

2024 Q2 *Market Research & Evaluation* *Quarterly Newsletter*

WHAT'S NEW:



Hello there!

The slightly slower pace and sunny days of summer are almost here. While NEEA's Market Research and Evaluation (MRE) team has a lot of work to carry out through the warm months, things are slowing just a bit. This is evidenced by the slightly shorter than typical list of projects highlighted in this quarter's newsletter. The team has several ongoing evaluations in the field, including three market progress evaluations (for High-Performance HVAC, Efficient Rooftop Units and Extended Motor Products programs) as well as four state energy code compliance evaluations that are designed to estimate the rate of compliance with updated state building codes.

It is also worth mentioning several interesting market research efforts that are underway. Two studies have just launched to support gas water heating program opportunities. Another study will explore consumers' use and attitudes associated with connected consumer products. Additionally, there will be a slight change to the way that Market Progress Evaluation Reports are numbered for NEEA's Codes program, see [page 11](#) for more details.

Lots on the horizon. Enjoy this newsletter and please reach out with any questions or suggestions.

~ **Amy Webb, Sr. Manager**, Market Research & Evaluation ~

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At a Glance

MARKET RESEARCH & EVALUATION PROJECTS

Integrated Systems



Efficient Rooftop Units: *Market Progress Evaluation Report #1*

High-Performance HVAC: *Market Progress Evaluation Report #1*

Extended Motor Products: *Market Progress Evaluation Report #1*

Extended Motor Products: *Agricultural Pumps Market Research*

BetterBricks: *Commercial Building Decision Maker Market Research*



Products

Efficient Gas Water Heaters: *Condensing Gas Water Heater Qualitative Market Research*

Efficient Gas Water Heaters: *Existing Water Heaters in Select Commercial Buildings Market Research*

High-Performance Windows: *Residential Market Share Study*

Retail Product Portfolio: *Connected Consumer Products Market Research*

Retail Product Portfolio: *Retailer and Manufacturer Sustainability Goal Literature Review*

PLANNING* FIELDING* REPORTING*



DUAL FUEL (Electric & Natural Gas) PROJECTS:



NATURAL GAS PROJECTS:



*PLANNING: MRE projects from inception through proposal selection

*FIELDING: MRE projects from kick-off through the completion of field work

*REPORTING: MRE projects in the analysis/synthesis stage through report posting



At a Glance

MARKET RESEARCH & EVALUATION PROJECTS

Codes, Standards, New Construction



		PLANNING*	FIELDING*	REPORTING*
Codes: <i>Assessment of Alternative Approaches to Estimating NEEA's State Energy Codes Influence</i>			✓	
Codes: <i>Market Progress Evaluation Report #5</i>				✓
Codes: <i>Market Progress Evaluation Report #6</i>			✓	
Codes: <i>Home Energy Raters Market Research</i>			✓	
Residential Codes: <i>Idaho Residential Code Compliance Evaluation</i>	 / 			✓
Residential Codes: <i>Montana Residential Code Compliance Evaluation</i>			✓	
Residential Codes: <i>Oregon Residential Code Compliance Evaluation</i>	 / 		✓	
Commercial Codes: <i>Idaho Commercial New Construction Code Compliance Evaluation</i>	 / 		✓	
Commercial Codes: <i>Montana Commercial New Construction Code Compliance Evaluation</i>			✓	
Standards: <i>Battery Chargers Standard Evaluation</i>			✓	
Standards: <i>Non-Weatherized Gas Furnaces and Mobile Home Furnaces Standard Evaluation</i>				✓

DUAL FUEL (Electric & Natural Gas) PROJECTS:  / 

NATURAL GAS PROJECTS: 

***PLANNING:** MRE projects from inception through proposal selection

***FIELDING:** MRE projects from kick-off through the completion of field work

***REPORTING:** MRE projects in the analysis/synthesis stage through report posting



Market Progress Evaluation Report #1

Efficient Rooftop Units (RTU)

FIELDING

As of late 2022, NEEA's Efficient RTU program is actively promoting efficient RTUs for gas heated commercial buildings across the region. This study will be the first evaluation of the program's Market Transformation efforts. The program's overarching objectives for the study are to:

1. Provide timely and actionable formative evaluation findings and recommendations to enable continuous improvement of the program.
2. Assess Market Transformation progress as measured by program Market Progress Indicators.
3. Qualitatively assess program influence on observed market transformation.

NEEA contracted with Apex Analytics and NMR Group to conduct the evaluation. NEEA kicked off the Efficient RTU evaluation in June 2023. In Q1 2024, the evaluation team plans to hold focus groups with two small groups of commercial building decision makers (e.g., building owners, operators, and facilities managers); survey commercial building decision makers across the region; and interview individuals who have or have considered having an efficient RTU on their building.

The study is being conducted in close coordination with the Market Progress Evaluation for the High-Performance HVAC program, which is also being completed by Apex Analytics and NMR Group.

The evaluation will be ongoing through fall 2024, with a final report anticipated in Q4 2024.

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Market Progress Evaluation Report #1

High-Performance HVAC

FIELDING

As of late 2022, NEEA's High-Performance HVAC program is intervening to transform the market for very high efficiency Dedicated Outside Air Systems (DOAS) for electrically heated commercial buildings across the region. This study will be the first evaluation of the program's Market Transformation efforts. The program's overarching objectives for the study are to:

1. Provide timely and actionable formative evaluation findings and recommendations to enable continuous improvement of the program.
2. Assess Market Transformation progress as measured by program Market Progress Indicators.
3. Qualitatively assess program influence on observed market transformation.

NEEA contracted with Apex Analytics and NMR Group to conduct the evaluation. NEEA kicked off the High-Performance HVAC evaluation in July 2023. In Q2 2024, the evaluation team will complete the analysis of HVAC system designer and manufacturer representative survey data, plan and facilitate the fourth of five Synthesis Sessions with NEEA High-Performance HVAC program staff regarding preliminary findings from these data collection activities and prepare for final activities supporting the assessment of the program's Market Progress Indicators. This includes the second administration of the HVAC system designer and manufacturer representative survey as well as market actor interviews to address gaps in Market Progress Indicator knowledge.

This study is being conducted in close coordination with the Market Progress Evaluation for the Efficient RTU program, which is also being completed by Apex Analytics and NMR Group.

The evaluation will be ongoing through fall 2024, with a final report anticipated in Q4 2024.

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Market Progress Evaluation Report #1

Extended Motor Products (XMP)

FIELDING

NEEA contracted with ADM Associates, Inc., to field the inaugural XMP Market Progress Evaluation Report (MPER), which serves as the first evaluation of the program's Market Transformation efforts. The program's overarching objectives for the study are to:

1. Review the XMP Market Transformation Theory, Program Logic Model, and Market Progress Indicators (MPIs) to assess their clarity and alignment in conveying (1) the program's strategy and planned activities to overcome market barriers and drive market changes that will increase efficient clean-water pump and circulator adoption, and (2) NEEA's proposed approach for evaluating XMP market progress.
2. Conduct the first year of tracking MPIs to lay the groundwork for year-over-year evaluation, and report progress on several near-term outcomes.

A project kick-off was held in January 2024, followed by sample development and instrument preparation. Data collection began in late Q1 2024 with interviews with NEEA XMP program staff, implementation contractors, and industry partners. These efforts are expected to continue through Q2 and Q3 2024 with the administration of surveys or interviews across multiple market actor groups (including pump and circulator manufacturers' representatives, distributors, specifiers, contractors and project owners). Data analysis is expected to begin in Q3 2024 and will continue through Q4 2024. A final report is anticipated in late Q4 2024.

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Agricultural Pumps Market Research

Extended Motor Products (XMP)

PLANNING

In order to support ongoing program planning and opportunity assessment, NEEA intends to field a research study exploring the dynamics of the agricultural pump market across NEEA's four-state region. Study methods are likely to include secondary research accompanied by primary data collection (e.g., in-depth interviews, electronically administered surveys) to seek input and insight from professionals active in this market. The project kickoff is anticipated in Q3 2024.

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Commercial Building Market Research

BetterBricks

REPORTING

NEEA contracted with ETHNO Insights, LLC to conduct market research to refine and expand on NEEA's understanding of the building renovation process for commercial building decision makers, in order to generate recommendations on how NEEA could support decision makers and their networks. ETHNO conducted secondary research and 16 interviews with commercial building decision makers from Q4 2023 to Q2 2024. The report captures numerous insights and nuances on the complexity of this process and relevant audiences. Two top takeaways include the necessity of getting involved during early planning stages and focusing early efforts on tenant companies with public sustainability statements. NEEA's BetterBricks website, as well as other commercial building programs at NEEA, plan to leverage these findings to refine messaging and intervention strategies to support better uptake of energy-efficient technologies in commercial buildings.

A final report is available on neea.org.

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Condensing Gas Water Heater Qualitative Market Research

Efficient Gas Water Heaters

FIELDING

NEEA contracted with ILLUME Advising, LLC to conduct research to better understand the purchase motivators among owners of the most efficient currently available gas storage water heaters (condensing gas water heaters) across North America. This research will inform the Efficient Gas Water Heater program's future efforts and development of the value proposition for commercialization of residential gas heat pump water heaters.

The key objectives of the qualitative research effort are to:

- Understand purchaser behaviors and attitudes that result in the actual purchase and installation of highly efficient condensing gas storage units in their homes
- Understand purchasers' overall satisfaction of the unit and interaction with the unit
- Determine purchaser willingness to replace current units with newer condensing units and, if willing, under what scenarios (planned replacement, failure, etc.)

Data collection began in Q2 2024 and a final report is anticipated in early Q4 2024.

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Products

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Existing Water Heaters in Select Commercial Buildings Market Research

Efficient Gas Water Heaters

FIELDING

NEEA staff developed a Market Transformation program concept for Advanced Commercial Gas Water Heating that was added to the portfolio in Q4 2023. As the program enters the program development phase of NEEA's Initiative Life Cycle, NEEA staff are focusing on stimulating market conditions to accelerate technological advancements and generating demand for GHPWH systems by identifying which gas heat pump technology and design configuration is ideal for different building types in the Northwest. NEEA determined that a subset of commercial buildings including restaurants and lodging facilities (hotels and motels) and multifamily buildings (i.e., low rise and non-mixed use), offer the greatest savings and opportunity to launch its program efforts given their high usage of hot water.

NEEA seeks to gather insights on current water heating systems for these building types, including the purchase process, value propositions and barriers to adoption.

Work is expected to begin in Q2 2024 with a final report anticipated in Q4 2024

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Residential Window Market Share Study

High-Performance Windows

REPORTING

NEEA contracted with Ducker Carlisle to complete a high-performance residential window market share study on behalf of the Northwest Energy Efficiency Alliance (NEEA) and the Center for Energy and Environment (CEE) in Q3 of 2023. This project is complimentary to the [windows market characterization report](#) already completed, providing a grounded estimate of window sales in the Northwest based on a national sales dataset and interviews with manufacturers and distributors (completed in Q4 2023). The contractor estimated that close to 2.9 million windows were sold in the Northwest in 2022, with a little over half (54%) being installed in new construction residential buildings. About 3% of these sales may have been high-performance windows as defined by NEEA (with a U-Factor of 0.22 or less).

A final report is now available on neea.org.

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Products

Innovation  Action

Connected Consumer Products Market Research

Retail Product Portfolio (RPP)

FIELDING

NEEA contracted with Level 7 to conduct market research that will assess consumers' use of and attitudes toward purchasing connected consumer products in the Northwest. Fielding for primary and secondary research is expected in Q2 and Q3 of 2024 and will consist of a literature review and data collection from end-use customers (including online surveys, discussion boards, and focus groups). A final reporting is expected in Q1 2025.

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Retailer and Manufacturer Sustainability Goal Literature Review

Retail Product Portfolio (RPP)

REPORTING

NEEA contracted with Apex Analytics to conduct a literature review of television and major appliance retailer and manufacturer sustainability goals. Between November 2023 and March 2024, Apex Analytics reviewed companies' sustainability reporting, third-party environmental, social, and governmental (ESG) ratings and assessments, industry whitepapers and other guidance, and popular media sources. The report provides an overview of:

- Market-wide emissions reduction activity
- Factors motivating manufacturers and retailers to develop sustainability goals, including investor influence and regulation
- Organizations' strategies for achieving sustainability goals
- Strategy recommendations to achieve RPP program goals while supporting manufacturers and retailers in setting and meeting sustainability goals.

A final report is available on neea.org.

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Assessment of Alternative Approaches to Estimating NEEA's State Energy Codes Influence

Codes

FIELDING

NEEA contracted with NMR Group to conduct a review of several alternative approaches to evaluating NEEA's influence on the outcomes of state energy code processes. The review will consider NEEA's efforts in both commercial and residential codes, and in each of the four states in the region (Idaho, Montana, Oregon, and Washington). The objective of this assessment is to support NEEA in identifying ways to assess its codes influence that more accurately documents and describes the multiple workstreams of NEEA's Market Transformation approaches. The study includes two major activities:

- A review of current codes evaluation methods.
- An assessment of the feasibility and merit of several alternatives to the current approach.

In Q1 2024, NMR completed interviews with NEEA staff familiar with NEEA's role in influencing state energy codes. In June 2024, NMR finalized its assessment of four alternative approaches put forth by NEEA research and evaluation staff.

A final report summarizing study findings is expected in early Q4 2024.

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Changes to Market Progress Evaluation Report Numbering

Codes

Between 2005 and 2009, NEEA fielded three MPERs evaluating the alliance's market transformation efforts related to energy codes, with the subsequent code-related MPER completed in 2017. Due to the period of time elapsed between this and earlier studies, the 2017 MPER was labeled as "MPER #1" at the time of its publication, with this numbering continuing with the recently completed MPER #2. NEEA has recently elected to consolidate all code-related MPERs completed to date under a consistent numbering scheme; code-related MPERs available on neea.org will be renumbered accordingly, and the next MPER (scheduled for completion in 2025) will be labeled as MPER #6.



Market Progress Evaluation Report #5

Codes

REPORTING

NEEA contracted with ADM Associates to conduct a Market Progress Evaluation Report (MPER) for its commercial and residential codes efforts. Using information gleaned through document review, interviews with NEEA staff, market actors, and implementers/trainers for NEEA-supported trainings, and a survey with recent trainees ADM concluded that:

- NEEA is successfully influencing more robust energy codes in the Northwest and nationally.
- NEEA's training and education efforts are effectively supporting market actors, but NEEA should improve its efforts to track the use and outcomes of these activities.
- The recently revised NEEA's Codes program logic model accurately captures the team's training and education work, but the logic model should be updated to better reflect the nuances of the team's work to influence the development and adoption of energy codes in the Northwest.

A final report is available on neea.org.

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Market Progress Evaluation Report #6

Codes

FIELDING

NEEA is currently preparing to release a Request for Proposals in support of the third MPER for its commercial and residential codes efforts. This study is intended to build on and complement the learnings generated through the recently completed Codes MPER #2 conducted by ADM Associates and will include ongoing assessment of NEEA's progress in the Northwest codes market relative to recently established Progress Indicators (PIs). Additional study objectives will be determined and a Request for Proposals released in Q2 2024. The study kickoff is currently targeted for early Q3 2024.

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Codes, Standards, New Construction

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Home Energy Raters Market Research

Codes

FIELDING

NEEA contracted with TRC to conduct market research with home energy raters in the Northwest to meet the following objectives: 1) Develop an estimate of the number of home energy raters currently working in the new construction market in each state in the Northwest, and 2) Provide an assessment of:

- Current raters' business practices
- Raters' perceptions of the current market for home energy ratings
- How raters' practices and perceptions differ across urban and rural areas

This project kicked off in February 2024, and a final report is anticipated in Q3 2024.

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Idaho Residential Code Compliance Evaluation

Residential Codes

REPORTING

NEEA contracted with Industrial Economics, Inc. (IEC) to review assumptions underlying its estimation of energy savings resulting from NEEA's and its partners' involvement in the Idaho state code processes. Using data collected through permit review, site visits to residential new construction building sites, and interviews with market actors, this research will address the following objectives:

- Assess statewide compliance with selected code requirements among single-family homes built under IECC 2018 with Idaho amendments.
- Develop estimates of statewide energy code compliance and compliance within urban and rural jurisdictions separately.
- Provide statewide findings regarding primary space and water heating fuel and above-code elements.

This work kicked off in Q1 2023, and the final evaluation of Idaho's residential energy code is expected in Q2 2024.

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Montana Residential Code Compliance Evaluation

Residential Codes

FIELDING

NEEA contracted with IEC to review assumptions underlying its estimation of energy savings resulting from NEEA's and its partners' involvement in the Montana state code processes. Using data collected through permit review, site visits to residential new construction building sites, and interviews with market actors, this research will address the following objectives:

- Assess statewide compliance with selected code requirements among single-family homes built under IECC 2018 with Montana amendments.
- Develop estimates of statewide energy code compliance and compliance within urban and rural jurisdictions separately.
- Provide statewide findings regarding primary space and water heating fuel and above-code elements using data collected on individual code requirements.

This work kicked off in Q1 2023 but paused in mid-2023 due to challenges with collecting permit data. The project re-launched in January 2024 with a new data collection plan that relies on on-site data collection. A final report is expected in Q4 2024.

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Oregon Residential Code Compliance Evaluation

Residential Codes

FIELDING

NEEA contracted with IEC to review assumptions underlying its estimation of energy savings resulting from NEEA's and its partners' involvement in the Oregon state code processes. This evaluation will:

- Assess statewide compliance among single-family homes built under the 2021 Oregon Residential Specialty Code (ORSC).
- Provide statewide findings regarding primary space and water heating fuel and above-code elements using data collected on individual code requirements.
- Provide an analysis of builders' choices regarding compliance pathways and efficiency level to which the home is built.

IEC will collect data from permits, site visits to residential new construction building sites, and interviews with market actors. In addition, NEEA contracted with NMR Group to collect data on inhabited homes using homeowner self-audits. These data will be provided to IEC for analysis.

This project kicked off in February 2024, and a final report is expected in Q4 2024.

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Idaho Commercial New Construction Code Compliance Evaluation

Commercial Codes

FIELDING

The Idaho Commercial New Construction Code Evaluation study focuses on (a) assessing the path(s) by which and degree to which code compliance is achieved with the amended 2018 International Energy Conservation Code (IECC) in newly constructed buildings, and (b) measuring the energy performance of a subset of these buildings as compared with the average energy performance of buildings constructed under previous code. The results of the study will provide direction to the development and implementation efforts of the NEEA Codes team and will provide other regional code stakeholders guidance in targeting their energy efficiency work in the commercial new construction sector.

NEEA contracted with Opinion Dynamics to undertake this study. The study design and methodology selected for this project focuses on permit data and building plans as the primary sources of construction and compliance information, with virtual or in-person site visits planned for a subsample of participating buildings in order to validate the accuracy of permit data. The project kicked off in mid-Q3 2023, with planning and sample development continuing through Q1 2024. Data collection, including interviews with site contacts, desk review of permit data, and in-person/virtual site visits, are scheduled to commence in Q2 2024 and conclude in Q4 2024. This study includes analysis of billing data; collection of this data is planned to continue through early Q4 2024, with analysis and report preparation to follow.

A final report is anticipated in Q4 2024.

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Montana Commercial New Construction Code Compliance Evaluation

Commercial Codes

FIELDING

The Montana Commercial New Construction Code Evaluation study focuses on (a) assessing the path(s) by which and degree to which code compliance is achieved with the 2018 IECC in newly constructed buildings, and (b) measuring the energy performance of a subset of these buildings as compared with the average energy performance of buildings constructed under previous code. The results of the study will provide direction to the development and implementation efforts of the NEEA Codes team and will provide other regional code stakeholders guidance in targeting their energy efficiency work in the commercial new construction sector.

NEEA contracted with Michaels Energy to undertake this study. The study design and methodology selected for this project focuses on permit data and building plans as the primary sources of construction and compliance information, supplemented by telephone or virtual interviews with building owners and operators to contextualize and enrich the results of permit and plan analysis. The study also includes virtual or in-person site visits planned for a subsample of participating buildings in order to validate the accuracy of permit data. The project kicked off in mid-Q2 2022, with planning and sample development continuing through Q1 2023. Data collection, including interviews with site contacts and desk review of permit data, commenced in Q2 2023 and is scheduled to conclude in Q2 2024, while in-person/virtual site visits commenced in Q4 2023 and are scheduled to conclude in Q2 2024. This study includes analysis of billing data; collection of this data began in mid-Q1 2024 and is planned to continue through Q2 2024, with analysis and report preparation to follow.

A final report is anticipated in late Q3 2024.

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Codes, Standards, New Construction

Innovation  Action

Battery Chargers Standard Evaluation

Standards

FIELDING

NEEA's Codes and Standards team engaged in efforts to increase the stringency of the battery chargers standard. NEEA contracted with Michaels Energy to conduct a qualitative assessment of NEEA's influence on the standards processes and provide a quantitative estimate of the share of savings resulting from the standards that are the result of NEEA and other efficiency organizations' efforts. The project kicked off in September 2023 but paused in late 2023 due to a change in the U.S. Department of Energy's (U.S. DOE) timeline for publishing the final rule. Michaels Energy will re-launch the project in August 2024, at which point they will review NEEA records and publicly available documents and will conduct interviews with key stakeholders from NEEA, U.S. DOE and other organizations. A final report is anticipated in Q4 2024.

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Non-Weatherized Gas Furnaces and Mobile Home Furnaces Standard Evaluation

Standards

REPORTING

NEEA's Codes and Standards team engaged in efforts to increase the stringency of the standard for non-weatherized gas furnaces and mobile home furnaces. NEEA contracted with Michaels Energy to conduct a qualitative assessment of NEEA's influence on the standards processes and provide a quantitative estimate of the share of savings resulting from the standards that are the result of NEEA and other efficiency organizations' efforts. The project kicked off in September 2023, and Michaels Energy is reviewing NEEA records and publicly available documents and conducting interviews with key stakeholders from NEEA, U.S. DOE and other organizations.

A final report is available on neea.org.

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TOGETHER We Are Transforming the Northwest

