

Summary Notes – DRAFT
Residential Advisory Committee Meeting
Thursday, October 12, 2017
Chelan PUD (Wenatchee)



Attendees:

In person:

Josh Mitchell – Chelan PUD
Andrew Grassell – Chelan PUD
Susan Gillin (Marketing) – Chelan PUD
Todd Blackman – Franklin PUD
Doug Dickson – Snohomish PUD
Thad Roth – Energy Trust of Oregon
Clint Stewart – Puget Sound Energy (PSE)
Tina Jayaweera – Northwest Power & Conservation Council (NWPPCC)

By Phone:

Lis Saunders – Tacoma Power (phone)
Debbie DePetris – Clark PUD
Thomas Elzinga – Consumers Power
Don Jones – Pacific Power
Becky Arte-Howell – Idaho Power
David Murphy – Bonneville Power Administration (BPA)
Victor Couto – Seattle City Light
Kathy L Moore – Umatilla PUD
Kevin Holland – Avista Utilities
Thomas Anreise - CLEAResult

NEEA Staff: Jeff Mitchell, Neil Grigsby, Stephanie Baker, Suzi Asmus, Jill Reynolds (phone), Beth Littlehales (phone), Ryan Brown (phone), Christopher Dymond (phone), Alisyn Maggiora, Eugene Rosolie

Public Attendees: Janice Boman, Embertec

Packet link: <https://conduitnw.org/Pages/File.aspx?rid=4182>

Slides link: <https://conduitnw.org/Pages/File.aspx?rid=4211>

Housekeeping and Agenda Items

- A. Follow up on action items from August 10, 2017 committee meeting.
 - 1) Determine whether or not to offer utility incentives on NEEM 1.1 in, post-2019. Need to discuss in detail at Work Group level and again at RAC in 2018 before final approach is determined.
 - 2) Committee members to prep RPAC members before their meeting.
 - 3) NEEA will share out RPP Market Test Assessment Report with the Workgroup by end of the month
 - a) Assessment was completed and reported out to the Workgroup on Oct. 2.
 - b) This is available on neea.org [here](#) and in the Residential Monthly Report
 - 4) Jeff to follow up with Doug to establish specifics on Commercial Lighting impact on Residential.
 - a) **Snohomish PUD** noted that there are residential components of the commercial lighting program and there's currently not a structure for residential program awareness and input – would like to see this improved
 - b) **ACTION ITEM: NEEA (Jeff M) added that he will add this to the Q1 agenda as a follow up topic for discussion.**
 - 5) NEEA to take a look at who is doing the professional HPWH installs and follow up with Franklin PUD.
 - a) **ACTION ITEM: NEEA (Jill) will forward names of the folks taking the training to Todd Blackman at Franklin PUD.**

- 6) NEEA to incorporate plumbers vs. HVAC dealers questioning as data request for Snohomish.
 - a) **Franklin PUD:** Starting to see more HVAC installers pick up the heat pump water heaters. Also encouraging installers to take a look around the home while doing a heat pump install to see what other needs might exist.
 - b) **Snohomish PUD** added that the plumbers are a good market to tap into, especially with emergency replacements.
 - c) **Chelan PUD:** *We have issues with plumbing folks trusting the equipment, how did you overcome that?* Franklin PUD replied that it's a constant challenge;
- B. RAC 2017 work plan (page 16 of [packet](#))
 - 1) 2018 Proposed Dates:
 - a) Q1 – January 30 @ Portland
 - b) Q2 – April 17 @ SeaTac
 - c) Q3 – August 02 @ Portland
 - d) Q4 – October 11 @ SeaTac
 - e) If there's desire to change the location for any, we can easily adjust
- C. Energy Star Partners Meeting coming up in two weeks (week of Oct 23)
 - 1) NEEA sending 6 people
 - 2) Have a detailed list of folks to talk to and topics – have about 19 meetings scheduled
 - 3) If you would like to know any of those details, contact Jeff Mitchell (jmitchell@neea.org | 503-688-5482)
 - a) Franklin PUD would like to join in any conversation around smart thermostats. NEEA (Jeff) clarified that's not currently on the topic list for now, but will let Franklin PUD know if so.
 - b) Snohomish PUD interested in RPP meetings

Ductless Heat Pump Update (pages 4-5 in [packet](#))

Suzi Asmus (NEEA) gave an introduction to the purpose of the discussion. *The desired outcome is to bring RAC up to date on 2017 DHP activities, including Quick Connect, and gather feedback from RAC on program strategy and direction.*

Presentation highlights:

- 1) Do It Yourself (DIY) Installs
 - a) Note, contractor-assisted install (or CAI) is different (DIY w/ assistance)
 - b) Quick connect heat pumps do not do not require specialized tools or a vacuum pump to install and do not necessarily require a trained HVAC installer to install successfully. Because of this, they may be significantly less expensive than a regular DHP.
 - c) NEEA agreed to do some field and lab testing of these types of units to get more data on their performance and to find out if there are sufficient high quality products that might warrant inclusion in utility programs.
 - d) Quick Connect Ductless Heat Pump Project Phases:
 - i. Phase 1: Analysis and assessment of available product. This phase focused on models advertised as DIY and were currently available. This was the phase that narrowed the selection process to MR Cool and Idea Air as the units to test
 - ii. Phase 2: Installation and performance (4 units). During this phase, employees of CLEAResult installed 4 systems, two MR Cool, and two Ideal Air systems. Extensive documentation of the install process was undertaken during this phase.
 - iii. Phase 2b: Lab testing (shake, rattle and roll) – During this phase various fittings will be further tested in a lab for leaks.

- iv. Phase 3: DIY field testing (20–30 sites) – If applicable, this phase would test the feasibility of a DIY inclined homeowner installing these units on their own.
- e) Quick connect study (4 installs) – winter months
 - i. Two systems identified and installed two of each – *Ideal Air and Mr. Cool*.
 - ii. Installed in 2016 in Portland Area
 - iii. **Chelan PUD**: Minimum on Seasonal Energy Efficiency Rating (SEER) and Heating Seasonal Performance Factor (HSPF)?
 - o **NEEA (Jeff M)**: Both SEER ratings are 15; HSPF ratings: Mr. Cool had a rating of 8.2; Ideal Air did not have a rating.
 - o Suzi followed up after the meeting to confirm that there was no minimum HSPF requirement. All available systems were reviewed and HSPF was not a go/no go factor for Phase 2. Assumption is that all systems met federal minimum, 8.2, whether listed or not.
 - iv. **ACTION ITEM: Suzi to follow up with RAC on details behind the “leak” photo in the presentation – why these types of bubbles are not problematic.**
 - o **NEEA (Suzi)** followed up after the meeting with additional information from the research team:
 “On our first return visit, we thought we saw a leak with the Blu Bubble leak detection soap. However, it’s a little tricky to use, so Mark Jerome returned for the third site visit and performed another test with both Blu Bubble and a refrigerant sniffer (more sensitive, but can give false positives, so best used in concert with Blu Bubble). He found that there was no leak at that time.”
- f) System Performance
 - i. Customers generally satisfied
 - ii. System Performance
 - o Temperature splits (supply/return) and indoor/outdoor temps taken
 - o Performing well
 - iii. Leak Tests
 - o Indoor and outdoor units tested
 - o No leaks
- g) Install Costs

	Site 1	Site 2	Site 3	Site 4	Regional Average
Unit	220v Ideal Air	110v Ideal Air	220v Mr. Cool	220v Mr. Cool	1:1
Unit Capacity	24K BTU	12K BTU	18K BTU	18K BTU	
Unit Cost	\$2,400	\$1,450	\$1,457	\$1,457	
Mechanical Permit	\$106	\$106	\$120	\$106	
Additional Components	\$278	\$278	\$278	\$278	
Electrician (including electrical permit)	\$783	\$793	\$748	\$688	
Total	\$3,566	\$2,626	\$2,602	\$2,529	\$4,462

Discussion:

- **Energy Trust:** *Is the electrical cost just the circuit?*
 - o **NEEA (Suzi)**: Includes labor and electrical permit. Suzi provided additional detail after the meeting, which is also included in page 3 of the report: “Two electricians were employed; their costs were comparable. Of note, the 110v system had the highest electrician cost;

the primary cost drivers are not related to whether it is a 110v or 220v circuit, but rather to differences in the electrical panel and the building structure the wiring is run through. The electricians stated that there was about a \$200 cost savings due to the wiring already being connected to the indoor head and being wrapped up with the line set. The electricians stated that they typically spend one to two hours and up to \$50 in materials to run the wire to the indoor head.”

- **NWPCC:** *What’s the capacity of the regional average for the 1:1 system?*
 - **NEEA (Jeff):** Typically around 18,000.
 - **NEEA (Suzi)** followed up after the meeting with clarification.
 - Regional weighted average of Nominal Heating Capacity is 16,750 Btu
 - Highest number of 1:1 systems sold typically are 15k and 18k. (Source: Regional utility rebate data 2012-2016)

- h) Results
 - i. “Out of box” components incomplete
 - ii. Wall template was really helpful
 - iii. Indoor unit is pre-wired eliminating need for separate electrical connection
 - iv. Instruction manuals confusing
 - v. Fixed line-set length created obstacles
 - vi. BUT - line sets were kink resistant
 - vii. Connection lines and fittings differed across systems
 - viii. Better control features needed (all)
 - ix. Fan noise continuous (Ideal Air)
 - x. Constant air blowing even when not heating (Ideal Air)
- i) Lessons Learned
 - i. Supplies such as the ground pad and line hide have to be purchased separately by the homeowner
 - ii. Wall template was really helpful
 - iii. Instructions can be unclear, poorly translated, confusing, inadequate, and not specific to shipped unit.
 - iv. 25' line set requires extra line hide, which adds significantly to time and material and negatively impacts the location of the outdoor unit
 - v. Fan setting and controls are not optimal for single-family homes
- j) Findings
 - i. Customers satisfied
 - ii. Sufficiently heated spaces where they were placed
 - iii. Less expensive than professional install
 - iv. Ideal Aire – not ideal
 - These systems are more ideal for indoor agriculture
- k) Recommendations
 - i. Manufacturer Improvements:
 - Include indoor head template
 - Increase line set length flexibility
 - Improve fan control
 - Clarify instructions
 - ii. Study Stage Gate Decision:
 - Move forward with next stage of research
- l) Next Stage: Due Diligence
 - i. Fittings

- Have to monitor or prevent low points in the line, otherwise lubricant pooling will occur.
- ii. 4 types of connectors being examined
 - NEEA (Suzi) passed examples of the fittings around the room to evaluate
- iii. Test standards, test results, product samples
- iv. Literature review
- v. Cascade Engineering Services (CES) review
 - NEEA will provide a brief summary report once the CES review is complete.
 - Will be seeking funder input on the results to see if further investigation is warranted

Discussion:

- **Energy Trust:** *Back to the costs slide; what was the labor cost to install these?*
 - **NEEA (Suzi)** clarified that since these are DIY installs, labor is not included in cost. Suzi provided additional detail after the meeting, referencing examples from the report regarding labor investment as follows:
 - i. Page 3 - The unhurried attitude of the installs proved important, as the interpretations of installation manuals was time consuming.
 - ii. Page 7 - In all installs, a significant portion of the install time—as much as half—was spent fitting line hide on the line set. With fixed length line sets, all 25 feet have to be covered. The ability to order units with a variety of line set lengths of 10, 15, 20 and 25 feet would decrease material costs and labor hours and allow for more optimal placement of the outdoor unit.
 - iii. Page 10 - Permits and inspection: Be prepared to spend 1-2 hours navigating the process and \$100-\$150 for the necessary mechanical permit.
 - iv. Page 29 - Site 3: Drilling the hole through the siding proved difficult and time consuming.
 - v. Page 30 - Site 4: The extra ladder work in a two-story house added to install time
- **PSE:** *What tools were used to size the units?*
 - **ACTION ITEM: NEEA (Suzi) to follow up**
 - i. **NEEA (Suzi)** followed up after the meeting. Size options to begin with were 12, 18, 24, 32, 36k. Units were providing supplemental or displacement loads, so large units were not needed. Site visit to determine space and load. No load calculations were done with software.
- **Franklin PUD:** There's a niche market here. Have an appliance installer interested in taking these on (someone outside HVAC).
- **Snohomish PUD:** *Is there a BPA would reimburse?* **BPA** replied they didn't have specifics right now but will check with Jessica Kramer as to whether it will be a separate measure.
- **NEEA (Suzi):** Let us know if you have any interest on a deep dive on this.
 - Franklin PUD, Snohomish PUD, and Chelan PUD expressed interest.
 - Contact Suzi for more information at sasmus@neea.org | 503-688-5407.
- **Franklin PUD:** This may not be a big mover in the market just yet but will take what we can get. We do have customers that put in their HVACs and then have techs come out to check a few components, so it's out there, not a big group, but it's out there.
- **Chelan PUD** noted they get a few inquiries a week on these.
- **PSE:** If we had a network of qualified technicians we could source, it would likely improve uptake.

Hot Water Digital Media Campaign (pages 6 in [packet](#))

Kyle Stuart (NEEA) gave an introduction to the purpose of the discussion. *The desired outcome Review digital marketing trends, best practices and examples from recent Hot Water Solutions digital campaign.*

Presentation highlights:

- 1) Mobile Usage Statistics
 - a) Connectivity, mobile usage is on the rise. There's 7.4 billion mobile devices worldwide as of 2015 – that's surpassing the number of people on earth.
 - b) We reached a mobile tipping point a few years back, where mobile usage surpassed desktop usage. Not surprisingly, this tipping point is having an impact on our behavior.
 - c) Social media is a primary use category
 - d) Media tactics known as click bait work well and are partly why we spend so much time on social media. Social media networks are designed to keep people engaged by triggering the reward center in the brain – producing dopamine and essentially keeping users in a “continuous scroll” behavior on the platform.
 - e) As people start self-regulating their digital consumption, they're more selective with how they spend their time online. Fundamentally, when there's a wealth of information, there's a scarcity of attention. And as marketers, it's important to realize that attention is earned. Consumers short on time are both critic and curator of their experiences.
- 2) Suggestions for better reaching your customers
 - a) Smart digital marketers thoroughly understand their target audience, the context in which these people live and how they make decisions, and the messages that'll resonate.
 - b) You have to be relevant in order to earn attention.
 - c) Understand the context and needs of a consumer – and add value. Don't market gasoline to a Tesla owner, for instance.
 - d) Recognize the journey of touchpoints that you can have with your customer
 - e) Ensure a frictionless consumer experience
- 3) Digital Trends
 - a) Chatbot services – chat function that allows consumers to drill down to specific needs and the bot returns the most relevant results. This trend has staying power and will should expect to see more of this.
 - b) Augmented and Virtual Reality
 - c) Augmented Reality in particular is drastically blurring the lines between digital and physical space, and provide utility to consumers on a number of fronts.
 - i. Ikea, for instance, has done a masterful job incorporating this new tech into their catalogs and apps – helping people visualize and plan interior design.
 - ii. Consider how this technology can be utilized for your offerings?
 - o Maybe an opportunity to visualize energy cost savings with certain appliance upgrades and available rebates.
 - o Maybe using AR to visualize how in indoor head looks in a living space or a bedroom.
 - d) Video First World
 - i. 1/3 of online activity is spent watching video.
 - ii. Videos on landing pages increase conversions by 80% or more.
 - iii. 46% of users act after viewing an ad.
 - iv. major platforms where people gather and consume content are continuing to align their offerings around video. It's a tremendous medium for brands
- 4) Hot Water Media Solutions Campaign – utilizing these strategies

- a) Wanted to develop a hyper targeted campaign to reach people with an acute and immediate need. A broken water heater.
- b) Goal is be relevant and provide value in that moment when they're searching for help or a fix to a water heater.
- c) Created new video content specifically addressing emergency replacement in a light-hearted, easy to understand creative aesthetic and used keyword targeted to serve these ads up folks likely in the market for a water heater. Click [HERE](#) to watch the video.
- d) Website management
 - i. Redesigned the Hot Water Solutions Website to be easier to navigate with a clear path to action.
 - ii. Created a new Emergency Replacement landing page that our paid media drives to. The emergency replacement landing page is specifically designed to get people to contact an installer in their area or find a local retailer that carries a HPWH.
 - iii. Along the way, they're shown available utility rebates and other markdowns in their area, reducing the first cost barrier.
- e) Campaign Results
 - i. In one month, the campaign has garnered over 5 million impressions, 86,000 video views, and more than 6,000 clicks to the website.
 - ii. Combined click through rates are at .33%. Remember, different channels do different things – and typically a search ad has a higher click thru rate than a display ad or video.

Discussion:

- **Snohomish PUD:** *Any concern about backlash with ad tracking (cyberstalking customers)?* **NEEA (Kyle)** added that that's absolutely a concern around consumer protection and adblocking software does present challenges to marketers
- **Snohomish PUD:** **We're worried about it. If customers think it came from our utility and it was following them around, it may be a concern.**
- **Chelan PUD (Susan):** *Have you tried the chat-bot functions?* **NEEA (Kyle)** replied that he has not used it for shopping from a customer standpoint.
 - **Chelan PUD (Susan)** clarified they were curious how chat-bots could be used, for example, if you wanted to encourage customers to purchase a HPWH in an emergency replacement scenario. **NEEA (Kyle)** replied it would probably work through the vendor through which you're seeking the product, like Lowe's or Home Depot.
 - **Energy Trust:** *If you're wanting to drive a customer to a specific product, is it similar to the kind of engagement we experience on the retail side?* **NEEA (Kyle)** confirmed it is similar. It's more based on customer input than what the vendor wants to push. There are filters you can apply, similar to asking specific questions in the store.
- **NEEA (Kyle):** Facebook tends to provide a deeper engagement, brand affinity, dialogue platform whereas Twitter is more real-time, customer service/response interaction. Also, Facebook Live is an opportunity for people to engage real-time and allow for Q&A – key there is to be clear about the hook/purpose for using the "live" platform.
- **PSE** noted that they use Facebook Live for storm event updates and it's been effective.

Utility Share-outs/Round Robin

A. Avista:

- i. Not much going on – in the middle of bicentennial conservation plan. Ahead of goal right now, keeping successful programs going and retooling a few others.

B. Chelan PUD:

Residential rate is \$0.027. No major changes for the new year. Debating Demand Response side of things with NEST thermostats on HVAC; would love to get a consortium of smaller utilities together that could bring the upfront cost down if anyone else is interested.

C. Franklin PUD:

Just getting new program documentation launched; feel good about last program. Convinced managers to use BPA funding to buy “negawatts” (basically savings - a watt that isn’t used as a result of efficiency) and put utility effort towards enriching and mobilizing targeted efforts (megawatts, market transformation, contractor education). The next thing we do will be more guided by I-937 now that our utility is large enough (25,000+ customers). Program is complete except new homes program, looking forward to seeing that come together. Competing for funds to do large HPWH bulk purchase to make available to tri-cities contractors; only cost to customer will be installation cost. Hoping to get HVAC, small plumbing, solar and small appliance installers involved.

D. Snohomish PUD:

Savings is trending down, budget trending down, goals trending up – posing scenarios to see what’s actually feasible. Been expressing a shift from first year energy savings, to capacity. Don’t explain this to customers, you can’t really; emphasizing less lighting with retailers, but that means I have to spend more on things that cost more, but they’re more difficult to find. There’s a disconnect between budget and goal, which is somewhat tied to I-937 target and IRP process. Just hired Energy Savvy to handle energy audit, will help us narrow our search and direct market better for immediate needs from customers. Will do low-income energy assessments with internal staff, shooting for 250 inspections for 2018 – seeking out water heater replacements. Expecting some struggle given a high number of landlords involved. Might drop built green new construction certification requirement, County seems to be having issues with it.

E. PSE:

In home stretch of biennial planning; had last Conservation Resource Advisory Group (CRAG) meeting last week before filing BCP. Down on targets for gas and electric by about 15% according to IRP, so scaled back programs in terms of savings targets. Wrapping up second round of RFPs for 2018-19. Looking at some pilots coming up: single family rental pilot, thermostat optimization pilot (not sure whether that will happen in 2018). Program updates: partnered with Philips, Samsung and Home Depot on a customer engagement event, offering limited time offers on clothes washers, refrigerators and dryers; looking at double incentive of \$150 on those items. Web-enabled thermostat marketing efforts getting scaled back, pausing until 2018, saw more interest in that than expected. Will integrate specialty LEDs into Home Energy Assessment program. Sun-setting fuel conversion program (electric to natural gas) in light of carbon reduction efforts in the region. Multifamily retrofit: launched 2 month building energy challenge – working in concert with Strategic Energy Management pilot. 4 properties (100+ units each) participating on a point based system. In phase 2 of line voltage line connected thermostat pilot in multifamily, partnering with WSU CEEP program; phase 3 may happen with BPA. Sun-setting clothes washer replacement program – had warranty issues with manufacturer and saturation in the market. Published Itron evaluation study on Conduit, which includes refrigerator decommissioning study. Appreciating new homes construction support from NEEA, particularly on manufactured homes program launch; offering incentives under NEEM 1.1 and 2.0 (\$1000 and \$1500 respectively). Launching single-family new construction program in line with Performance Path in January; building network of raters in the region to gather feedback on how to best align and work together. Aligning incentives with BuiltGreen, but as long as homes 20% above code they can apply. Interviewing vendors on multifamily new construction side of things, investigating an incentive option for design charrettes. With respect to low-income, working on marketing campaign using Facebook, seeing good results.

F. Seattle City Light:

Andrew Gibb has taken a new role so Lars Henrikson standing in his stead for now. Working on redesigning low-income strategies. Looking at passing on BPA measures on storm windows starting in 2018. Not making HPWH numbers as hoped, trying to figure out new approach with customers and contractors. Working diligently on dialing back lighting incentives, seeing 50% saturation on residential. Will start rolling out public EV chargers in the community. Started doing advanced (smart) meter installs and working with customers to understand how to use them to improve efficiency.

G. Energy Trust:

Looking at making changes to program organization, particularly around retail lighting savings. Have published an RFP about a new program structure. Currently have 3 separate programs: existing homes, new homes and products program; since then, went to a single PMC to manage those programs and have implemented program delivery contractors to focus on retail and new homes sectors. PMC contract went to CLEAResult, retail contract went to Ecova and new homes contract went to TRC. Making these adjustments has better balanced the portfolio. Plan to implement January 2018, transitioning now. Will be making internal staffing structure changes as well as result; will report further on those changes at the next RAC meeting. Will focus on 3 areas going forward 1) portfolio management – what are the technologies and savings, measure updates/additions; 2) customer acquisition and 3) program and contract management activities. Staffing levels won't change, just shifts in roles. Regarding DHP costs, seeking an exception from the Commission and will find out in November whether that's been approved. Making efforts on water-heating side (both gas and electric); motivated to increase success in water heating market. Have completed transition away from customer-facing incentive towards a mid-stream approach. Biggest success has been on the retail side (operating currently in Lowes, Grovers, and soon Home Depot). Distributor side has been more challenging; coordinating with NEEA on their distributor platform and seeing some success.

H. ConsumersPower:

Have gone a different route with incentives, ramping some up to see if we can get greater traction on HVAC items. Trying to continue to push HWPH, offering them for sale in office. Several of our members source water heaters through us that they otherwise would have access to – been helpful to sell the technology. Appreciates BPA's relaxation on some of the requirements. Hoping to drop the price on some and see if that will incent some greater participation. Once NEEA adjusts their HWPH incentives it will be interesting to see what changes happen.

- **Energy Trust:** Heard concerns from manufacturers that disappearance of the RETC will be problematic, especially on the distributor side.
- **NEEA (Jeff):** Been working with manufacturers a lot on incentives. Will be watching the market, think we've reached a point where these will keep working.
- **Snohomish PUD:** *Are you verifying these are being installed in your service territory before you give the customer a rebate?* **ConsumersPower** replied yes they are currently, but trying to determine whether or not to going forward.
- **Chelan PUD:** *What are your major pain points?* **ConsumersPower** expressed that HVAC techs were reluctant to install because the product didn't originate through them. Have found a couple plumbers in the area that are willing to pick up the slack. Also, it gets a little dangerous associating our name with the product – we're limited on the number of big box retailers so customers have been more reliant on us then they otherwise might be; it's been successful so far though.

I. BPA:

Implementation manual just dropped. Changes at a high level are: change in multifamily definition – no longer multifamily commercial and residential sectors, want offerings to be similar wherever possible; changed definition of weatherization measures between low rise (5+ dwelling units and 3 stories or less), mid-high rise (5+ dwelling units and 4 stories or more); no more CFLs,

pin-based lamps are in and have added TLEDs; looking at 40% reduction in lighting savings – will spend the first 3 months evaluating volume impacts and will update participants in January 2018; power-strip survey requirement removed; in sync with NEEA, particularly on HPWH – have removed the requirement for watching installer training, also working with NEEA to develop Sanden Unit training video; removed requirement to keep customer files from HPWH forum – as an alternative they can 1) join simple-steps or 2) run their own HPWH program; based on customer requests, Sanden (split-system) HPWH unit has been added to the QPL list and the incentive measure has gone up to \$700; Simple Steps program has gone up to a new measure – ClearRESULT handling all of these; new delivery mechanisms available for retail items (kits, online stores, amazon promotion) – amazon promotion delayed; showerheads had savings changes but payments did not change. Continuing with sun setting refrigeration and freezer measures, however, recently discovered there are still savings there – looking at potential rebate of \$65-70 – ***should we scramble and try to reintroduce the measure as a new measure next year?***

- **Clark PUD:** we're expiring the measure but continuing the program due to demand. We don't use ARCA.
- **Franklin PUD:** Access to a vendor is key.
- **PSE:** we are continuing to offer program in 2018 and 2019 – still seeing savings and customers still want it.
- **Snohomish PUD:** Ended our program due to 3rd party (Jayco) customer service issues; probably won't bring it back.
- **Seattle City Light:** Done for our region.
- **BPA:** Thanks for the feedback, will update at next RAC meeting.
- **NWPCC:** Cost-effectiveness didn't change that much from before; not clear on what BPA is seeing. BPA clarified that when the RTF adjusted the cost of carbon, this adjusted this measure to be more cost-effective so that's why we're polling our customers to evaluate.
- **ACTION ITEM: NWPCC and BPA to follow up on this next week.**

J. NWPCC:

Regional Conservation Progress report recently came out at Council meeting. Slides are posted on their website. This is a survey of how much savings have been reported in the prior year (2016): 270 aMW saved, far above 7th Plan expectation (40% came from Residential, Lighting was the greater proportion – seeing a shift now towards HVAC). NEEA End-Use Load Research RFP went out; first phase focusing on residential load profiles (circuit meters) monitoring 500 sites. Those funding this project include PSE, Snohomish PUD, Clark PUD, Tacoma, PGE/Energy Trust; we are now at 80+% funding for this project (it's a pay-to-play project). If you want access to the data, you need to sign up to support/participate. Expectation is to have the first round of data by early 2019. Data will come in real-time to NEEA. Savings are starting to go back up for washers because the market is backsliding towards top-loaders. Hard to reach work happening among a “coalition of the willing” utilities – looking at data comparison between who's being served versus what portion of the population they comprise. NEEA's Market Intelligence group has been helpful in this. Goal is to enable other utilities to pick up these methodologies to try to identify their own hard to reach populations. The DR summit this fall was good, had a lot of engagement; next DR meeting is December 6 at the Portland NWPCC office. Contact Tina if you want to be added to the email list.

K. Clark Public Utilities:

Pigging-backing on Energy Trust's HPWH retail program in broader Portland-area. Decided to drop HWPB rebate (\$300 and \$500) to align with the Trust (dropping to (\$200 and \$350); went into effect Oct 1. Dropping duct-ceiling for manufactured homes and single family down to \$200. Have decided to offer multi-head DHPs rebate at \$1000 and the \$100 replacement. Standard single-head rebate is still \$750. Have stopped reporting savings on plants recycling, but continuing the program through 2018. Moving forward with new homes performance program. At end of

September announced the new program and that we are passing BPA incentive through: gas homes must meet minimum 10%, electric homes have to be 15% above code, and if they get 30% above code there is a \$500 bonus.

Super-Efficient Dryers Update (pages 7-8 in [packet](#))

Stephanie Baker (NEEA) gave an introduction to the purpose of the discussion. *The desired outcome is to review recent RTF decision regarding Energy Star dryers, discuss NEEA's response, proposed research plan, and possible next steps.*

Presentation highlights:

- 1) Clarification – not talking about Heat Pumps today, just Energy Star dryers.
- 2) Plan to reach the Scale-up Approval milestone in mid-2018
- 3) Desired Outcomes
 - a) RAC members are informed about recent RTF decision re: ENERGY STAR savings
 - b) RAC members are informed about NEEA's data collection plan to validate ENERGY STAR savings
 - c) RAC members have the opportunity to discuss the situation and provide input into NEEA activities
- 2) RTF Savings drop earlier this year (93 kwh down to 8 kwh)
 - a) NEEA did not collect significant data to validate this number. In fact, there was only one data point that we provided to the RTF, which resulted in the savings drop.
 - b) The RTF is committed to relying on the data that is available, and so this means the currently ESTAR savings is based on an average of one data point.
 - c) Reached out to Energy Star to acquire their data – the average of their data resulted in a data point that seems more realistic (~70 kwh).
- 3) Plan forward:
 - a) Testing 12 dryers, likely 6 Energy Star and 6 non-Energy Star – goal is to have this complete by the end of the year.
 - b) Sampling plan TBD - working closely with the RTF, CAT, and subcommittees to agree on how we should be choosing models to test. Will be on RTF meeting next Tuesday, tune in then or connect with your respective RTF member.

Discussion:

- **Snohomish PUD:** Seems odd we used 1 data point to move energy savings. **NEEA (Stephanie)** noted that the RTF recognized there was a lack of data and for all other measures they moved the status to “proven,” and for the Energy Star measure they left it at the “planning” level as a way to flag it so to speak.

Next Step Homes Update (pages 9 in [packet](#))

Neil Grigsby (NEEA) gave an introduction to the purpose of the discussion. *The desired outcome is to review Next Step Homes initiative progress and update RAC on most current thinking regarding the Scale-Up Milestone.*

Presentation highlights:

- 1) Home Efficiency Forum last week had great attendance, saw participation from several utilities (Chelan PUD, Energy Trust, Snohomish PUD, Clark PUD, Benton PUD, BPA, Seattle City Light, PSE and Seattle Central Coop) and over 100 raters and builders.
- 2) High level “groupings” of activity to meet Market Test:
 - a) Performance Based Programs
 - b) Home Certification Program Coordination

- c) Training Development and Delivery
- d) Next Step Home Pilot Project
- e) Marketing
- 3) Market Test Objective: Will the Regional Technical Forum (RTF) approve a standard modeling protocol for home energy ratings?
 - a) In December 2016, the RTF approved the residential new construction standard modeling protocol.
- 4) Market Test:
 - a) Establish protocol structure that utilities need to design programs around home energy modeling
 - i. Determined protocols are: BPA calculator, Axis database, and inclusion in April 2017 update to the BPA Implementation Manual
 - ii. In May 2017, Snohomish PUD launched their program
 - iii. Clark PUD will launch their program in October 2017
 - iv. Neil expects additional utilities to launch programs in the coming year.
 - b) Will other market actors adopt a modeling protocol?
 - i. Yes: Phase II pilot homes, home certification alignment, market participation in utility programs.
 - c) Key Learnings:
 - i. Leverage existing market instead of just relying on utility programs
 - ii. Rater accuracy and modeling is important

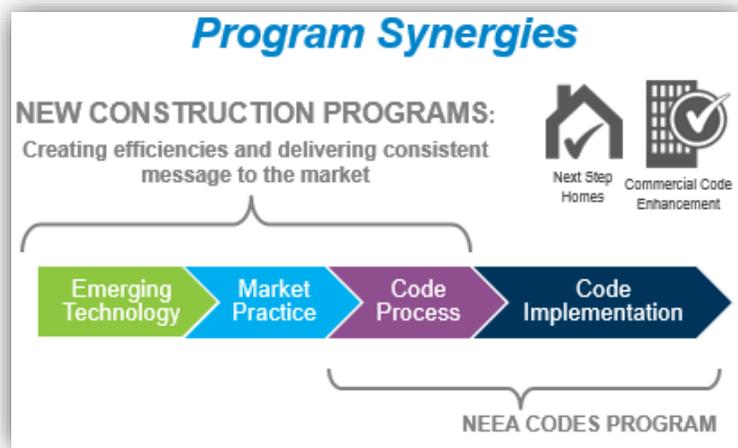
Discussion:

- **NWPCC:** *The spread on the modelling was individual raters doing things differently, and/or different rating programs? Or everybody using REM rate and still getting a big spread?* **NEEA (Neil)** clarified it was everyone using REM rate and still getting a big spread. Part of that has to do with rater inputs; they were reading same house plans so assumptions should have been same, but REM rate out-of-the box software has a lot of room for input error. Part of our modelling protocols are designed to mitigate that variability.
- **Chelan PUD:** *How do you make that available to raters?* **NEEA (Neil):** Our NW modeling best protocols are on the BetterBuilt NW site. They are a requirement that BPA is now offering on the Performance Pathways programs. Any project that wants to qualify needs to be modeled using our protocols.
 - **NWPCC:** *Did the raters enter in the base home and the built home? How do you account for that when you're looking regionally (WA and OR code being different)?* **NEEA (Neil)** clarified that raters will indicate the state baseline that they're working in and the system will update based on the state entered.
 - **Chelan PUD:** *Did you find out if they used the Washington credit system?* **NEEA (Neil):** There's a mix, don't have specifics.
 - **ACTION ITEM: Neil to follow up with Chelan PUD**
 - **Snohomish PUD:** *Is there time to share an example of the differences?* **NEEA (Neil):** Believe some of the biggest issues with REM rate were around modeling heat pumps, ground contact, and air infiltration; these were the big three that had the greatest impact on variability.

Presentation Cont'd

- iii. Voluntary programs are critical to code progress
- iv. Builders can achieve code performance in a variety of ways
- v. Aligning with Commercial Code Enhancement (CCE) program where possible will create efficiencies and consistency
- d) Challenges:

- i. Regional agreement on a standard protocol for new homes – was a 2 year effort
 - ii. Conducted over 130 pilot home projects ; those involved seemed to be doing more so for the benefit of learning more about the process.
 - iii. Pilot homes: working with market-based projects & data collection timeframe desired is 12+ months
 - iv. Additional infrastructure to support utility programs: database development and savings estimates and program planning
- e) Market Development – Key Focus:
 - i. Influence the code process by:
 - o Leveraging existing code collaboratives in each state
 - o Identify long-term code targets
 - o Implement interventions that support the adoption of advanced measures
 - ii. Integrate with Residential Code process: Commercial Code Enhancement (CCE) efforts; market assessments (State Action Plan)
 - iii. Utility Programs – the more available, the greater the value proposition to the builders (performance path adoption)
- f) 2018 Goals:
 - i. Code Process
 - o Integrating with the Residential Code process
 - o Looking Commercial Code Enhancement program as a model
 - o Market Assessments (State Coordination Plan) - Leverage existing Residential Code Collaboratives in each state by establishing long-term code advancement goals (State Action Plans), encouraging voluntary adoption, and increasing support for advancing codes (to be developed with utilities and code stakeholders)
 - ii. Utility Programs
 - o Increase utility program adoption – local utility support will lower cost for high energy-efficient measures and encourage builders to incorporate energy efficiency.
 - o Increase collaboration with home certification programs in the region, local governments, and utilities – create additional incentives and support for builders to build above code.
 - iii. Market Support
 - o Support and ensure coverage of local Rater network in key territories – Raters are the primary 3rd party market partners who offer home certification and utility programs in their business model. Raters drive builder participation and adoption of high performance measures.
 - o Utility programs and market support is a continuation of our existing effort within the regional infrastructure
- g) Key Internal Dependencies:
 - i. HPWH - Targeting residential new construction builders
 - ii. Natural Gas - Gas savings available through performance path
 - iii. Code/CCE - Working with established code collaboratives and preparing code proposals
 - o Program Synergies with CCE
 - a. Goals
 - b. Leverage Points
 - c. Tactics



o Key Distinctions

	Commercial	Residential
Market Influencers	<ul style="list-style-type: none"> Architects, engineers 	<ul style="list-style-type: none"> Builders, raters
Evidence to support code change	<ul style="list-style-type: none"> Proof-of-concept 'Does it work?' 	<ul style="list-style-type: none"> Market adoption through voluntary programs 'Is enough of the market doing it?'
Utility Programs	<ul style="list-style-type: none"> NEEA does not directly support utility programs 	<ul style="list-style-type: none"> NEEA manages regional utility program infrastructure

Discussion:

- **Energy Trust:** *On State Coordination Plans – who does that work?* **NEEA (Neil):** For commercial, goal is to start by Q4 and finish by Q1 (NEEA and design team – utilities and code stakeholders). The idea is to apply the same approach on the residential side. Once NEEA gets rolling on that process, Neil will be reaching out to the states' residential code representatives.
- **NWPCC:** *How does this tie into state level code update activities?* **NEEA (Neil)** clarified it's not too late to get involved; the commercial program with utilities and the state code collaborative in Washington are already doing a really good job of integrating themselves into the process – they've identified four measurers that NEEA will support and provide information through. For the residential side, we still need to learn how to best integrate into the residential code change, particularly in Washington.
 - o **NWPCC:** If you haven't already, reach out to Chuck Murray at the Washington State Department of Commerce, they're starting to work on this.
 - o **Chelan PUD:** This will be beneficial to starting a residential new construction program - this will prep builders and show support from our end on the new code cycle.
 - o **NEEA (Neil):** Goal is to define whether there is an end-game for codes in each state – i.e. what does that look like over the next few code cycles and how can NEEA help get out in front of that. We have some good tools for that; have been working on a forecasting tool with Ecotope that will take a different mix of measures to evaluate energy savings and the cost for those measures to evaluate cost-effectiveness.

Presentation Continued

1. Review of NEEA Director Feedback
 - a. Look at CE of future codes in each state
 - b. Develop long term code road maps
 - c. Determine Exit Strategy

Discussion:

- **NWPCC** : Hopefully the answer is never, that NEEA exits, right? **NEEA (Neil)** clarified that with “net zero ready” and “net zero” as code goals, that’s a good indicator that we don’t need to push further for residential codes.
- **NWPCC**: *What about code enforcement?* **NEEA (Neil)**: The codes program at NEEA provides training when code change occurs. Part of this process is establishing where the lines are between residential and commercial new construction.
- **Franklin PUD**: Last study differed from what I’ve seen in the field. **Chelan PUD** agreed. **NEEA (Jeff)** clarified that the last study was a regional look and not sure how the new study will be different. It’s frustrating and it’s all over the region.
- **Snohomish PUD**: Want to be part of the process. Would be nice to not have to be the enforcer so that customers still want to have us in their homes.
- **Franklin PUD**: Makes it hard to establish a real baseline.
- **Pacific Power**: Residential code collaboratives are things that make sense in meetings, but in practicality there’s a need for enforcement help; have to keep our eye on this.
- **NEEA (Neil)**: That’s a good representation of how to present this to the code collaboratives, getting them to forecast where we’re going with the next code cycle. If we can view that, then we can work with utilities to bring awareness in their markets on what’s coming.
- **PSE** expressed interest in participating.
- **NWPCC** agreed it’s good to be more strategic with code.
- **Pacific Power**: There is a discussion around codes that surrounds how to count codes, cost-effectiveness, etc. Would encourage NEEA code staff to take a look at this in California and how to roll codes into resource efforts on a variety of fronts.

Public Comment Opportunity

Janice Bowman (Embortec) commented that she enjoyed the meeting, time well spent.

Wrap up

Meeting Feedback

- A. **NEEA (Beth)**: Able to hear just fine on the phone.
- B. **Avista**: Good that you held the meeting in Wenatchee; good presentation content as well.
- C. **NEEA (Jeff)**: Fun visiting Wenatchee, thanks to Josh for the great effort in hosting, much appreciated.
- D. **Tacoma Power**: Will follow up with Jeff M to get a high-level debrief.
- E. **NEEA (Jill)**: good meeting
- F. **NEEA (Eugene)**: good job to NEEA staff