

Meeting Notes
Q2 2023 Products Coordinating Committee
Day 1 - Wednesday, June 6, 2023 (*Day 2 follows*)
Hybrid



Attendees:

Jay Olson – PacificCorp (Pacific)
Whitney Jurenic – NorthWestern Energy (NWE)
Wade Carey – Central Lincoln PUD (Lincoln)
Trevor Frick – Clark County Public Utilities (Clark)
Shawn Fredrickson – Northwestern Energy (NWE)
Lis Saunders – Tacoma Power (Tacoma)
Matt Babbitts – Clark PUD (Clark)
Josh Mitchell – Chelan County PUD (Chelan)
Michael Gump – Avista Utilities (Avista)
William Dixon – Puget Sound Energy (PSE)
Dave Murphy –
Bonneville Power Administration (BPA)
Robert Bogataj – Seattle City Light (SCL)
Holly Lloyd – Puget Sound Energy (PSE)
Haley Burke – Inland Power and Light (Inland)

Todd Greenwell – Idaho Power (Idaho)
Erik Boyer – Bonneville Power Administration (BPA)
Carolyn Beebe – Snohomish PUD (Snohomish)
Hollis Tamura – Tacoma Power (Tacoma)
Mindi Shodeen – Idaho Power (Idaho)
Irina Rasputnis – Seattle City Light (SCL)
Lonnie Junderson – Tacoma Power (Tacoma)
Jessica Atwater – Portland General Electric (PGE)
Lars Henrikson – Seattle City Light (SCL)
Tina Jayaweera – Northwest Power and
Conservation Council (NWPCC)
Thad Roth – Energy Trust of Oregon (ETO)
Jenna Haskins – Puget Sound Energy (PSE)
Ryan Crews – Energy Trust of Oregon (ETO)

NEEA Staff: Stephanie Quinn, Jon Clark, Jack Davidson, Emily Rosenbloom, Emily Moore, Anu Teja, Anne Brink, Alisyn Maggiora

Resources

- **Agenda packet on NEEA.org:** [Northwest Energy Efficiency Alliance \(NEEA\) | Q2 2023 PCC Agenda...](#)
- **Slide Deck Day 1 on NEEA.org:** [Northwest Energy Efficiency Alliance \(NEEA\) | Q2 2023 PCC Slide Deck...](#)
- **Meeting Recording Day 1 :** [Q2 2023 NEEA Products Coordinating Committee - Day 1 on Vimeo](#)

Welcome, Agenda, and Packet Review ([slides 1-7](#) | [packet p. 1-5](#))

If you have questions regarding general content in this meeting please contact Alisyn Maggiora (amaggiora@neea.org).

A. Welcoming New PCC Member

- a. Jay Olson at Pacific Power, focusing on residential programs, and will continue collaborating with Nancy Goddard. Has spent a lot of time working on ET programs at ETO, joined PacificCorp about five months ago. Jay is working on an RFP that will be launching soon, and primarily he will be working on home energy savings and home energy reports.

Regional Priority Topic: Water Heating ([slides 8-44](#) | [packet p. 6](#))

If you have questions about this section, contract Emily Rosenbloom (erosenbloom@neea.org) or Anu Teja (ateja@neea.org).

Presentation Highlights

- A. Heat Pump Water Heater Cold Climate Installation Demonstration (HPWH CCDI)**
 - a. Purpose to gain an understanding of what the process looked like for the different involved parties
 - b. Two researchers were on site with the installer, observing and speaking with installer when appropriate
 - c. Researchers discussed with the home owner after the installation about the process and unit, right after installation, and three months later
 - d. Research focused on 10 installations at 10 different locations, all within Montana
 - e. Analysis is underway with a final report expected in August 2023
- B. Water Heater Installer Focus Groups (WHIFG)**
 - a. Research Activities
 - i. 3 virtual focus groups with 16 water heater installers
 - ii. 5 phone interviews with water heater installers
 - iii. Material review of manufacturer HPWH spec sheets / use guides
 - b. Preliminary Findings
 - i. Installers have low awareness of national appliance standards and are not deliberately working around them
 - ii. Installers will install HPWHs, though not in all circumstances
 - iii. Installers cite concerns with a new standard, even those who are 'bought into' HPWH technology
 - iv. Collaboration with other market actors may help installers transition to future water heater standards
 - c. WHIFG is qualitative research, not quantitative, and should not be seen as representative of all installers in the region
- C. Current NEEA Program Activities**
 - a. Train the Trainer - April 2023
 - i. Goal: Increase the number of qualified trainers providing CEUs and ensure consistent messaging across the region
 - ii. Not intended to be a one-off training
 - iii. Nine attendees representing regional programs
 - iv. Next Steps
 - 1. Have to have met several requirements such as Oregon Construction Contractor Board (CCB), Oregon Building Code Division (BCD), Montana Labor and Industry (L&I), and Washington L&I
 - 2. Quarterly cohort meetings to update the trainers
 - b. Dominant Water Heating Companies – Outreach
 - i. Goal: Following the momentum from Inflation Reduction Act (IRA) and increased consumer awareness, reengage with large installers
 - ii. Q2: Initial conversations with Fast Water Heating and Washington Energy Services
 - iii. Q2: Visit to 'amazing shrinking room' for leadership
 - iv. Q3-Q4: Possible training for installers and call center employees
 - c. On-Demand Training
 - i. Goal: Reach wider audience of installers in recognition of labor shortage and time constraints on industry.
 - ii. 80 enrollments, 21 completions
 - iii. Next steps
 - 1. Break up trainings into smaller sections
 - 2. Postcard for distributor sales desk with QR code
 - 3. Follow up with registries that did not complete training
- D. Future NEEA Program Activities**

- a. Market Progress Evaluation report (MPER) #7
 - i. Report coming late Summer 2023
 - ii. Positive impact in the confidence of installers in HPWH installation
- b. Proposed HPWH Consideration Campaign
 - i. Ensure consumers are moving along in their journey
 - ii. Q1 2024: Proposed campaign runs
- c. On-going Activities
 - i. Distributor engagement
 - ii. Manufacture engagement
 - iii. Qualified Product List
 - iv. RFP: Implementation and Marketing

Questions:

(Unsure who this was and could not tell from the recording): Appreciate the feedback on hands on trainings before a standard is in place. Has anyone provided feedback towards that already happening, or how they are going about it, and how the training is being delivered?

Emily R (NEEA): No one in particular said where they preferred trainings, but a common theme was that they look to manufacturers and continuing education providers for this training. This is who they typically look to for their information and their training both on codes and standards and on new efficient equipment.

Holly (PSE): Was there anything particularly surprising that came out of this, such as the location of the install, and the hiccups around smaller spaces. Was there anything like an aha?

Emily R (NEEA): My personal aha was being a blind participant in the focus group, and it was so interesting to watch how their opinions changed by communicating with each other. One trainee had known someone who had a bad experience installing one, but you could see how they became more open over the course of the training. The trainings are well received when someone doing the training has experience and knows what they're talking about.

Anu (NEEA): Speaking personally, I was struck by the persistence of the challenges around the installs. We will need to mitigate these issues, or diminish their magnitude. Our plan had been to test some of the similar questions at a quantitative level, as part of MPER #7. Once we have those results, it will be interesting to see how a larger group is engaging with the challenges.

Todd (Idaho): Were the installers plumbers, HVAC, or both. Did you distinguish between them?

Anu (NEEA): We were focused on residential plumber installers. We were trying not to bring HVAC into this study, because we wanted people who had experience doing mostly water heaters.

Todd (Idaho): I ask because in Idaho it has continued to be an orphan product, where plumbers don't push it because it's HVAC, and HVAC don't typically do them.

Whitney (NWE): The findings are not surprising to us, including low awareness of the federal standard. What stands out is the feedback that it is not a good fit for all homes, yet we have a federal standard looming for all homes. We're really happy this research was done as it gives a voice to the concerns that we had. We have more to add to the conversation, but this may not be the time.

Anu (NEEA): I want to add that slide two indicated this is not a good fit for all homes, but I do want to point out that even if we don't have the CCDI findings yet, I can share some information now. Of all of the 10 installers who had never installed a HPWH, they all came out with a positive reaction, and felt that it is something that they could do again.

Whitney (NWE): And how many installers were used in that?

Emily R (NEEA): Nine, one of them did two houses. I do want to emphasize again that the research is qualitative, not quantitative.

Jay (Pacific): The purchase transaction typically occurs upon burnout, so customers are making an urgent decision. How do we get people to plan these kinds of purchases, because one of the challenges is the additional cost, and then the compatibility of the unit going into the home. Can we have contractors do a packaged sell, for instance when they're selling heat pumps?

Emily R (NEEA): Encouraging planned replacement is a key pillar of the program. Emergency replacements are difficult for anyone to be in. Research shows people will only go two days without hot water. Your idea about HVAC contractors is something we considered, and we are looking at a few other avenues as well.

Erik (BPA): I assume utilities are doing envelope stuffers, something like suggesting that they update their water heaters every 12 years or so.

Armando (Unsure which org): Are there going to be additional Train the Trainer events from Bruce and Steve?

Emily R (NEEA): There will be more events, but cannot say who the trainers will be at this time. We will try to have a peer installer join who the plumbers can related to and connect with.

Holly (PSE): Is the 'Amazing Shrinking Room' part of the Train the Trainer discussion?

Emily R (NEEA): It is definitely part of the discussion. We go pretty deep into the research, although we have not taken the group up to the lab. It is definitely an interesting idea for the future.

Lis (Tacoma): You mentioned that the call center is not allowed to recommend HPWH, what is that about?

Emily R (NEEA): If someone calls in saying that they need a new WH, and they have an electric resistance WH, the call center can recommend someone for a like-for-like replacement, but can't put together a quote for someone to install a HPWH without a site visit.

Lars (SCL): Does this on-demand training cost anything?

Emily R (NEEA): No, the training is completely free.

Lars (SCL): Charging money for this could incentivize completion of the course, so could be something to consider, even giving their money back after completion.

Tina (NPCC): How are you planning on engaging or informing with the CTA-2045 standard in WA and OR?

Emily R (NEEA): It is included in the on-demand and in-person training materials. Through newsletters that go out to installers and distributors, we are keeping them up to date about the standard.

Todd (Idaho): Does the QPL include new manufacturers beyond the big three?

Emily R (NEEA): The QPL does currently include products beyond the big three. We do know that with the new funds in the product category, ongoing performance and quality is a concern. We will continue to make sure that they meet a consistent standard and perform well.

Josh (Chelan): I've run into new construction installs recently where the HPWH is just set to electric resistance. Like other HP technology, how it is used is very important. Is this part of the training you do?

Emily R (NEEA): This is part of the training, and we are aware of the practice. It is supposed to be used for special circumstances, but has become more widespread. We are looking at other ways to get the information out to the homeowners, not just the installers.

Holly (PSE): Was this observed in the 10 installations that it was automatically set up in the hybrid mode?

Emily R (NEEA): I do not have that information yet, but part of the reason for the research was to observe the transfer of knowledge from the installer to the home owner.

Whitney (NWE): NEEA has had several events in Montana recently, and NWE is doing surveys to add a quantitative component to your qualitative research. We are very focused on the installer, and their needs and experiences. We do love the events we have, and hope there are more to come. We do have a pilot coming, but can't share any information at this point. I can tell you it is a significant rebate/incentive for installers and customers. It is in the early stages, and the purpose is to determine the viability of the measure, why adoption is lagging, foster the adoption, better understand the lack of adoption, barriers for the installation, and to give more exposure to the installers. Nothing new here, and has cross-over with what Anu shared, and there is lots of work to be done.

Will (PSE): What is the trick to influence stocking throughout the region?

Emily R (NEEA): To go out and look at their warehouses. Only partially joking, as I've been to four distributors in two states in the last ten days. Joking aside, it is keeping in contact with them, and keeping them up to date with changes to the standard. In the past we did incentivize them to sell units, but a lot of that was going to new construction, and was not addressing the issue of emergency replacements. This year we are providing distributors with funds to drive adoption in the replacement market, and some are using the funds to cover the carrying costs.

Will (PSE): Does this translate to the contractor choosing one unit over the other?

Emily R (NEEA): Not really, it sitting in the warehouse isn't going to incentivize the installer to go and purchase it. It's about creating the demand from the consumer for the installer to go out and purchase that unit. However, we want those units to be there when the installers ask for them.

Regional Priority Topic: Consumer Products ([slides 46-61](#) | [packet p.7](#))

If you have questions about this section, contract Anne Brink (abrink@neea.org), Jon Clark (jclark@neea.org), or Will Dixon (William.Dixon@pse.com).

Presentation Highlights

- A. Online Marketplace/Midstream Retail
 - a. Intention – Consider how we might approach our marketplaces in a collaborative way
- B. Online Sales

Open Discussion

1. Who here has had some involvement with a utility online marketplace?

Will (PSE): For us, it was a source of savings, and saw a way for people to harness online shopping. Focused on carrying thermostats and lighting products, and plan to add EV chargers as well. Heavy equipment is not planned to be carried right now. Partnered with Enervee, who provided customers with pros and cons of different products. Enervee may still be struggling to find a way to have concrete attribution, and we decided not to move forward with them after the pilot. The online marketplace remains a good place to reach customers.

Carolyn (Snohomish): Snohomish has had a residential marketplace since 2009. Initially only included products they were claiming savings for like thermostats, lighting, showerheads. When those savings went away, we kept those products available on the marketplace. Expanded to EV chargers about a year ago. This is going well, not getting a lot of customer calls or questions. Kevin Watier is the program manager for that program, and would be a good person to contact with questions about those chargers.

Will (PSE): Sounds like the value proposition is being able to provide the customer with endorsed products?

Carolyn (Snohomish): Yes, and businesses can buy from our business marketplace products like lighting, smart thermostats, mostly targeted to smaller businesses. We also have a site targeting users who are new to our income-qualified program, or are rejoining, and we're offering them free energy saving bundles. A third of the customers who are offered these packages take advantage of them.

Will (PSE): And do you think those measures are getting installed by the customers?

Carolyn (Snohomish): I do because they have an option of which bundle they want. I think they're selecting what works best for their home. I will also say that the online marketplace really saved us during COVID. We offered free bundles to all of our residential customers, and over 10% of customers ordered a bundle. 35,000 customers participated in that. The model is less effective now, but is a great way to interact with customers and provide them with products and information.

Will (PSE): When setting this up PSE had lively conversations about products in general, but also what we would do something higher priced on the marketplace. Discussions on financing, but that is a digression. Do you self-host or contract out with someone?

Carolyn (SnoPUD): We contract with C+C, and Tech Neart is a sub-contractor. We also have done limited time offers with HPWH, offering \$100 and free delivery. We ran that for six-weeks. We had 260 orders the first time, but had fewer the next time around. There were some issues like returns as people had gas water heat. The next time we really targeted the right customers, and had over 100 orders that time.

Will (PSE): When you're offering larger equipment like that, how did you work through the relationships with trade allies?

Carolyn (SnoPUD): We did have concerns from trade allies, but our network has not been interested in installing HPWH, so we weren't taking any work away from them. I would love to have a network of trade allies that would install. We did have HWS website link so customers could find contractors.

Will (PSE): As we start to put EVs out there, we are connecting our trade ally referral system to the marketplace so that the customer journey can be fairly smooth. Did the referrals work well?

Carolyn (SnoPUD): It worked for HPWH, not sure how this would play out for something like EVs. And we did a survey following the limited time offers and found that a majority of customers were self-installing, which is something we targeted in our messaging. Self-installation was key because not all contractors do those installations. There was one contractor who was able to do a few of the installs. We do have to continually remind customers that the marketplace exists, and we are working with manufacturers to coordinate the timing of discounts. Marketing plays a big role around different times of the year. We also do an ad for our business site in our newsletter.

Will (PSE): One of the concerns from PSE is that the big equipment is installs, and how contractors could find that it is not good for them as they do not get the price mark-up. Our thermostats division has worked closely with the marketplace to make sure that we have the maximum impact.

Matt (Clark): Clark has an online marketplace for juice box EV chargers. In Q1 of last we launched a market place, and it was pretty simple and low cost. Possible to do so with the limited EV budget, did so through NLX. We did about 900 units through the market place last year. We offer a \$400 rebate for the ES cert lever 2 chargers. Also reduced the admin burden on the utility side, as we received one monthly report from NLX. Volumes have slowed a little this year, still will be successful, but won't hit those initial numbers. This was the only item that really made sense for us in an online market place.

Will (PSE): Have you tried to offer up any installers?

Matt (Clark): NLX reached out to me this year because they are adding features to other marketplaces, that have a preferred contractor list. We aren't doing that right now, but that is because we don't have a trade ally network for low-voltage electrician work. If the network existed, we could think about it, but it doesn't make sense right now. We think customers are just finding their own electricians to do this. We are thinking about hiring a third party so we can offer a larger variety of EV chargers, but it just happened the NLX had this easily accessible platform. We have not made a final decision yet.

Josh (Chelan): Our barrier has been around cost-effectiveness of getting a market place set up, and we would be curious to see if anyone else is interested in a regional platform so that it's affordable for all

smaller utilities. Chelan would love to have an online market place, but we can't do it within the cost constraint.

Lonnie (Tacoma): Verification is also a challenge, as half of the zip codes are shared in our territory, so making sure the incentives are going to your territory is big. This was the big challenge, especially around address verification.

Lis (Tacoma): Adding on to Lonnie, we are talking about whether this is something that we want and are good at, being a store, or if we should stick to what we know how to do. We would be curious to know why other utilities have opted to go in this direction.

Jenna (PSE): One of the benefits has been able to offer rebates instantly. Carolyn also mentioned the role that the market place played during the pandemic in being able to keep reaching customers. Access to the internet rather than big box stores was important for our customers as well.

Will (PSE): The idea is to try and encourage customers to purchase more efficient products, but there is also the investment in building the online presence and having a list of trusted products. The customer response was positive, but in terms of getting attribution, that just wasn't there.

Jay (Pacific): We ran a limited time offer through our implementor, Resource Innovations, who own Techniart. The first limited time offer was around Black Friday, and they launched it by sending out 50,000 customers in the WA territory. Of those customers 500 purchased smart thermostats, saving between \$1 and \$50. All were self-installs. About 20% of the customers that received the thermostats didn't qualify, as they were gas customers. A good lesson to note for the future to verify the type of customer. We did a follow up promotion on Earth Day, with much better results. We worked to link gas customers to Cascade's offering to avoid the same issue.

Jenna (PSE): We are hoping to improve the customer validation with our next round of the market place, which we'll be launching next year. Hoping the selected vendor has SOC 2 type 2 compliance so that they can have our full customer list. Has anyone been able to identify reasons for ineligible customers getting the benefits?

Jay (Pacific): We provided a list of all of our customers, and a list of all of our customers that have electric heat. The email that went out went broader than what we had initially tried to put in place. Verifying this alone would reduce 90% of the 20% who mistakenly were qualified.

Carolyn (SnoPUD): We are not yet doing anything related to Demand/Response. In our terms and conditions, there is a line about how buying products like thermostats enrolls customers to participate, but we don't envision doing that at this time. We have also just deployed smart meters, which will take a few years, so we are still getting our territory set up.

Will (PSE): The other thing I want to discuss is how we had an initial version of the marketplace, and then we built an additional site for the income-programs. The incentive levels are more significant if you qualify economically.

Jenna (PSE): We have the efficiency-boost marketplace, which is a little different than our main site. The income-qualified customers receive a higher rebate, and then free shipping, hoping to bring smart thermostats down to \$1, partially due to how WA tax is set up. We have had a great response to this, and have exceeded our annual forecast. This has been marketed through a targeted campaign. Our initial hope was to be able integrate the efficiency-boost rebate to the

current marketplace, but our vendor said it wasn't possible to set up like this at the current time. Will be much easier to manage one marketplace than two.

Will (PSE): Sounds like collaboration is a place of interest, whether sharing information or developing a shared resource across utilities.

Jon (NEEA): If there was hypothetically a regional platform, would this address the cost-effectiveness issues?

Josh (Chelan): Likely, this would in theory have less cost to the smaller utilities.

Will (PSE): The utilities that would consider this would need to make sure it works for them. Definitely worth further discussion. In terms of sharing best practices, this is a little easier, especially during the planning stage.

Matt (Clark): This would address cost-effectiveness, just easier to pool resources rather than everyone building their own.

Jon (NEEA): the years NEEA has thought about what online marketplaces or regional infrastructure could look like, and has come back to NEEA's attention in the last month or two. The question of if this is feasible, the answer is maybe. If there is interest, I am more than happy to pull together information to share out at an upcoming quarterly meeting or another time. Follow up with Alisyn directly if you are interested in more on this.

Will (PSE): On the subject of Online Sales, we went through the pilot with Enervee and it was interesting to look at the concept of influencing in the online sales space. There is no more clear line between brick and mortar and the online sales space. Can utilities play a role in those purchase decisions in online sales? It is hard to show direct attribution, but you could have some sort of positive impact on your utility territory. When things are put on your grid, how do you think about what is happening out in the marketplace.

Jon (NEEA): From the retailer perspective, the answer that utilities can influence the marketplace is definitely yes. Customers are looking for an authority, and who better than the utility?

Will (PSE): This can help to continue burnishing the reputation of the utility as a trusted source of information.

Jon (NEEA): As part of the RPP product, NEEA receives online sales information, and we have seen an uptick in online sales, from 20% to 25% of retailer sales. This online space is going to be increasingly popular for information and for making purchases. This is an opportunity for retailers to be in front of their customers.

Will (PSE): I know many of us have been involved in trying to make that customer journey easier. The example that comes to mind is the couponing system that was developed with C+C, which makes the path clearer for the customer to get their rebate. This also helped address issues with contractors bulk buying.

Lars (SCL): I have a thought about if we are using something like Enervee, it is very difficult to claim credit, and we are in the credit claiming business. If you look at the bigger picture, you are helping your customers do something more efficient. Just because we can't track it doesn't mean it isn't happening.

Ryan (ETO): When you are talking about PSE's Enervee pilot, did it utilize Enervee's financing feature? If so, how much impact/influence do you think that offer had? Or do you think it is a valuable service for customers for something like a washer/dryer pair?

Will (PSE): Enervee's business model was to offer the products with financing options for online. They were hoping to add value by showing attribution through statistical analysis, but I don't think they've been very successful with this. This could be an influence for the customer.

Ryan (ETO): We are just exploring alternatives to standard incentives at retail. I think incentives do work for customers, they don't seem to work for retailers, and it seems that it can be just as valuable to find ways to provide support to the retailers, and I worry about those relationships.

Jon (NEEA): A few years ago NEEA explored a regional option with Enervee, and I have kept in touch with them recently, and they have significantly built out their capabilities. They have also added some additional features that can be beneficial to the customer. Enervee scores have been evaluated in other states, and findings show that they can influence decisions even without incentives existing.

Ryan (ETO): I met with Lowes recently, and they were very excited about the IRA tax rebates, but I don't understand why it has captured their attention. They seem more motivated than they have been for awhile. Perhaps this will be a catalyst for them. It seems they were looking to utility programs to do more as well.

Jon (NEEA): They have a corporate initiative to grow their business, and many incentives in the IRA are targeted at smaller contractors, who are highly likely to be purchasing from Lowes. They want a piece of the revenue and to position themselves as a solution. Lowes has also increased their staff that works directly with utility programs, and they have someone who is seeking to engage with the pro-business work. Multifamily is another big word for Lowes at the moment.

Jay (Pacific): There is a particular play between Lowes and Home Depot right now for the Multifamily market. Home Depot owns HD Supply and provide online and in-person order fulfillment nationally. They have contractors who are identified and connected with them.

Recap, Next Steps, Adjourn

- A. Action Items
 - 1) Bring back the online marketplace topic later in the year
- B. Comments from committee members or public attendees: None

Products Coordinating Committee

Day 2 Q2 2023 Meeting Notes

June 7, 2023

9:00am – 12:00pm PST

Hybrid, Online and at NEEA Office

Meeting Attendees

Committee Members:

Carolyn Beebe –
Snohomish PUD (Snohomish)
Dave Murphy –
Bonneville Power Administration (BPA)
Erik Boyer - Bonneville Power Administration (BPA)
Trevor Frick - Clark County Public Utilities (Clark)
Michael Gump – Avista Utilities (Avista)
Todd Greenwell – Idaho Power (Idaho)
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Mindi Shodeen – Idaho Power (Idaho)
Zeecha Van Hoose – Clark County Public
Utilities (Clark)

NEEA Staff: Alisyn Maggiora, Anne Brink, Drea Bell, Emily Moore, Emily Rosenbloom, Jonathan Belais, Kaelin Oppedal, Stephanie Quinn, Tamara Anderson, Warren Fish

Resources

- Agenda Packet: [Northwest Energy Efficiency Alliance \(NEEA\) | Day 2 Q2 2023 PCC Agenda...](#)
- Slide Deck and Recording: [Northwest Energy Efficiency Alliance \(NEEA\) | Day 2 Q2 2023 PCC Slide Deck](#)

Motor-Driven Products Regional Priority Topic: Distinguishing Circulator Barriers for Residential and Commercial ECM Markets

Overview:

Warren Fish of NEEA walked through an overview on Electronically Commutated Motors (ECMs) and their applications in commercial and residential settings to equip the group with knowledge, understanding and awareness before diving into the barriers and challenges to adoption. Circulators are primarily used for HVAC hydronic heating (HH) system distribution – moving hot water in a radiant system, and domestic hot water (DHW) recirculation – maintaining hot water at the tap. In HH applications the ECM is larger in size (as compared to DHW), installed by an HVAC contractor and made from cast iron. The primary energy saving strategy in HH

applications is pump speed control, in which the flow rate is adjusted to match the number of zones and the heating needs of each. In DHW applications, the ECM is made of bronze or stainless steel, smaller in size and typically installed by a plumber. The primary energy savings strategy in these applications is reducing the run time of the pump which can be done via various types of controls such as on-demand controls and learning controls, using tools like smart plugs and aquastats. ECMs produce the highest efficiency, even at variable load conditions, are quieter, lose less energy as heat, and extend product life due to their lower operating temperatures. A circulator's efficiency can be determined via the Hydraulic Institute's (HI) Energy Rating (AKA ER Label) which is based on lab tested performance and considers the Pump Energy Index (PEI) as well as the savings baseline set by DOE. A valuable tool that utilizes this rating is the HI Circulator Calculator which helps users determine lifecycle cost and understand potential energy savings.

Commercial barriers to ECM adoption discussed include a general hesitancy to connect a circulator to the Building Management System (BMS) because the value is not well understood, and the cost of connection may be higher than the circulator itself in some cases. Additionally, installers have concerns about customer satisfaction if DHW timers are not programmed correctly, leading to increased callbacks. To combat these barriers, we can encourage engineers and designers to integrate self-sensing controls into the motor at the factory and help them understand that doing this can simplify installation and reduce associated costs for the end user. Additionally, training and education can be brought to commercial contractors to learn and promote the benefits of these integrated controls.

Residential barriers to adoption include a lack of familiarity and knowledge about ECMs which is confounded by contractors' tendencies to purchase familiar items by default. These barriers present opportunities to educate installers to program ECMs with confidence and reduce incremental costs to the user via incentive programs.

NEEA's Extended Motor Products (XMP) Program addresses these barriers and opportunities through a midstream approach - raising awareness through hands-on-training and driving change in sales and inventory with key regional manufacturers' representatives via incentives.

Discussion:

Erik Boyer (BPA): is the CEI, Circulator Energy Index?

Warren Fish (NEEA): Yes.

Erik: So, the lower CEI the better. Is that right?

Warren: Yeah, the higher the ER the better, the lower the CEI the better. The ER is basically 1 minus the CEI times 100, so they clearly translate back and forth to each other. We are believers in the ER label as a valuable tool based on the DOE's metrics. The PEI and CEI have some shortcomings in our opinion – ER is easier to understand.

Tina Jayaweerea (NWPCC): So your discussion here is mostly about the controls aspect. You can have an ECM without the controls, but your focus is on ECMs with controls. Is that my understanding?

Warren: That's right. There is a federal standard coming that is going to require ECMs on all circulators. It has been in the works for a while and we're expecting a final rule from the DOE on that in the coming months. Once that comes out, there's an implementation period, so it'll probably be 2025 or sometime in 2026 when ECM circulators will be the federal standard. The

opportunity we see and we're especially focused on is getting controls in wider use and on more products ahead of the standard and after the standard. There's a lot of savings there.

Zeecha Van Hoose (Clark): How can you not have controls? It is an electronically commutated motor. That's what an ECM is, so you have to control it.

Warren: There is a small range of control with a small window of variable speed capacity inherent in it, but not the other kinds of controls we're talking about, like run hour controls for DHW.

Todd Greenwell (Idaho Power): I didn't know the DOE was going to indirectly go to ECM's – is that by an efficiency rating increase? They don't normally dictate how you get there, but is this what you see as the default technology to get to what they want to see?

Warren: That's a great question. Nicole Dunbar is our codes and standards expert and would have more to say on this, but she's not on the call. I can send out to the group some links to key details of that pending standard. Again, nothing is a final rule yet, but it's pretty far down the tracks.

Josh Mitchell (Chelan): On a residential scale how do these ECM circulators interact with hybrid water heaters?

Warren: You can apply them to a hybrid water heater, but the savings component would be smaller than when applied to an electric water heater.

Josh: When hybrid water heaters came into the market we had some concerns about people running their connection pumps so with an ECM you'd know if they're controlled. This could be a nice benefit and something that we could promote to our customers.

Todd: Can you tell me where the manufacturers are at and what their strategy is? Are they going to do retrofit? Secondly, do you need the controls to be cost effective?

Warren: I'm not an expert but I think you do need the controls be cost effective post-standard. I think manufacturers are largely looking to incorporate advanced controls into their models, but others might be thinking about being competitive by offering a model with an ECM and no controls. Ultimately, they listen to their customer base. At both the buying and manufacturing level, people are used to what they're used to, and this is a barrier we're combatting in the energy efficiency community by spreading the word about the value of controls.

Housekeeping

➤ RPAC

- Q3 vote for Variable Speed Heat Pumps (August 29)
 - Touch base with your RPAC member if you'd like to provide input on milestone business case document
- Federal Funding Work Group (sponsored by RPAC)
 - Kickoff meeting 5/4
 - Share out of activities, priorities, questions
 - Determine near-term priorities: workforce needs, marketing communication, tribal engagement

- Deep diving on those priorities in more specific meetings in coming months
- Next steps
 - Q3 meeting (August) aligned with planned Home Rebates Guidance
- Business Planning Update
 - Next 5 year cycle (2025-2029) - Cycle 7
 - Upcoming milestones leading to board approved strategic and business plan by the end of this year
 - 2024 – putting contracts in place with funders
 - June – second strategic + business plan review
 - June/July – email outreach, targeted presentations and outreach to NWEA, NWPCC, PNUCC, State Energy Offices, Commissions, and 1-2 regional webinars
 - Please connect with your board member on any related feedback and questions
- PCC Co-chair opportunity
 - Alisyn checking in 1:1 with PCC members in next few weeks
 - PCC Co-Chair role & responsibilities
 - Relatively light lift – 4-6 hours per quarter
 - Meet in advance to review quarterly agenda
 - Contribute to topic prep if you have expertise
 - Promote committee engagement during meetings
 - Support annual planning sessions
 - Reach out to Alisyn if interested
- EFX recap
 - Registered (in-person or virtual) folks can review recorded sessions via Whova mobile app or Whova online. Alisyn can put you in touch with help if you need it.
 - Great turnout and overall feedback – 430 in person, 115 online
 - [Photos available](#)
- Upcoming NEEA meetings
 - June 13th - 14th Q2 NEEA Board Meeting (Hybrid, Montana)
 - August CC and AC Meetings (Virtual)
 - 14th – Q3 Integrated Systems CC
 - 17th – Q3 Products CC
 - 24th – Q3 Cost Effectiveness & Eval AC
 - 29th – Q3 Regional Portfolio AC
 - September 21st – Q3 Regional Emerging Tech AC

Regional Roundtable

Committee members and NEEA program managers shared program and organizational updates, highlighted areas of possible interest and coordination with others.

Carolyn Beebe (Snohomish PUD): Just starting to rollout AMI meters within the next week, which leads us down the path of potential for time of use day rates for residential customers and demand response. In our group we're rolling out some instant validation online, so that when customers go into their account, they can access their marketplace/rebate center and won't have to reenter information, which is a great thing and sets us up for example if a customer is on our income qualified program, they can see different rebates or offers just for them.

Trevor Frick (Clark): I work more on the residential end of things at Clark. This is a busy time of year for us as we're finalizing 2022 savings figures. A lot of last-minute items are tricking in. Our 2022 I937 target exceeded, but by smaller margin than we normally do. The reason being that we were using the forecasted values of our savings (direct and indirect NEEA savings) to track progress towards our targets, target, but actual savings were lower due to the new Power Plan Baseline. We have taken a mental note to shave the forecasts back through this iteration of the Power Plan.

We had a rater working with a developer recently who was putting in about 81 Tier 2 heat pump dryers into a new facility, so this is the first time we're paying a rebate out on those, which is pretty exciting because we're going to be losing a lot of our heat pump savings next year with the federal standard increase and some changes with BPA as well as the sunset of the PTCS programs. Any new types of technologies that are gaining traction are welcome.

We've recently discovered that in our home energy report program a lot of profiles for customers lack data. We're working with O Power on mapping 3rd party data, so we aren't missing anything on the behavioral side because we've noticed a drop off in the savings that we realized from the home energy report.

On June 1st we ended load program because there are so many more competitive alternatives.

Our recent annual heat pump contractor meeting was well attended, over 30 companies were represented and over 60 folks attended. We had a lot to share at this meeting, mostly around the PTCS sunset and all the big changes to the heat pump measures of BPA.

I was glad to hear that Clark is not alone in the small utility frame of mind where it's hard to get a marketplace off the ground due to budget and resources. I connected with General Pacific who has had success in this area for chargers at EFX and hoping to meet to learn more about what our options are.

The HPWH feedback (on Day 1) was great, I would like more detail on contractor feedback to get better understanding around low adoption. Any marketplace conversation would also be appreciated.

Emily Rosenbloom (NEEA): When research report is done, there will be more content and direct quotes from installers. Feel free to reach out to me if you want to chat more once it's out.

It would be also nice to do a share out like we did on the marketplaces but more towards midstream HVAC type programs - what committee is this right for?

Alisyn Maggiora (NEEA): We might have this teed up for some of the Integrated Systems Coordinating Committee (ISCC)

Emily Rosenbloom (NEEA): Updates not included in the HPWH activity report: The final rule for the test Procedure on consumer water heating was released as a pre-publication and will be posted 30 days later. Test procedure is always followed by a standard. Note that they are now allowed to publish efficiency at more temperatures (50 and 95 degrees, not just the 68 we have come to know) – aligned with NEEA. If a water heater has a high heat setting, they are required to test at that setting, which is good. We want water heaters to be tested and the temperature they are going to function at.

Bradford White and Rheem have units up at a lab in Redmond, doing the same testing that was done on the A.O. Smith equipment. We expect to see them make updates to installation guides reflecting the volume metric requirement.

Todd Greenwell (Idaho Power): We're trying to deliver results for the governor's Zero-Based Regulation initiative which is to get rid of all non-necessary regulation in the state of Idaho, which included a full review of all 15 boards and the codes they manage (plumbing, electrical, energy, building, fire safety, etc.). Through the code collaborative we've been dealing with trying to prevent striking energy codes from commercial, residential, and industrial energy conservation code. The goal is to retain the 2018 IECC, with help from NEEA.

Anne Brink (NEEA): Retail Products wins – 1. TV test procedures approved by Energy star version 9, now approved by DOE. Manufacturers have volunteered to begin testing early. We're hopeful this means version 9 will have more participation from manufacturers. 2. NYSEDA joined the program on April 1st and are now biggest sponsor in the program have brought overall participation in the US to 21%. Hawaii Energy committed to join in July as well. 3. MPER (Market Progress Evaluation Report) 2 is wrapping up and will be published in next couple months. It looked at the NEEA logic model and specific performance of individual product categories.

Josh Mitchell (Chelan PUD): AMI work in progress. We're seeing a surprising number of customers opting out of installs which is not what we want to see. We have a 3-4% rate increase which changes cost-effectiveness on some of our programs. I'm in the middle of trying to develop our own commissioning of heat pumps programs with the PTCS going away, so I'm curious to know what others are doing in response for commissioning. In Chelan County we're concerned about capacity and looking at cold climate heat pumps.

Todd Greenwell (Idaho Power): I could help you with that PTCS, just give me a ring.

Tamara Anderson (NEEA): Efficient Fans program highlights: we have a completed [fan manufacturer regional share market study](#) that was posted April 3. We're focusing on outreach with key manufacturers for a pilot, and currently working on a couple of contracts. We're working with DNV on fans system market characterization work, and the final report is expected to be completed in Q4. We are scoping a technical research project and hoping for a final report by the end of the year or early next year, to understand what components in a fan drive efficiency. As far as codes and standards, we had a recent big win, the [final test procedure](#) that came out in April established the Fan Energy Index (FEI) as the metric for fans and blowers. NEEA is working and coordinating with the Air Movement and Controls Association (AMCA) and their manufacturer partners on developing a strategy and comments for the forthcoming notice of proposed rulemaking.

Lars Henrikson (Seattle City Light): My colleague Emma Johnson who usually attends these meetings is not here because she is focusing her time on the demand response pilot and a time of use rate that we're rolling out. From an efficiency point of view, we're really looking for saving because we are behind targets.

We have a midstream program (around air conditioning, chillers, heat pumps variable refrigerant flow systems, water heaters, pumps, fans, circulators) that is part of a regional effort with PSE and Snohomish PUD.

We're done some contractor trainings on heat pumps and will have more trainings on heat pumps and water heaters in early fall.

The heat pump water heater retail program has changed. It now offers an instant rebate instead of instant discount. This is part of a regional effort with Snohomish PUD, PSE, and Tacoma. We've noticed with heat pump water heaters both in midstream and retail, is that numbers drop off at the end of Q3 and beginning of Q4. What we've learned is that the DIY market is down. Covid effects on the adoption curve seem to have run their course.

For the short term we are planning to open a pop-up web store with limited time offers, but long term we still want to have a full customer engagement platform that has a lot of customer intelligence and is customized/personalized.

To address an earlier comment - we do an after-purchase rebate for heat pump dryers and Energy Star front load washers, and we see about 2-4 of those per month.

Whitney Jurenuc (Northwestern Energy): We are coming to end of our program year, which is June 30. End of year accounting and evaluation of cost effectiveness of programs is in progress. We will kick off new programs on July 1, and we have 3 new pilots launching around cold climate ductless heat pumps, lighting controls and heat pump water heaters. We have an end use and potential studies in progress, and we are reaching out to customers for surveys. A lot of community events happening (sustainability, county events, home shows, technical conferences, etc.), and we have been attending a lot more of those, spending more time in public than before and promoting programs at these events.

Dave Murphy (BPA): Because of the BPA change notice that came out 4/1 for the upcoming end of the two-year rate period, there will be changes in residential programs due to cost effectiveness. All of the lighting measures expiring Sept 30, including direct install. All EE kits are ending except thermostatic shutoff valves because they are still cost-effective, and washers and dryers. We're expiring Tier 1 and Tier 2 heat pump water heaters, but we have been able to increase incentives for Tier 3, Tier 4, and split systems to account for inflation we've seen in recent years. We are happy to be working with NEREA and appreciate the attention given to heat pump water heaters. We will also continue to leverage comfort ready home, and assist end users, contractors, and utilities with whatever they need to facilitate projects and get units installed.

Warren Fish (NEEA): XMP updates – We are bringing a [Pump System Fundamentals Course](#) to Seattle on August 9. You do have to pay for it, but no prerequisites are required. It is available to anyone who wants to learn more about pumps, so please spread the word in your network.

There are some great new smart pump models coming out to the market this year. Manufacturers are investing in these product lines, and we are hoping for great results on smart pumps and circulators, fueled by product launches and return to normal business conditions (supply chain and other disruptions experienced due to Covid).

Tina Jayaweera (NWPCC): The Council has an upcoming (July 20) Conservation Resources Advisory Committee meeting . Agenda is posted here: <https://www.nwcouncil.org/meeting/conservation-resources-advisory-committee-2023-07-20/> All are welcome to attend. Also, the RTF just started a contract for categorizing electric vehicles so that an “efficient EV” measure could be developed. I think the timing is to have a “UES” (unit energy savings) measure in 2024.

Mike Gump (Avista): New management in the EE Team. Kim Boynton is the new planning and analytics manager and Meghan Pinch is the Manager of Program Managers. As for new programs, we're in the early stages of implementing our Midstream program. We're also implementing an incentive program where installers are incentivized, I believe initially \$0.05 per kWh saved per project and down the road the incentive will be \$0.01 per kWh saved per project. I'm not 100% sure which measures will receive this incentivization. But if anyone would like more information, please email me at michael.gump@avistacorp.com. Those are the big changes coming from Avista.

Meeting Wrap Up

- Action Item Summary
 - ACTION: NEEA to send out links to background information on circulator standard
- Key Takeaways
 - Knowledge about upcoming standard
 - New awareness of code change
 - New understanding of tech
 - Uncovered opportunities for motors
- Next meeting: August 17, 2023 (Q3) – ½ day, morning, virtual only