. b. ASHRAE Learning Institute (ALI) updates its Air-to-Air Energy Recovery Fundamentals seminar based on NEEA input on VHE DOAS principles.
V	E/HRV test procedure drafted by Canadian Standards Association (CSA)	a. EXP18 E/HRV test procedure is drafted.
VI	Washington and Oregon and ASHRAE 90.1 codes incorporate VHE DOAS principles (NEEA codes team will do most data collection & analysis for this)	a. WSEC and CA Title 24 include DOAS in base commercial energy codes. b. WSEC and CA Title 24 increase sensible effectiveness of E/HRVs. c. WSEC base code includes more VHE DOAS elements until all 4 key elements are included.

#	Outcome	MPIs
VII	Awareness of VHE DOAS and its value propositions increases over time, spreading to more members of different audiences	a. Increasing # of commercial HVAC designers and/or manufacturer's representatives can identify at least three of the four system elements. b. Increasing # of architects can identify at least three of the four system elements. c. Increasing # of commercial HVAC contractors can identify at least three of the four system elements. d. Increasing # of commercial HVAC designers and/or manufacturer's representatives can name at least one value proposition for the system. e. Increasing # of architects can name at least one value proposition for the system. f. Increasing # of commercial HVAC contractors can name at least one value proposition for the system. g. Increasing # of commercial building owners can name at least one value proposition for the system.
VIII	Supply chain audiences increasingly designing, promoting, and installing VHE DOAS	a. Increasing # of manufacturer representatives and/or design engineers propose the system to their clients. b. Increasing # of commercial HVAC contractors propose the system to their clients. c. Increasing # of architects propose the system to their clients. d. Increasing sales of qualifying E/HRVs. e. Increasing number of VHE DOAS installations.
IX	H/ERV test procedure and standard adopted in Canada	a. Ruling for a new or updated H/ERV test procedure and/or standard in Canada.
X	Northwest state codes incorporate VHE DOAS principles at increasingly stringent levels	a. IECC includes more VHE DOAS elements in high performance path until all 4 key elements are included. b. IECC includes DOAS in base commercial energy code.
XI	Federal test procedure and standard adopted in US	a. ASHRAE 90.1 standard updated to include DOAS with heat recovery. b. AHRI creates new test procedure influenced by NEEA.

Appendix E: ERTU MPIs

#	Outcome	MPIs
I	Corporations and/or major maintenance contractors implement purchase agreements and/or procurement policy changes to include ERTUs	a. Increasing # of large maintenance contractors recommend qualifying equipment year-over-year b. Increasing # of national and/or regional agreements and/or procurement policy changes year-over-year c. Increasing # of national and/or regional purchases through purchase agreements year-over-year d. Increasing # of corporations include qualifying equipment in their national and/or regional building specifications year-over-year
II	Voluntary standard and QPL exist and are maintained	a. Voluntary standard and QPL based on NEEA's specification are adopted by a partner/owner. b. Standard is updated on a regular basis by its owner. c. QPL is updated on a regular basis by its owner.
III	Qualifying ERTUs are available from more major suppliers and in a greater range of capacities and price points over time, especially light commercial units (3-25 ton) in the most common capacities	a. Increasing # of the top five manufacturers produce at least one light commercial Tier 1 ERTU model (performance or prescriptive path). b. Increasing # of the top five manufacturers produce at least one light commercial Tier 2 ERTU model (performance or prescriptive path). c. Increasing # of manufacturers offer bolt-on E/HRVs for 3–25-ton RTUs. d. Distributors offer an increasing # of Tier 2 ERTU options (models or with bolt-on E/HRV). e. Manufacturers produce an increasing # of light commercial Tier 1 ERTU models. f. Manufacturers produce an increasing # of light commercial Tier 2 ERTU models. g. At least one manufacturer offers a value Tier 1 ERTU model.
IV	Awareness of ERTUs and their value propositions increase over time across key audiences (distributors, HVAC contractors including maintenance contractors, and building decision makers)	a. Increasing # of distributor sales managers (across branches) are aware of NEEA's specification and/or at least one ERTU model. b. Increasing # of distributor sales managers (across branches) are aware of whole unit efficiency for heating.

#	Outcome	MPIs
		c. Increasing # of HVAC contractors (including maintenance contractors) are aware of NEEA's specification and/or at least one ERTU model. d. Increasing # of HVAC contractors (including maintenance contractors) are aware of whole unit efficiency for heating. e. Increasing # of distributor sales managers (across branches) can name at least one value proposition for any ERTU. f. Increasing # of commercial building decision makers can name at least one value proposition for any ERTU. g. Increasing # of HVAC contractors (including maintenance contractors) can name at least one value proposition for any ERTU. h. Increasing # of HVAC contractors (including maintenance contractors) perceive of ERTUs as like-for-like replacements for traditional ERTUs.
V	Supply chain increasingly stocks, sells, and installs ERTUs	a. Distributors stock an increasing # of Tier 1 ERTU models. b. Distributors stock an increasing # of Tier 2 ERTU models. c. Distributors stock an increasing # of bolt-on E/HRVs. d. Increasing year-over-year sales of Tier 1 ERTUs. e. Increasing year-over-year sales of Tier 2 ERTUs. f. Increasing year-over-year bolt-on E/HRV installations.
VI	Voluntary programs in and outside the region reference, promote, and incentivize products that meet the standard	a. An increasing number of NW gas utility commercial HVAC programs (NEEA and non-NEEA) include products that meet the standard in their specifications, messaging, and/or incentives. b. At least 80% of NW gas utility commercial HVAC programs include products that meet the standard in their specifications, messaging, and/or incentives. c. An increasing number of priority extra-regional gas utility commercial HVAC programs include products that meet the standard in their specifications, messaging, and/or incentives.
VII	NW state codes increasingly require prescriptive ERTU measures	a. Over time, WSEC requires more of the following that meet NEEA specification: low-leakage dampers,

#	Outcome	MPIs
		2” cabinet insulation, condensing furnaces, and/or E/HRVs. b. Over time, OR commercial code requires more of the following that meet NEEA specification: low-leakage dampers, 2” cabinet insulation, condensing furnaces, and/or E/HRVs. c. Over time, IECC requires more of the following that meet NEEA specification: low-leakage dampers, 2” cabinet insulation, condensing furnaces, and/or E/HRVs.
VIII	ENERGY STAR adopts an ERTU metric (e.g., Total Coefficient of Performance in the P.8 test procedure) that includes whole-unit heating performance in alignment with NEEA specification	a. ENERGY STAR adopts a whole-unit efficiency metric for their RTU ratings.
IX	Building decision maker demand for ERTU increases over time	a. HVAC contractors report increasing buyer requests for ERTUs. b. Increasing # of commercial building decision makers ask for ERTUs.
X	Test procedure adopted federally that differentiates whole-unit heating performance	a. Ruling for a new or updated federal test procedure that includes whole-unit efficiency.