Cost Effectiveness and Evaluation Advisory Committee Meeting

DATE: November 30, 2023
TIME: 9:00 - 12:00PM
LOCATION: **Microsoft Teams meeting**
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AGENDA:

TIME	TOPIC	PRESENTER(S)	Electric/ Gas/Both	Link or Page #
9:00AM (15 min)	**Welcome/Agenda Review** 1. Agenda check 2. Announcements	Jonathan Belais, NEEA Staff		
9:15 (15 min)	**MRE Update** Amy Webb will provide a brief overview and answer any questions regarding the upcoming market research and evaluation activities outlined in the quarterly newsletter. Objective: Committee awareness of market research and evaluation activities	Amy Webb, NEEA Staff	Both	Link
9:30 (40 min)	**Market Progress Evaluation Report Recap** Highlights from recently published MPERs including: • Retail Products Portfolio • Luminaire Level Lighting Controls • Heat Pump Water Heaters Objective: Inform committee members and answer questions.	Meghan Bean, Zdanna King, Anu Teja; NEEA Staff	Both	3
10:10 (10 min)	**Break**			
10:20 (30 min)	**Key Assumption Updates** NEEA staff will highlight key assumption updates and answer questions from committee members.	Tim Runyan, Ryan Brown, NEEA Staff	Electric	5

Northwest Energy Efficiency Alliance
700 NE Multnomah Street, Suite 1300, Portland, OR 97232
503.688.5400 | Fax 503.688.5447
neea.org | info@neea.org

TIME	TOPIC	PRESENTER(S)	Electric/ Gas/Both	Link or Page #
	Objective: Inform committee members, gather feedback, and questions regarding updated assumptions.			
10:50 (45 min)	**State Energy Code Assessment Introduction** NEEA staff will provide context and introduce the review process. Objective: Provide context and introduce committee to planned process for CEAC engagement.	Becca Yates, Susan Hermenet; NEEA Staff	Both	
11:35 (15 min)	**Wrap up**		Both	

Memorandum – *Agenda item*

November 10, 2023

TO: Cost-effectiveness and Evaluation Advisory Committee (CEAC)

FROM: Amy Webb, Sr. Manager, Market Research and Evaluation

SUBJECT: Overview of the Purpose and Scope of NEEA's Market Progress Evaluation Reports (MPERs)

Context:

NEEA is an alliance of utilities that pools resources and shares risks to transform the market for energy efficiency to the benefit of consumers in the Northwest. We do this through energy efficiency market transformation (MT) programs. Once the alliance has identified the energy efficient product or practice for a market transformation opportunity, there are three major events involved in launching and maintaining the MT program. First, we need to identify the market barriers and opportunities. Second, we intervene in the market with strategies designed to overcome the barriers and leverage the opportunities. This occurs over many years, during which we are continually refining the interventions to improve our outcomes. Refinements are based on market insights we gather through research and evaluation studies. This leads us to the third event. An MT program is continuously monitored to track progress in the market, most frequently through Market Progress Evaluation Reports (MPERs).

MPERs are the annual "theory-based" evaluations NEEA uses to assess a program's influence on the market and its success at achieving the market transformation outcomes identified in the program logic model. MPERs do this primarily by tracking market progress indicators (MPIs) that, taken in aggregate, provide evidence that the program is (or is not) influencing the market consistent with the logic model. Each program relies on a logic model that lays out the key elements of a theory of change, beginning with the barriers that the program must overcome or mitigate, followed by the various activities or interventions that the program will implement to overcome the barriers, through to the short, medium and long term outcomes that program expects to see in the market if their interventions are successful. We are able to assess the presence of these market outcomes by longitudinally tracking MPIs that help understand whether, to what extent, where, and amongst which market actors these outcomes are taking shape. A given market outcome might require the tracking of multiple MPIs to provide a preponderance of evidence that the program is helping to shape the market conditions that have led to the outcome.

For example, to overcome the market barrier of "low awareness of the system in commercial buildings", a commercial HVAC MT program strategy could include the development of case studies and information materials published in trade magazines and online information sources. The logic model might then include a short-term outcome that "commercial building decision-makers are aware of the energy efficient HVAC system." The MPER might then track multiple MPIs to determine whether building owners, maintenance operators, and general contractors (those we've identified through earlier research as being building "decision-makers") involved in the building and maintenance of large commercial buildings, municipal buildings, schools and hospitals (supposing these are the building types that prior research suggests optimize energy savings with the new system) are more aware of the HVAC system compared to prior years. The results could be stratified by region to provide intelligence about where awareness is lagging.

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700 NE Multnomah Street, Suite 1300, Portland, OR 97232
503.688.5400 | Fax 503.688.5447
neea.org | info@neea.org

These results, along with other MPER findings related to awareness (including increased numbers of installations in these building types) suggest that the program is having some success in overcoming the barrier of low awareness. (Note here that a medium-term outcome following from the short-term awareness outcome might be “the system is installed in commercial buildings” or “commercial building decision-makers select the system”.)

In addition to tracking several MPIs related to different market outcomes, MPERs usually include other research activities to support program needs and narrow knowledge gaps. These could include a review of a recently updated logic model, qualitative research with a new group of market actors the program aims to engage, or a survey to measure training effectiveness. In total, the MPER provides an annual snapshot of our progress in the market addressing specific barriers and achieving outcomes.

Our Ask of You:

Please come with any questions or feedback you have related to NEEA MPERs.

Contact Amy Webb (awebb@neea.org) if you’d like to connect before the November 30th CEAC meeting.

2023 Q4 Key Assumptions Quarterly Report

WHAT'S NEW:

Greetings from the NEEA Data, Planning and Analytics team!

In this report, NEEA staff have assumption updates for High-Performance Windows, Heat Pump Water Heaters, HVAC Data Collection, and Advanced Heat Pumps. NEEA staff will present on these assumption updates at the upcoming Q4 Cost Effectiveness Advisory Committee (CEAC) meeting, which takes place on November 30, 2023.

As always, committee members can access the full set of assumptions for each reporting year on NEEA's Funder Portal.

~ **Stephanie Rider**, Director of Data, Planning & Analytics ~

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Questions about this report may be addressed to:

Stephanie Rider
Director of Data, Planning and Analytics
srider@neea.org

PUBLISH DATE: November 21, 2023

Naturally Occuring Baseline Review

High-Performance Windows

NEEA contracted with Cadmus to review NEEA's naturally occuring baseline for High-Performance Windows. Cadmus reviewed the assumptions on the adoption of windows having U-value of 0.22 or less absent NEEA's market intervention. The full report is available on neea.org.

Principal Market Analyst: Kathryn Bae
kbae@neea.org
503.688.5478

HVAC Distributor Data Collection | Cross Program

HVAC Supplier Data Collection for 2022 is complete and moved into the analysis and reporting phase. For 2022, NEEA added participating suppliers that significantly expanded the market coverage for many HVAC products. As with prior years of this project, Bonneville Power Administration is taking the lead on the public-facing analysis which will include a regional-level extrapolated dataset available in Q1 2024.

This data collection effort currently supplies market data for NEEA's reporting on the Ductless Heat Pump, High-Performance HVAC, and Efficient Rooftop Unit programs. Final estimates for 2022 and updated forecasts for these programs will be reflected when the 2023 Annual Funder Reports are available at the end of Q1 2024.

DPA Manager of Integrated Systems: Havala Hanson
hhanson@neea.org
503.688.5400

Market Share Estimations

Heat Pump Water Heaters (HPWH)

NEEA finalized the Washington Residential Code Evaluation in June 2023. The report collected data to inform the estimation of energy savings resulting from NEEA and its partners' involvement in the Washington State Residential Energy Code (WSEC-2018) process. The final estimates of the percentage of homes built in the state with electric water heating was 89%, and that over 90% of those were HPWHs. This increases NEEA's estimate of the share of all HPWHs installed in the region that are in new construction to 77% in 2022. This assumption will also impact future years.

Market Analyst: Tim Runyan
trunyan@neea.org
503.688.5411

Market Progress Evaluation Report

Retail Product Portfolio

The Retail Product Portfolio's Market Progress Evaluation Report (MPER) published in September 2023 included an analysis to examine NEEA's assumptions about extrapolating the market share of program-qualified products among participating retailers to sales among non-participating retailers. This included an examination of economic literature around competition in retail markets to classify the type of competition faced by appliance retailers in the Northwest and the implications for competitive pressures to drive spillover into nonparticipating retailers. To provide an empirical basis for the assessment, online data was collected from participating and nonparticipating retailers' websites from eight cities across the region to examine price and brand differences between the retailers. The data provides insights for direct and indirect evidence that contradicts or disproves the assumptions.

The MPER found that this literature review, paired with the RPP product availability and pricing data, provided evidence consistent with NEEA's extrapolation assumption that competitive pressures lead nonparticipating retailers to match participating retailers' pricing and assortment of qualified product models.

DPA Manager of Products: Ryan Brown
rbrown@neea.org
503.688.5400

Baseline and Key Assumption Review | Advanced Heat Pump

NEEA contracted with Cadmus to review key assumptions, including the naturally occuring baseline, savings rates, and incremental cost, for central ducted low load efficient variable speed heat pumps. The final report is posted on neea.org. NEEA staff presented savings rates, incremental cost, market size, and measure life assumptions at the Q3 CEAC meeting. A cost effectiveness analysis using ProCost v5.07 indicates that the benefit-cost ratio for ducted low load efficient variable speed heat pumps is above 1.0. NEEA staff will present naturally occuring baseline assumptions to CEAC after completing Cadmus' recommendations to repeat the baseline analyses with 2022 and 2023 HVAC sales data as a sensitivity analysis.

DPA Manager of Integrated Systems: Havala Hanson
hhanson@neea.org
503.688.5400

CONTACT US:

Stephanie Rider
Director, Data,
Planning and Analytics

srider@neea.org
503.688.5432

Christina Steinhoff
Principal Analyst, Data,
Planning and Analytics

csteinhoff@neea.org
503.688.5427

Ryan Brown
Manager, Data,
Planning and Analytics,
Products

rbrown@neea.org
503.688.5426

Havala Hanson
Manager, Data,
Planning and Analytics,
Integrated Systems

hhanson@neea.org
503.688.5400

Kathryn Bae
Principal Market Analyst,
Data, Planning and Analytics

kbae@neea.org
503.688.5478

Aaron Ingle
Sr. Market Analyst, Data,
Planning and Analytics

aingle@neea.org
503.688.5482

Tim Runyan
Market Analyst, Data,
Planning and Analytics

trunyan@neea.org
503.688.5411

Evan Hatteberg
Market Analyst,
Planning and Analytics

ehatteberg@neea.org
503.688.5441

TOGETHER *We Are Transforming the Northwest*

2023 Q3 Market Research & Evaluation Quarterly Newsletter

WHAT'S NEW:

Hello everyone!

Welcome to another issue of NEEA's quarterly Market Research and Evaluation (MRE) newsletter. There are a number of studies underway, many of which will be posted during the Q4 2023. Look for several market progress evaluation reports (MPERs) in the next few months, including the Luminaire Level Lighting Controls, Heat Pump Water Heater, Retail Product Portfolio, and Manufactured Homes MPERs. These are the annual mixed method evaluations that assess progress toward pre-defined market outcomes by measuring a set of market progress indicators (MPIs).

Earlier this year, the MRE team launched a combined MPER for two commercial HVAC programs – the electric High-Performance HVAC and natural gas Efficient Rooftop Units programs. The study will deliver individual evaluation reports to these two programs, but will create several efficiencies, such as combining recruiting and data collection efforts.

And finally, NEEA recently contracted with Dr. Michael Harnar, Director of the Interdisciplinary PhD in Evaluation at Western Michigan University, to conduct an assessment of MRE's approach to the evaluation of Market Transformation programs. The final report from that assessment is available on neea.org.

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

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Questions about this report may be addressed to:

Amy Webb

Sr. Manager, Market Research & Evaluation

awebb@neea.org

PUBLISH DATE: September 21, 2023

At a Glance

MARKET RESEARCH & EVALUATION PROJECTS

		PLANNING*	FIELDING*	REPORTING*
Integrated Systems	High-Performance HVAC: *Market Progress Evaluation Report #1*		✓	
	Efficient Rooftop Units: *Market Progress Evaluation Report #1*		✓	
	Luminaire Level Lighting Controls: *Market Sizing*			✓
	Luminaire Level Lighting Controls: *Key Assumptions Review*		✓	
	Luminaire Level Lighting Controls: *Market Progress Evaluation #2*			✓
	BetterBricks: *Commercial Building Market Research*		✓	
Products	Extended Motor Products: *Market Progress Evaluation Report #1*	✓		
	Efficient Fans: *Fan System Market Characterization*		✓	
	Heat Pump Water Heaters: *Installer Focus Groups*			✓
	Heat Pump Water Heaters: *Cold Climate Demonstration Installation Project*			✓
	Heat Pump Water Heaters: *Market Progress Evaluation Report #7*			✓
	Retail Product Portfolio: *Market Progress Evaluation Report #2*			✓
	Motor-Driven Products: *Commercia-Sector Adjustable-Speed Drive Market Research Study*			✓

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*
Manufactured Homes: *Transition Market Progress Evaluation Report*			✓
Commercial Codes: *Idaho Commercial New Construction Code Evaluation*		✓	
Commercial Codes: *Montana Commercial New Construction Code Evaluation*		✓	
Commercial Codes and Residential Codes: *Market Progress Evaluation Report #2*		✓	
Residential Codes: *Idaho Residential Code Compliance Evaluation*		✓	
Residential Codes: *Oregon Residential Code Compliance Evaluation*	✓		
Residential Codes: *Montana Residential Code Compliance Evaluation*		✓	
Standards: *Non-Weatherized Gas Furnaces and Mobile Home Furnaces Standard Evaluation*	✓		
Standards: *Battery Chargers Standard Evaluation*	✓		

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

High-Performance HVAC | **FIELDING**

As of late 2022, NEEA's High Performance HVAC program is actively 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; and
3. Qualitatively assess program influence on observed market transfomation.

NEEA contracted with Apex Analytics and NMR Group to conduct the evaluation. NEEA kicked off the High-Performance HVAC evaluation in July. In Q3 2023, the evaluation team plans to interview and survey commercial HVAC system designers. The evaluation will be ongoing through the fall of 2024, with a final report anticipated in Q4 2024. The study will be completed in close coordination with the Market Progress Evaluation for the Efficient RTUs program, which is also being conducted by Apex Analytics and NMR Group.

MRE Scientist: Lauren Bates
lbates@neea.org
503.688.5418

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; and
3. Qualitatively assess program influence on observed market transfomation.

NEEA contracted with Apex Analytics and NMR Group to conduct the evaluation. NEEA kicked off the Efficient RTU evaluation in June. This quarter, the evaluation team plans to interview and survey commercial HVAC contractors, distributors, and manufacturer representatives. The evaluation will be ongoing through the fall of 2024, with a final report anticipated in Q4 2024.This evaluation study will be 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.

MRE Scientist: Lauren Bates
lbates@neea.org
503.688.5418

Market Sizing

Luminaire Level Lighting Controls (LLLC) | **REPORTING**

To determine the viability of including non-municipal exterior lighting as part of its LLLC program, NEEA contracted with Cadeo Group to conduct a study that will inform the potential market size and current market penetration of the product. Study activities will include finding and reviewing secondary resources to address the research objectives. A final report is anticipated in Q4 2023.

MRE Scientist: Zdanna King
zking@neea.org
503.688.5439

Key Assumptions Review

Luminaire Level Lighting Controls (LLLC) | **FIELDING**

NEEA contracted with the Cadmus Group to complete a third-party review of key assumptions underlying its energy savings model for its LLLC program. The research objectives for this study are still in development, but will likely include: 1) reviewing estimates of building spaces likely to already have occupancy sensors, 2) creating an estimate of how many older, previously installed commercial lighting control systems are likely to be broken or working not-as-intended, and 3) refining an estimate of combined savings from occupancy sensors and daylighting capabilities to be netted out from new construction projects. The contractor will address the research objectives utilizing their technical expertise and through the selection and review of secondary sources. Research completion and an accompanying final report are anticipated in Q1 2024.

MRE Scientist: Zdanna King
zking@neea.org
503.688.5439

Market Progress Evaluation Report #2

Luminaire Level Lighting Controls (LLLC) | **REPORTING**

NEEA's LLLC program seeks to accelerate the adoption of LLLC in commercial buildings for new construction, major renovation and retrofit projects. NEEA contracted with Cadmus to conduct a second Market Progress Evaluation for the LLLC program.

NEEA launched the study in September, 2022. Interviews and surveys were collected from November 2022 through May of 2023 with stakeholders, manufacturers, installers, designers, specifiers, and decision makers, in order to address the following questions: 1) How do the program documents clarify and align to convey the program's strategy and planned activities to overcome market barriers and drive market changes that will increase LLLC adoption? 2) To what extent has the program progressed toward achieving its short and mid-term outcomes as tracked through its market progress indicators? and; 3) What leads decision makers to purchase LLLC (versus other NLC)? What features (including non-energy benefits) do they value leading up to purchase and after the product is installed? A final report is anticipated in early Q4 2023.

MRE Scientist: Zdanna King
zking@neea.org
503.688.5439

Commercial Building Market Research

BetterBricks | **FIELDING**

NEEA is conducting a market research study to inform BetterBricks' support of whole building efficiency. Study research questions are under development but will address this key problem:

Commercial building owners often do not see a clear business case for energy efficiency and do not have easy access to the information and resources needed to consider the impact of energy in their investment decisions. As a result, building owners are often not choosing to invest in operational and capital energy improvements that would enhance their bottom line.

NEEA anticipates kicking off the study in Q3 or Q4 2023.

MRE Scientist: Zdanna King
zking@neea.org
503.688.5439

Market Progress Evaluation Report #1

Extended Motor Products (XMP) | **PLANNING**

As of Q2 2022, NEEA's XMP Pumps program is actively engaging with manufacturers' representatives, trade associations, and other market actors to increase adoption of energy-efficient motor-driven products (specifically clean-water pumps and circulators at or below 50 horsepower) across the four-state region. This Market Progress Evaluation Report (MPER) will be 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 (MT) 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.

Study methodologies are likely to incorporate surveys of XMP Program participants, surveys and/or interviews with additional market actors, and secondary analysis of existing datasets, reports, and other relevant materials. The request for proposals to conduct this evaluation will be released in early Q4 2023, with an award decision and study kick-off targeted for late Q4 2023. The evaluation will be ongoing through Q3 2024, with a final report anticipated in Q4 2024.

MRE Scientist: Chris Cardiel
ccardiel@neea.org
503.688.5488

Fan System Market Characterization | Efficient Fans | FIELDING

NEEA contracted with DNV Energy Insights, Inc., to conduct a Market Characterization study to inform development and planning efforts for the Efficient Fans program, which is in the program development stage of NEEA's Initiative Life Cycle. The program aims to accelerate adoption of efficient fans and fan system products, including motors, drives, and controllers, by working upstream with manufacturers and highlighting efficiency metrics within their selection software. The initial program is in the commercial and industrial sectors.

The objectives for this Market Characterization study include:

1. Profiling and sizing of the regional fan system market
2. Identifying and prioritizing market barriers
3. Documenting market actor motivations and fan system path-to-purchase

A project kick-off was held in February 2023, and data collection with multiple market actor groups (e.g., fan system manufacturers, manufacturers' representatives, distributors, and end users) commenced in Q2 2023 and is scheduled to continue through mid-Q2 2023. The study is expected to conclude by early Q4 2023, and a final report is anticipated by the end of Q4 2023.

MRE Scientist: Chris Cardiel
ccardiel@neea.org
503.688.5488

Water Heater Installer Focus Groups

Heat Pump Water Heaters (HPWH) | **REPORTING**

NEEA contracted with ILLUME Advising in Q4 2022 to conduct qualitative research to better understand any challenges installers and plumbers in the region might face around recommending and installing HPWHs in existing single-family homes. A 2020 survey of HPWH installers in the Northwest identified several factors and specific structural barriers that can complicate a HPWH retrofit, such as, but not limited to wiring constraints, small installation spaces, physical location of the unit, and proximity to condensate drain. This research provided insight as to how installers in the region might overcome these types of challenges and was specifically focused on installers that had experience with installing HPWHs. In this upcoming research, NEEA will include both active HPWH installers and those with little or no prior experience in HPWH installation across the Northwest. The key objectives of the upcoming research are to:

1. Identify the underlying reasons why installers and plumbers might be resistant to offering and installing HPWHs to customers seeking a new water heater
2. Understand the opinions and thoughts about where and why installers are not recommending and/or installing HPWHs
3. Gauge general level of resistance to code and standard changes among installers
4. Understand how installers might react to the passage of the proposed federal standard
5. Learn about what behaviors they might use to adapt to a new standard

In Q1 and Q2 2023 ILLUME Advising recruited and conducted three virtual focus groups across the region with installers and plumbers that have limited experience with HPWH installation. ILLUME also completed six in-depth virtual interviews with installers that were unable to attend the focus group thereby contributing to more robust information. A final report is anticipated in Q4 2023. Findings will inform future training efforts and help the program improve its messaging campaigns targeted to installers across the region. It should be noted that given some of the overlap in findings between this study and the Cold Climate Demonstration Research project, NEEA will be issuing a combined report of both studies in Q4 2023.

MRE Scientist: Anu Teja
ateja@neea.org
503.688.5421

Cold Climate Demonstration Installation Project | Heat Pump Water Heaters (HPWH) | REPORTING

In late Q2 2022, NEEA contracted with ILLUME Advising to conduct an ethnographic study to better understand installer/plumber experiences of installing HPWH in cold climate areas of the Northwest. Recruitment and observation continued from late Q3 2022 through the end of Q1 2023, to best capture actual cold climate installations. The key objectives of the research were to:

1. Observe and describe the types of difficult installations that plumbers and installers face in real time
2. Identify the solution and problem-solving methods they employed at the time of the installation
3. Observe installer-customer interactions; for example, how do installers explain the HPWH's functionality, or answer questions at the time of the installation
4. Gauge customer satisfaction immediately following the installation and then 2-3 months after to gauge their on-going satisfaction with the unit; Additionally, understand if there were any performance issues, they needed help with resulting in call backs.

This research effort ran concurrently with the Water Heater Installer Focus groups. Given that there were some overlaps in the findings between the two studies, NEEA decided it is best to combine the learnings into a single report. The combined reports are anticipated in late Q4 2023.

MRE Scientist: Anu Teja
ateja@neea.org
503.688.5421

Market Progress Evaluation Report #7

Heat Pump Water Heaters (HPWH) | **REPORTING**

NEEA contracted with NMR Group in early 2023 to conduct the 7th Market Progress Evaluation Report (MPER) for the HPWH program. The key objectives of this effort are to:

1. Ensure the logic model accurately reflects how the current Market Transformation theory for the program is being implemented and assess the market progress indicators (MPIs) for usefulness
2. Estimate 2022 penetration of HPWHs in the region with sales broken out by key attributes
3. Evaluate the program's performance over the course of 2022 in achieving outcomes by measuring against a subset of MPIs tied to the program's highest priority barriers
4. Assess the effectiveness and impact of the "Boring but Efficient" downstream marketing campaign conducted in 2022

In Q2 2023, NMR completed a quantitative survey of general installers in the region, as well as in-depth interviews with a few water heater retail representatives to better measure the program's performance over the past year. Analysis is now underway, and a final report is anticipated in late Q3 2023.

MRE Scientist: Anu Teja
ateja@neea.org
503.688.5421

Market Progress Evaluation Report #2

Retail Product Portfolio (RPP) | **REPORTING**

NEEA's RPP program provides mid-stream incentives to retailers for sales of qualifying efficient products, such as refrigerators and clothes washers, to influence retail assortment and product promotion, obtain access to sales data, and ultimately influence the ENERGY STAR specification or federal standard. NEEA contracted with TRC to conduct the second MPER for RPP to meet the following research objectives:

1. Review NEEA's updated RPP logic model and make recommendations for improvement
2. Document activities and outputs and assess progress on applicable MPIs for each product in the program's portfolio
3. Evaluate NEEA's methodology for extrapolating short-term savings to the full market
4. Assess whether and how market "shocks" influence sales of ESRPP-supported product categories

RPP MPER #2 kicked off in July 2022. A final report is expected in late Q3 2023.

MRE Scientist: Meghan Bean
mbean@neea.org
503.688.5413

Commercial-Sector Adjustable-Speed Drive Market Research Study

Motor-Driven Products | **REPORTING**

As part of NEEA's assessment of intervention opportunities in the market for commercial adjustable-speed drives (ASDs, hereinafter referred to simply as "drives"), NEEA contracted with Johnson Consulting Group, LLC, to conduct a market research study. The study sought to understand the market penetration for drives in the alliance's four-state region, particularly as pertaining to drives paired with commercial pumps and fans. This research also provides insight into the decision-making processes and factors underlying market actors' choice to pair drives with commercial pumps and fans. A kickoff meeting took place in October 2022, with sample development completed in January 2023 and data collection activities running through March 2023.

Findings indicate that while ASD pairings with pumps and fans are common in commercial new construction projects, such pairings are less frequent in retrofit and replace-on-burnout scenarios, suggesting possible targeted opportunities for market intervention. The results of this research also suggest that while some dynamics of the ASD pairing process are consistent across commercial pumps and fans, sufficient variation exists to warrant distinction between the markets for these technologies when considering interventions and market actor engagement. A final report was prepared in Q3 2023 and is now available on neea.org.

MRE Scientist: Chris Cardiel
ccardiel@neea.org
503.688.5488

Transition Market Progress Evaluation Report | Manufactured Homes | REPORTING

NEEA contracted with Apex Analytics, LLC to conduct a transition market progress evaluation of its Manufactured Homes program. This is a key input informing the alliance's decision to transition the program to the Long-Term Monitoring and Tracking (LTMT) phase of the Initiative Life Cycle (ILC) process, where NEEA significantly scales back its investments in the market. In this current evaluation effort, NEEA strives to confirm that NEEM+ homes will remain viable in the Northwest once NEEA transitions the program to LTMT. Key research objectives are to:

1. Summarize the initiative's work and achievements since its inception in 2016
2. Track key market progress indicators
3. Recommend viable approaches to conduct subsequent LTMT efforts, including proposing an evaluation plan to track any updated Diffusion Indicators

Data collection and analysis began in Q2 2023 and a final report is anticipated in the first half of Q4 2023.

MRE Scientist: Anu Teja
ateja@neea.org
503.688.5421

Idaho Commercial New Construction Code Evaluation

Commercial Code | **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 2022, with planning and sample development continuing through Q4 2023. Data collection, including interviews with site contacts, desk review of permit data, and in-person/virtual site visits, are scheduled to commence in Q4 2023 and conclude in Q3 2024. This study includes analysis of billing data; collection of this data is planned to continue through the end of Q3 2023, with analysis and report preparation to follow. A final report is anticipated in Q4 2024.

MRE Scientist: Chris Cardiel
ccardiel@neea.org
503.688.5488

Montana Commercial New Construction Code 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, desk review of permit data, and in-person/virtual site visits, commenced in Q2 2023 and is scheduled to conclude in Q3 2023. This study includes analysis of billing data; collection of this data is planned to continue through Q4 2023, with analysis and report preparation to follow. A final report is anticipated in Q1 2024.

MRE Scientist: Chris Cardiel
ccardiel@neea.org
503.688.5488

Market Progress Evaluation Report #2

Commercial and Residential Codes | **FIELDING**

NEEA contracted with ADM Associates to conduct a Market Progress Evaluation Report (MPER) for its Commercial and Residential Codes efforts. ADM will evaluate the logic and clarity of NEEA's updated codes logic model, make recommendations for improvement, and assess outcomes associated with codes training and education and code influence activities. The project kicked off in October 2022, and NEEA expanded the scope to address an assessment of the Code team's code influence activities in April 2023. A report addressing all research objectives is expected in Q4 2023.

MRE Scientist: Chris Cardiel
ccardiel@neea.org
503.688.5488

Idaho Residential Code Evaluation

Residential Codes | **FIELDING**

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:

1. Assess statewide compliance with selected code requirements among single-family homes built under IECC 2018 with Idaho amendments
2. Develop estimates of statewide energy code compliance and compliance within urban and rural jurisdictions separately using data collected on individual code requirements
3. 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, and the final evaluation of Idaho's residential energy code is expected in Q4 2023.

MRE Scientist: Meghan Bean
mbean@neea.org
503.688.5413

Oregon Residential Code Compliance Evaluation

Residential Codes | **PLANNING**

NEEA plans to engage a contractor to review assumptions underlying its estimation of energy savings resulting from NEEA's and its partners' involvement in the Oregon state code processes. The team will begin scoping the evaluation in Q3 2023 with the goal of having the project kicked off in Q4 2023.

MRE Scientist: Meghan Bean
mbean@neea.org
503.688.5413

Montana Residential Code Evaluation

Residential Codes | **FIELDING**

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 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:

1. Assess statewide compliance with selected code requirements among single-family homes built under IECC 2018 with Montana amendments
2. Develop estimates of statewide energy code compliance and compliance within urban and rural jurisdictions separately using data collected on individual code requirements
3. 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, and the final evaluation of Montana's residential energy code is expected in Q4 2023.

MRE Scientist: Meghan Bean
mbean@neea.org
503.688.5413

Non-Weatherized Gas Furnaces and Mobile Home Furnaces Standard Evaluation

Standards | FIELDING

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 will kick off in September 2023, and Michaels Energy will review NEEA records and publicly available documents and conducted interviews with key stakeholders from NEEA, DOE and other organizations. A final report is anticipated Q2 2024.

MRE Scientist: Meghan Bean
mbean@neea.org
503.688.5413

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 will kick off in September 2023, and Michaels Energy will review NEEA records and publicly available documents and conducted interviews with key stakeholders from NEEA, DOE and other organizations. A final report is anticipated Q2 2024.

MRE Scientist: Meghan Bean
mbean@neea.org
503.688.5413

CONTACT US:

Amy Webb
Sr. Manager, Market Research & Evaluation

awebb@neea.org
503.688.5448

Anu Teja
Sr. MRE Scientist

ateja@neea.org
503.688.5421

Meghan Bean
Sr. MRE Scientist

mbean@neea.org
503.688.5413

Lauren Bates
Sr. MRE Scientist

lbates@neea.org
503.688.5418

Chris Cardiel
Sr. MRE Scientist

ccardiel@neea.org
503.688.5488

Zdanna King
MRE Scientist

zking@neea.org
503.688.5439

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