Memorandum

April 30, 2023

TO: Cost Effectiveness and Evaluation Advisory Committee

FROM: Jonathan Belais, NEEA

SUBJECT: Key Takeaways & Action Items – April 30, 2023

To Committee Members,

Thank you for your attendance and participation at our April 30th 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 (jbelais@neea.org).

- Meeting Packet
- Slides

NEEA Staff: Aaron Ingle, Anne Brink, Amy Webb, Anu Teja, Christina Steinhoff, Becky Walker, Ben Spearing, Chris Cardiel, Eugene Pham-Gittens, Evan Hatteberg, Jason Jones, Jonathan Belais, Mark Rehley, Meghan Bean, Ryan Brown, Stephanie Lane, Stephanie Rider, Susan Hermenet, Timothy Runyan, Zdanna King

On the Phone: Austin Ogelsby (Avista), Cory Hertog (Energy Trust), Danie Williams (NorthWestern Energy), Emily Gilroy (WA UTC), Eugene McGowen (NMR Group), Hiaxiao Huang (NW Natural), Jared Powell (NMR Group) John Stalnaker (BPA), Kasey Curtis (PSE), Kathy Yi (Idaho Power), Kelly Thomas (State of Oregon), Laura Thomas (NWPCC), Mark Heizer (OR Building Codes Division), Matt Woundy (NMR Group), Michael Coe (Snohomish PUD), Paul Koenig (WA UTC), Phillip Kelsven (BPA), Quentin Nesbit (Idaho Power), Wesley Franks (WA UTC)

Efficiency Exchange 2024

The conference is now being held at the Spokane Convention Center in Spokane, WA for May 14-15. Information to assist with any logistical changes are provided on neea.org/efx.

CEAC Charter

You can access the CEAC charter any time on neea.org.

Key Inputs and Assumptions Updates (Presenter: Ryan Brown, Tim Runyan, Christina Steinhoff, NEEA staff)

Description – Ryan Brown, NEEA Staff, presented an overview of the NEEA's reporting processes as it relates to CEAC, and also the key assumptions and inputs as they relate to NEEA's cost effectiveness and reporting. The steps of key assumption development and the review process was outlined. The documentation surrounding these assumptions and reports were provided, and are available on the Funder Portal. Various program's key assumptions were highlighted.

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

Ductless Heat Pumps (DHP): New market intelligence determined that NEEA's HVAC distributor data now represents 80% of DHPs sold in the region.

ENERGY STAR Ultra-High Definition Televisions (UHD TV): This is the first year of reporting savings for UHD TVs, which were found to be 35,000 slaes or 0.2 aMW. Expectations are that the share of models with available test data will continue to increase.

Residential New Construction: NEEA has completed a Residential Code Compliance Evaluation for IECC 2018 with amendments in Idaho. A report is expected to be published on neea.org later this quarter. The savings rate for prior code has been updated for the IECC 2015 due to a change in the assumption of the amended versions of IECC 2015 being used across the board.

Feedback/Questions –

- *Question: Kathy Yi* – You send us your final savings each year, but do you go back and adjust past savings?
  Response: Tim Runyan – There are past savings that need to be adjusted in this case.
  Response: Christina Steinhoff – We can send updated reports from prior years, and I will follow up with you offline.
- *Question: Quentin Nesbitt* – What were you respresenting prior to the addition for DHPs?
  Response: Tim Runyan – We were receiving close to 35% previously. Based on previous collection efforts, prior to 2017, we had extrapolated based on assumptions from historical data that led us to make estimates to the total market.
  Response: Ryan Brown – There was a review of this method recently.
- *Question: Quentin Nesbitt* – Do you think Idaho and Montana are equally represented here?
  Response: Tim Runyan – We believe Idaho and Montana are a little more of a gap based on distributors willing to provide data at this time.
- *Question: Questin Nesbitt* – If our numbers became more known could they bring down the totals?
  Response: Tim Runyan – It is hard to say. It depends on the magnitude of sales.
  Response: Ryan Brown – Gap analysis has been performed by BPA on behalf of this dataset, and we have purchased data that specifically pertains to Idaho. We feel informed as to what may be occurring in Idaho over time due to these efforts.
- *Question: Quentin Nesbitt* – Did other jurisdictions in other states not have code differences like Idaho did?
  Response: Christina Steinhoff – It isn't unique to Idaho, but while we were doing the analysis for code we didn't define our savings rate as code to code. We were using statewide minimum code, but because there were many jurisdictions in Idaho that were using the unamended code we thought we could capture that savings at the time. Only Montana and Idaho run into this since they use the IECC.

Action Items –

- NEEA staff to follow-up with Kathy Yi to further discuss historical updates on DHP savings. Follow-up email has already been sent to Idaho Power by Ryan to further explain this situation.
- NEEA staff to connect Mark Rehley with Quentin Nesbitt to further discuss the differences in code between Idaho/Montana and Oregon/Washinton.

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 in the MRE Newsletter. The most recent newsletter can be found on neea.org.The MRE team aims to measure and describe market progress in the Northwest in regards to NEEA's Market Transformation (MT) programs.

Feedback/Questions –

- *Question: Quentin Nesbitt* – You mentioned code adoption influence and code compliance, but on the adoption piece that feels more political. Influence seems hard to measure.
  Respone: Amy Webb – If you look at the MPER you can see some of the code processes that could be seen as political, but we are mostly looking at code proposals and action in the market and whether they are successful at overcoming barriers. We aren't comparing states against each other, we are comparing efforts in a state to what is achievable given their own state frameworks and processes .
  Response: Meghan Bean – It is absolutely true that each of the four states has different political landcapes, which is highlighted in the MPER.

Action Items –

- NEEA staff to follow up with Questin Nesbitt on the topic of code compliance having a political aspect to it.

Market Transformation Framework (Presenters: Jonathan Belais, NEEA Staff)
Description – Jonathan Belais, NEEA staff, presented on the fundamentals of Market Transformation (MT) and how NEEA utilizes MT for energy efficiency. Cost effective savings are the ultimate deliverable of NEEA's MT work, and it is important to understand that many of the realized savings are a lagging indicator for MT work. NEEA's MT work occurs mainly upstream, meaning with utilities, distributors, and retailers. The steps of MT were discussed and how the different report types fit into the Initiative Lifecycle.

Feedback/Questions –

- None

Action Items –

- None

Market Transformation Savings (Presenters: Ryan Brown, NEEA Staff)
Description – Ryan Brown, NEEA staff, provided an overview of how savings are calculated and realized through NEEA's MT work.

Feedback/Questions –

- *Question: Quentin Nesbitt* – Is there ever a scenario where the baseline is adjusted due to finding something like the market was never worse than what we thought. Is it ever adjusted back down?
  Response: Ryan Brown: It definitely could. The baseline and savings curves can both change in any way depending on the inputs we are receiving from the market, research, and data.
- *Question: Quentin Nesbitt* – Would government influence or action be included in the Naturally Occurring Baseline?
  Response: Ryan Brown – Those kinds of influences would definitely be included in the Naturally Occurring Baseline if it was in place prior to intervention.

- *Question: Quentin Nesbitt* – Has there been an adjustment to DHPs due to government action and funds?
  Response: Ryan Brown – We haven't adjusted that baseline for a little while, and our current baseline is catching up to where we are in the market today.
  Response: Mark Rehley – In the case of DHP, it becomes challenging. We set up NOBs before the product gets a lot of attention on the national stage. For DOE to put in a tax credit or other incentive you need to have a product definition, which is what we put a ton of effort in to. As the product progresses that really shows to how important those efforts were in the beginning. What your question makes me think is what would the case be if we hadn't started any work on a product until it was already in the later stages of being involved in government programs and funding, but there isn't a product that comes to mind that would fall under that umbrella.
- *Question: Kathy Yi* – Is this NOB issue more related to counts? If you are applying the RTF savings
  Response: Ryan Brown – We modeled this savings baseline through our unit counts. We need to make sure the unit energy savings value aligns with the baseline assumptions in order to not double count. We do sometimes adjust an RTF analysis as needed to match the effect that we are modelling.
  Response: Christina Steinhoff – We do announce any of these adjustments and approaches to this committee and on our website.
- *Question: Quentin Nesbitt* – When does the NOB get calculated by NEEA?
  Response: Ryan Brown – As early as possible in the program development stage of a program's lifecycle. Before there is any active intervention. The NOB is preceded by market characterization research which helps create rationale around the NOB.
- *Question: Kathy Yi* – I've seen this Power Plan Baseline a million times and never noticed that in the Power Plan Baseline the total regional savings is just that small portion, and when you do cost effectiveness you do it on total regional savings? You don't do cost effectiveness off the power plan baseline?
  Response: Ryan Brown – That is correct.
  Response: Christina Steinhoff – The real difference comes from the starting point usually. If our starting point aligns with the power plane then the savings are practically the same.
  Question: Quentin Nesbitt – Is it correct to say that savings are different between these two methods, and the difference depends on the shape of the curve? Have you tracked this difference in the past?
  Respone: Christina Steinhoff – The shape isn't really the same. The starting point of the timeline determines the regional baseline. If we compare power plan to total regional the only difference that would come about is the starting point, and we try our best to align with the power plan wherever possible. The power plan stops after 5-6 years, but we keep counting savings. HPWH, we have been in the market for 15 years, so we track back to when we started interventions. From there we take that big lump of savings and we estimate a share of that total that we can claim.
- *Question: Quentin Nesbitt* – Are adjustments to the NOB made public any time they happen to each program.
  Response: Ryan Brown – Yes, that would definitely fit into the key assumptions updates that are presented to the committee each quarter.
  Response: Christina Steinhoff – Some of the NOB are trends that are based on calculations, so sales data that is added changes the NOB. We wouldn't usually report on that each year as it was included in the original calculations as something that was expected down the line, but if there were any major changes that is when we would bring it up to the committee.

Action Items –

- None

Market Transformation Costs and Benefits (Presenters: Ryan Brown, Evan Hatteberg, NEEA Staff)

Description – Evan Hatteberg, NEEA staff, provided an overview of NEEA's MT costs and benefits and how they factor into cost effectiveness. Benefit/Cost Ratio was discussed as well as Levelized Costs. Cost effectiveness starts at a measure level, but is then also aggregated to a program level and a portfolio level. The core principles of cost effectiveness were shared. The purpose of NEEA's 20 year program timeline was covered. All of the benefits and cost inputs were detailed. The benefit-cost ratio of NEEA's electric portfolio is 1.99

Feedback/Questions –

- *Austin Ogelsby: Question* – When considering measures, is it a strict pass/fail for individual measures, or is there a more holistic approach where the net portfolio impact is considered? Essentially, does NEEA ever pursue measures that singularly are not cost effective, but in aggregate, all actions are cost effective?
  Response: Evan Hatteberg – We do occasionally pursue measures that are not cost effective as long as the program remains cost effective.
- *Question: Kathy Yi* – So the Benefit Cost Ratio for the electric portfolio is just for cycle 6 and includes all of the projected savings?
  Response: Evan Hatteberg – Yes, just cycle 6 and the expected savings for the future. Cycle 7 calculations are not complete yet, but are likely to be pretty similar since it has only been a couple of years. NEEA's costs repsresent small costs from the programs, usually less than 1%. As for cycle 7, we don't include anything from past investments.
  Question: Kathy Yi – The fact that you do cost effectiveness on total regional svaings which includes the NOB makes sense, so you then do cost effectiveness on the rest of it.
  Response: Christina Steinhoff – I do want to make sure we understand that these ratios are used to figure out how a program is doing overall. If you wanted to look at how NEEA is doing on each program in terms of our own costs then that would require some different calculations.
  Question: Quentin Nesbitt – So NEEA's cost effectiveness is more based on if a program is good for the region?
  Response: Evan Hatteberg – Yes.
  Response: Chrstina Steinhoff – It lends to the idea that we are trying to apply the work of the region to these programs.

Action Items –

- None

2023 Market Progress and Portfolio Overview (Presenters: Ryan Brown, NEEA Staff)

Description – Ryan Brown, NEEA staff, provided a summary of the electric portfolio, and then specific programs were highlighted. In 2023, the electric portfolio generated 38.8 aMW of co-created savings. Current forecasts of the electric portfolio to meet expectations of the 2020-2024 business plan.

Luminaire Level Lighting Controls (LLLC): A new General Services Administration LED Lighting and Control Guidance document has been released which includes LLLC. As well, the Illuminating Engineering Society is updating their lighting practice standards to include LLLC, they are expected to publish in 2024. Sales of LLLC have reduced in 2023 possibly due to rising costs and increased office space vacancy.

Retail Product Portfolio (RPP): In 2023, a multi-product agreement was reached for federal standards which should expedite changes in the future. Adoption of top-loading clothes washers has become stagnant, so NEEA is discussing the future of this technology. Strategies for each technology in RPP were shown, along with emerging technology opportunities. A large number of TV Manufacturers have agreed to share their test data with NEEA, which would improve estimations of savings from more efficient TVs in this program.

Ductless Heat Pumps (DHP): A slowly decreased trend line has been found for DHPs overall market share, but there has been an increase in incentivized DHPs.

Heat Pump Water Heaters (HPWH): A small amount of market growth was seen in 2023, which is above the expectations of flat growth. There is a current federal standard that is pending that could increase market share.

NEEA staff also presented additional value metrics for the portfolio, which includes peak savings and avoided carbon emissions. 2023 co-created regional peak savings were found to be 79 MW in Winter and 60 MW in Summer. 2023 co-created avoided carbon emissions was found to be 175,000 tons.

As for the natural gas portfolio, an overview of the programs in the portfolio was provided. Avoided carbon emissions are expected to meet 16,675-21310 tons, which is lower than expected as compared to the business plan. A significant reason for this is changes in WA codes aiming toward decarbonization. Timings around future savings reports were shared. The portfolio reported 805,000 therms as co-created savings in 2023.

Efficient Rooftop Units (ERTUs): This program aims to improve federal test procedures and standards. NEEA has been building relationships with manufacturers and market representatives to better understand barriers of the product. The program is also looking to leverage the introduction of commodity bolt-on ERVs.

New construction was also highlighted. There has been significant activity in the past three years around new construction codes. NEEA is currently analyzing results of market progress evaluations, compliance evaluations, and saving analyses. Residential new construction in 2023 saw more than 20% lower than expected, but industry forecasts expect new construction to increase after 2024. For commercial new construction, historical trends have continued and we see a return to pre-covid-like numbers. NEEA will not monitor new construction codes in WA on the natural gas side, but will focus on dual fuel products, more efficient products, research, code development, and training.

Feedback/Questions –

- *Question: Quentin Nesbitt* – In the context of RPP's theory, what does sponsors mean?
  Respone: Ryan Brown – Usually it means organizations that are offering incentives in the same market that utilities are working in.
- *Question: Quentin Nesbitt* – With regards to incentives, are they only upstream incentives?
  Response: Ryan Brown – They are midstream since they are agreements with the retailers. It might mean it turns into reduced cost for the customer, but it could also mean they are investing in something else like training.

Action Items –

- None

Estimating State Energy Code Savings (Presenters: Christina Steinhoff, NEEA Staff)
Description – Christina Steinhoff, NEEA staff, provided background information to help create a clear picture of how code savings are calculated and reported. Codes and standards were highlighted as a goal of MT, as in the work that is done in MT often times becomes cemented in a market through the creation of a code or standard. Examples of the role NEEA fulfills in code and standard development were provided. Cumulative electric savings for codes and standards has reached over 500 aMW. Estimation approaches for codes and standards savings come in three forms: Program standards, Codes, and other standards. A list of programs that are currently working on codes or standards outcomes was presented. Total regional savings estimations were covered along with the process of calculating to co-created savings. 2023 total regional savings for codes comes to to be 32 aMW, with 14 aMW of that being co-created savings. 2023 total regional savings for standards comes to be 38 aMW, with 6 aMW of that being co-created savings. The way that NEEA calculates savings for codes and standards was covered

Feedback/Questions –

- *Question: Quentin Nesbitt* – When you say worked on for Energy Codes what do you mean?
  Response: Christina Steinhoff – We work on proposals and measures in the code
  Response: Meghan Bean – We fund the association of Idaho Cities and the Idaho Integrated Design Labs in Idaho itself, but the tactics we take on for codes do vary state by state since their code environments vary.
  Question: Quentin Nesbitt – So the savings that we see from these programs and their codes work is shown in codes savings?
  Response: Christina Steinhoff – What we have decided to do is measure program savings that have to do with codes in the codes program.
- *Question: Quentin Nesbitt* – Do the size of the boxes here mean something specific? And the 2023 codes savings from this slide, what percentage of the net market effects would have been from codes?
  Response: Christina Steinhoff – The boxes are to scale, yes. From the full 4 states it would be at 44%. Also, we only attribute the share of codes that exist in that state to that state.
- *Question: Cory Hertog* – On the timespan, do you start your 10 year when the code begins?
  Response: Christina Steinhoff – We start whenenver that code becomes effective. For residential, we actually start 6 months after the code goes into place.
- *Question: Cory Hertog* – I do see the 2009 WA Specialty Code, wouldn't that be out of the 10 year limit?
  Response: Christina Steinhoff – Good catch, the blue boxes don't include the 10 year limit. They have everything in there.
- *Question: Quentin Nesbitt* – I understand the idea of not overlapping counts, but why would you switch from program counts to code counts? It seems easier to just continue it on in program counts.
  Response: Christina Steinhoff – A lot of the stuff we work on, like new construction on the residential side for many years that helped improve market adoption or the early lighting measures for CFLs that moved into code, are measures that become codes.

Action Items –

- None

Alternative Approaches for Evaluating NEEA's Influence on State Energy Codes
(Presenters: Amy Webb, NEEA Staff and Matt Woundy, NMR Group)

Description – Amy Webb, NEEA staff, started this presentation by providing background on NEEA's evaluation approaches and a four alternative approaches that have been proposed. The approaches were compared by incremental cost, precedents, and other considerations. Details were given around each approach.

Eugene McGowan, Matt Woundy, and Jared Power, NMR staff, presented a study overview which included methods, objectives, NEEA's current approach, and their assessment of the alternative approaches.

Qualitative Description of Influence: The idea is to document NEEA's contribution to codes, but it would not measure the strength of relationships between outcomes and specific NEEA investments.

Modified Standards Approach: This is the approach that was recommended by the third party evaluator. Building codes apply to a whole buildings and other federal standards are just a single appliance.

Effectiveness Score for Code Proposals: This holds promise as an element of methodological shift. This would take an effectiveness score for each code update and use it as a ratio to compare to other code scores.

Quantitative Measure Level Assessment: This approach would have a high incremental cost compared to the other. This approach is currently being used by the California PUC.

NMR's recommendation was to create plans for each state and code cycle as is recommended in MPER #2, and to add topics to MPER data collection and report longitudinal tracking results.

Feedback/Questions –

- Question: Quentin Nesbitt – I was thinking that codes were claimed 100% for 10 years based on a compliance evaluation, but maybe I am confused there. I am also unsure as to your recommendation because you are following a plan but what happens if a code comes in earlier than you thought. I wasn't sure if there is some math or formulas to get at just yet.
  Respons: Amy Webb – MPERs do not have to do with compliance levels. They ultimately are trying to lend credence to the progress indicators (as relevant and measurable indicators of market progress) and theories behind our programs and actions.
  Question: Quentin Nesbitt – So if an MPER said that NEEA had some influence, that is basically a check mark. Then with that check mark NEEA takes 100% times compliance of savings?
  Response: Amy Webb – Not quite. If we get the check mark, then it shows that these progress indicators are trending upwards and that they may link our strategies to observed market progress. If multiple indicators are checked (or met), we say that there is a "preponderance of evidence" that the MT program is having the intended market influence.
- Question: Kathy Yi – I got a little lost in how this approach actually fits in to the current reports that NEEA is working on.
  Response: Amy Webb – MPER #1 happened a long time ago, before I arrived at NEEA, when our methods were still evolving. MPER #2 kicked off in early 2023, and is in a way foundational since the next few MPERs will follow its leads. We were looking at multiple

MT programs during MPER #1 (including Commercial Code Enhancement and a residential new construction program that existed at the time), so it was a different body of work. The proposals we reviewed today have to do with a third evaluation (distinct from the MPER) which was a review meant to help us come up with refinements to the way we conduct our evaluations – the approach taken by the MPER.

Action Items –

- NEEA staff to follow up with Quentin Nesbitt on the discussion around codes savings.
- Prior to the Q3 CEAC meeting, Idaho Power would like to have a 1:1 meeting in order to better understand the approaches put forth for NEEA's state energy code evaluations.

Final Announcements and Remarks

- The Q3 CEAC meeting will be held on August 28th, 2024.

Meeting Feedback

- None

Public Comment

- None