

# Memorandum



March 6, 2023

TO: Cost Effectiveness and Evaluation Advisory Committee  
FROM: Jonathan Belais, NEEA  
SUBJECT: Key Takeaways & Action Items – March 6, 2023

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To Committee Members,

Thank you for your attendance and participation at our March 6<sup>th</sup> Cost Effectiveness Advisory Committee meeting. We appreciate your feedback and questions. Below is a high-level summary of the meeting and the feedback we heard. If we missed anything or you have additional questions, please contact Jonathan Belais ([ibelais@neea.org](mailto:ibelais@neea.org)).

- [Meeting Packet](#)
- [Slides](#)

**NEEA Staff:** Aaron Ingle, Alisyn Maggiora, Amy Webb, Anu Teja, Becky Walker, Ben Spearing, Chris Cardiel, Christina Steinhoff, Evan Hatteberg, Jonathan Belais, Kathryn Bae, Mark Rehley, Meghan Bean, Ryan Brown, Stephanie Rider, Susan Hermenet, Zdanna King

**On the Phone:** Austin Ogelsby (Avista), Billie McWinn (Idaho Power), Cory Hertog (Energy Trust), Danie Williams (NorthWestern Energy), Dave Moody (BPA), Emily Gilroy (WA UTC), Haixiao Huang (NW Natural), Jeanne Currie (Seattle City Light), John Stalnaker (BPA), Kasey Curtis (PSE), Kathy Yi (Idaho Power), Kevin Smit (NW PCC), Matt Woundy (NMR Group), Michael Coe (Snohomish PUD), Nick Sayen (WA UTC), Paul Koenig (WA UTC), Phillip Kelsven (BPA), Quentin Nesbitt (Idaho Power), Roger Kainu (US DOE), Wesley Franks (WA UTC)

## CEAC Charter

You can access the CEAC charter any time on [neea.org](http://neea.org).

## Efficiency Exchange 2024

Registration for Efficiency Exchange (EFX) opened on February 15<sup>th</sup> and will remain open until April 12<sup>th</sup>. You can register on [neea.org](http://neea.org).

## 2023 Annual Reporting Timeline (Ryan Brown, NEEA staff)

NEEA will bring forward any new key assumptions, inputs, and data source updates in all quarterly CEAC meetings. Local program utility data has been collected to be sure savings are not double counted between NEEA and utilities. Some key input updates will be shared today, and individual funder reports should be sent out over the next several of weeks. In April, NEEA staff will share more updates, an overview of market transformation calculation methods, and a general look at the savings forecasts and cost effectiveness of NEEA's portfolio.

*Comment – Emily Gilroy:* I was in an EM&V training yesterday and the instructor called NEEA out as a great example of market transformation work.

### **Market Research and Evaluation (MRE) Update (Presenter: Amy Webb, NEEA staff)**

*Description –* Amy Webb, NEEA staff, provided an overview of the studies that the MRE team is currently working on. A full list and description of each study is available on the MRE Newsletter. The most recent newsletter can always be found on [neea.org](http://neea.org). The MRE team aims to measure and describe market progress in the Northwest in regards to NEEA's Market Transformation (MT) programs. The purpose and scope of Market Progress Evaluation Reports (MPER) were covered. MPERs review logic models and theories of change for MT programs, and to provide market intelligence for adaptive management of MT programs. Transition MPERs (T-MPER) purpose and scope were discussed. These T-MPERs track market progress indicators (MPI), document program history, and develop an evaluation plan for long-term monitoring and tracking (LTMT).

#### *Feedback/Questions –*

- *Question: Haixiao Huang –* When tracking market progress for effectiveness, would have indicators that track freeridership?

*Response: Amy Webb –* In market transformation we are actually looking for freeridership to take place in a sense, because that is diffusion of the efficient solution.

*Response: Susan Hermet –* Great question, freeridership means that someone would have done this on their own without any MT intervention. To account for this in our estimates we establish the pre-intervention baseline condition, and then a 20 year forecast of what we estimate would happen to that market without any intervention. We then subtract that portion from what we report back to utilities based off of that baseline.

- *Question: Quentin Nesbitt –* Has an evaluation of baselines ever looked to different regions or country's where MT didn't happen to see what baseline actually did without intervention?

*Response: Susan Hermet –* We have done this, more so in the past, when some regions did not have EE programs, or had very limited programs. This is not the case as much today, but we always give this consideration when estimating baselines.

*Response: Stephanie Rider –* Quentin we also have some access to data outside of our region that shows comparative adoption of products. Eg HWPB has roughly 1/3 the level of adoption as we see in our region.

#### *Action Items –*

- None

### **Manufactured Homes Transition Market Progress Evaluation Report (T-MPER) Recap (Presenters: Meghan Bean, Anu Teja, NEEA Staff)**

*Description –* Anu Teja, NEEA staff, presented the Transition Market Progress Evaluation Report for Manufactured Homes. The final report is posted to [neea.org](http://neea.org). A background of Northwest Energy Efficient Manufactured (NEEM+) Homes program. A timeline of NEEA's involvement with NEEM+ and Manufactured Homes was provided, which highlighted important events that have occurred from 2016 to current day. An overview of T-MPERs and how they fit into a program's lifecycle was provided. The research objectives, research approach, research findings, diffusion indicators, and other key takeaways and recommendations of this Manufactured Homes T-MPER were presented. Findings include: NEEM+ homes market share is low but also stable, retailers are unlikely to significantly increase or decrease production, and that revising ENERGY STAR v3 specification to allow NEEM+ homes to participate without additional major upgrades could enable further NEEM+ visibility. Next steps for the program include waiting on the ENERGY STAR v3 specification, bring this report to the Regional Portfolio Advisory Committee (RPAC) in Q2 2024, and prepare the program's response to the T-MPER.

Meghan Bean, NEEA staff, presented on the Codes team's MPER #2. There is not a current report available on neea.org, but a final report is anticipated in late Q1 2024. A background around Codes MPERs was provided, and the MPER #2 research objectives were discussed. In order to create better understanding around NEEA's codes work framework, highlights of codes work in each state in the Northwest were provided. The Code Development and Adoption Influence Assessment found that NEEA adapts its strategy to each state's code landscape and cycle, NEEA's codes work has notable influence on energy codes in the Northwest and nationally, and that NEEA's work fills gaps not met by other organizations. Barriers to adopting more robust energy codes include that energy codes are likely to become more complex over time, and that it is increasing difficult for code stakeholders to reach consensus. An assessment was also conducted around NEEA-supported code training and education offerings in the Northwest. Training and education efforts were found to support the market effectively and provide valuable insights back to NEEA. Recommendations include developing a standardized post-training survey that provides more regular feedback, developing more in-person trainings, and creating a more systematic approach for logging data from technical assistance hotlines. A logic model assessment was performed as well. Recommendations from this assessment included some minor edits to the model itself, and that NEEA should provide more information around their efforts to tailor code development and adoption influence to each state and code cycle.

*Feedback/Questions –*

- *Question: Haixiao Huang* – Curious about the size of the notable influence identified by ADM.

*Response: Meghan Bean* – ADM did not develop a quantitative estimate of NEEA's influence due to the large variety of codes work that is done. They decided that it would be more appropriate to keep their evaluation qualitative.

*Action Items –*

- None

**Key Assumption Updates (Presenters: Ryan Brown, Aaron Ingle, Evan Hatteberg, NEEA Staff)**

*Description* – Ryan Brown, NEEA staff, provided general information around their key assumptions and inputs updates. The reason for these updates is to facilitate the review of CEAC members' responsibility of reviewing NEEA's cost effectiveness and savings information and methods. Documentation provided by NEEA's planning team was shown, which also outlines deliverables to CEAC.

An update was provided on Natural Gas Avoided Carbon Emissions by Evan Hatteberg, NEEA staff. The addition of the avoided emissions benefit components were discussed, which include the social cost of carbon and per-therm emission factors for combustion and upstream emissions. (full memo available in the meeting packet)

A key update on Efficient Rooftop Units (RTU) program was provided by Aaron Ingle, NEEA staff. An overview of the Efficient RTU program was provided which includes a program description, system requirements, and a program timeline. Key input updates were covered in detail in order to provide their rationale and their impacts on Unit Energy Savings (UES) and Benefit-Cost Ratios (BCR). An update was provided on the program's savings rate as well, which were found to be overall quite small. The BCR moved from 1.0 to 1.1. Next steps for the program include finding what equipment meet specifications in practice, and finding additional cost data points. The program is working on finding further sales data. (full memo available in the meeting packet)

### *Feedback/Questions –*

- *Question: Cory Hertog* – Energy Trust was considering changing our emission factors in a similar way. We ran into an issue where upstream emission factors was similar to the electric side. One thing we discovered in the 1.65 pounds of upstream losses is from things that happen far before the pipeline. Do we know if the electric side is factoring in those production emissions as well to be sure that things are more comparable?  
*Response: Evan Hatteberg* – I'm not sure off the top of my head, as things get increasingly complex as you start to bring things in along the whole production chain.  
*Response: Kevin Smit* – I can also dig into this to see how we account for upstream factors.  
*Response: Ryan Brown* – There is a paper from the 2021 Power Plan development work on methane emissions that we sourced in the memo that does provide upstream methane values for coal as well as natural gas.  
*Response: Kevin Smit* – Quick follow up from the earlier questions about upstream emissions. We did account for upstream methane from coal in the plan, as well as the natural gas. [https://www.nwcouncil.org/2021powerplan\\_upstream-methane-emissions/](https://www.nwcouncil.org/2021powerplan_upstream-methane-emissions/)
- *Question: Haixiao Huang* – How these values are comparable to the social cost of carbon published on WUTC website?
- *Response: Ryan Brown* – they both reference the Interagency Working Group's Social Cost of Carbon estimate so they should match well
- *Question: Haixiao Huang* – BCR is from TRC perspective?  
*Response: Ryan Brown* – That is correct.

### *Action Items –*

- None

## **NEEA Codes and Standards Evaluation (Presenters: Susan Hermetet, Mark Rehley, NEEA Staff)**

*Description* – Susan Hermetet, NEEA staff, gave background and context to the Codes and Standards Evaluation by laying out the recommendations provided in an evaluation from ADM on behalf of Idaho utilities. Specifically, recommendation #9 was highlighted. This recommendation requested that NEEA develop and implement a quantitative system for scoring their work in energy state codes. NEEA plans to assess their current codes approach and investigate other options. The hope for this meeting was to provide context around the current state of evaluation approaches NEEA utilizes in its codes program, and the foundation from which any potential changes would be made.

Mark Rehley, NEEA staff, presented on NEEA's Codes and Standards program activities with a high-level background of the processes for developing codes and standards and how codes and standards interact. Codes and Standards were tied into the lifecycle of a NEEA's market transformation programs to show their importance in the market achieving a sustained change. This process consists of the MT program, the rulemaking process, and training and tracking. The MT program brings forth information that is used to make rules, or codes, and then training and tracking is done to make sure the code is being used out in the market and is understood by market actors. Residential and Commercial energy code were covered to show where each state lands in terms of adoption of IECC. An overview of the levels of government regulation was provided to show what codes apply at each level of government (federal, state, local). The code development process was outlined to show what parts of this process NEEA is able to influence. An overview of standards was then presented, starting with the federal standard process. This process is broken into 4 phases: framework, preliminary analysis, notice of proposed rulemaking, and the final rule. Again, NEEA's influence was highlighted in this process. A few product

examples were provided for codes and standards to add context. To finish, NEEA's entire codes portfolio was outlined.

*Feedback/Questions –*

- *Question: Quentin Nesbitt – When it comes to a code minimum heat pump that is actually more of a state standard?*  
*Response: Mark Rehley – Anything that is done on the federal level preempts what is done on the state level. A standard can be placed into code as a minimum, but code can also wrap around things like how big the system is. How it is installed, how it is controlled, etc. Code has gotten complicated, which is done to make sure that the energy savings are realized once it is placed in a building.*
- *Question: Wesley Franks – Clarifying question, are there state level standards, or are they all at the federal level?*  
*Response: Mark Rehley – Anything that is regulated at the federal level cannot be regulated at the state level unless the state level regulates a different metric. They can do it even with a product that is regulated at a federal level. States can choose their own levels.*
- *Question: Emily Gilroy – Would you be able to provide an example where the state has chosen to regulate different metrics than what is regulated federally?*  
*Response: Mark Rehley – There is a federal standard for water heating that is all about efficiency, but in OR and WA there is also a standard on connectability and CTA-2045.*
- *Question: Phillip Kelsven – Are the code paths generally energy equivalent? In OR and WA there are different code pathways, so are those meant to be equitable? What kind of energy modelling goes into energy code?*  
*Response: Mark Rehley – So there are base codes and then there are codes that can be met through point systems. They are supposed to lead to the same energy savings, but the point system provides options in order to get to that point. WA is a large user of these point tactics. For modelling, state to state there are different requirements around whether modelling is required. Though, there is modelling built into the process to be sure the code is being advanced correctly. How we calculate energy savings is heavily dependent on models, as do many of the steps to code and standards.*
- *Question: Wesley Frank – Where did you say the test methods occur?*  
*Response: Mark Rehley – The test method follows the same process. It goes through the four steps. They do an RFI to find information in order to prove is a test method is effective and then go into the rulemaking process.*
- *Question: Emily Gilroy – I was in a discussion around TRM and the level they need to be specific to the region in which they are being used and for the reasons they are using them. How does the federal standards process reconcile this, particularly for energy conservation?*  
*Response: Mark Rehley – Let me give you an example. Before we had HPWH, electric resistance and gas were amazingly almost independent of their environment. You get practically the same savings across the north and south. As soon as we moved to HPWH, there is a big difference when it comes to ambient air. So there has been a big discussion around applying a minimum level to the whole country when we know each region is different. HPWH have done a great job of making them work better in each location, but in the case of residential heat pumps they are discussing the option of setting a cold weather category.*
- Susan Hermetet – Could you cover how many of the codes and standards have specific goals here at NEEA?  
Almost every one of our MT programs has a specific code or standard that sits as the end goal for us to get to. This may not be the case if that program isn't regulated, which

is not very typical. There are 72 product categories in codes and standards, which we don't cover every one of them. We do touch a lot of them through the data we have.

- *Question: Quentin Nesbitt* – As utilities, we often incentivize technologies that don't have code. If something goes quickly to code there are growing pains that happen between the way our programs work and those codes work. There must be a way to make these two things work well, incentivizing

*Response: Mark Rehley* – We think a lot about this. Utility programs are absolutely necessary for us to do what we do. No code or standard generally means the death of a program, they usually go up another level. I have learned that it is pretty rare that something comes in that completely eliminates a utility program. There is very often another level of performance that is listed as an option. Federal standards are different. They take a lot more to get moving, so there is plenty of time to pivot before they are change. And even then their changes tend to be more modest.

#### *Action Items –*

- None

### **NEEA's Current Evaluation Approach (Presenters: Susan Hermenet, Meghan Bean, NEEA Staff)**

*Description* – Susan Hermenet, NEEA staff, began with an overview of MT and the Diffusion of Innovation Theory that NEEA utilizes. The Diffusion of Innovation Curve was highlighted to show consumer categories and their attributes and how that ties into NEEA's MT work. Evaluation at NEEA was described which includes public reporting, iterative learning approaches for dynamic markets, critical assumptions, and actionable insights for adaptive management. Evaluation usually takes up 6-9% of NEEA's total budget. The critical components of NEEA's theory-based approach were provided, which was followed by a description of logic models and its components. The program lifecycle was brought up again to tie in the different evaluation products with the stage gates the program experiences.

Meghan Bean, NEEA staff, presented how the current evaluation approach is utilized for NEEA's Codes and Standards work. For both codes and standards, third party evaluations are conducted to determine NEEA and its partners' influence. State energy code compliance evaluations were covered first, which are which are conducted separately for each state and code cycle and provide information such as estimated compliance and fuel mix under recent codes. Details on Codes MPEs were discussed including them being conducted every 1-2 years, being driven by logic models, and provide updates on key progress indicators, where applicable. Code Compliance Evaluations were summarized, which was followed by an overview of NEEA's Standard Evaluations. These evaluations can occur as a part of an MT program or for products that are not part of a current NEEA MT program.

#### *Feedback/Questions –*

- *Question: Kathy Yi* – If a standard g is too small to evaluate, you don't claim savings on that?

*Response: Meghan Bean* – That is correct.

*Question: Haixiao Huang* – Not clear what specific major data items are collected for code/standard eval?

*Response: Meghan Bean* – For code, it is tailored to the individual code cycle a little bit. Measure level and whole home are taken into account, builder pathways, etc. For standards that are part of an MT program, we are not collecting quantitative information. We are having a third party review our baseline updates. Savings share estimates are developed to apply to savings modeling for standards that aren't part of an MT program.

*Question: Haixiao Huang* – Is that applied to the general public.

Response: Meghan Bean – For codes it is state level for individual code cycles. Standards evaluations apply to the whole region...

Question: Haixiao Huang – What data do you collect for code compliance evaluations?

Response: Meghan Bean – It varies study to study = we are exploring different methodologies. Currently, studies are using permits, on-site audits of in-progress homes, and virtual audits of inhabited homes.

*Action Items –*

- None

**Final Announcements and Remarks**

- Next CEAC meeting will be held on April 30<sup>th</sup>, 2024, which will cover savings and cost-effectiveness overviews, annual reporting, state energy code assessments updates, and key assumption updates.

**Meeting Feedback**

- None

**Public Comment**

- None