Northwest **Power** and **Conservation** Council

Minutes for Conservation Resources Advisory Committee

April 21, 2025

Kevin Smit, NWPCC, began the meeting at 1:00pm. Jim Lazar, independent, asked for access to the webinar attendee list, Chad Madron, NWPCC, explained Council policy and how to get the attendee list after the meeting. Lazar said this defeats the purpose of having a meeting as communicating with other attendees in real time is important.

Christian Douglass, NWPCC, took attendance.

Lazar asked about the relationships between wheel size and electric vehicle efficiency [Slide 7]. Smit was not sure but stated that EV efficiency is too complicated and multifaceted at this time to define an EE measure.

Lazar thought that chilled water storage could play a big role in data center efficiency efforts [Slide 10]. Lazar asked if the region should anticipate that change and if utilities should tailor time of use rates to fit this usage. Smit asked the CRAC to weigh in. There were no responses.

Jennifer Finnigan, Seattle City Light, noted that the data center forecast has been changing a lot recently and wondered how staff will pick a forecast. Smit said they will choose a range adding that this will be addressed in the upcoming Council meeting.

Jeff Harris, NEEA, stated that NEEA could provide more ideas about emerging tech in the question pane [Slide 11]. Lazar added that he thought combination space and water heating heat pumps would be another good addition. Douglass wondered about energy savings advantage and/or cost with combi technology verses treating the two functions separately. Lazar said the advantage is taking heat out of the room and putting it in the water. Douglass agreed that made sense but wondered if this became a non-benefit during colder parts of the year.

Lazar stated that getting the HP water heating unit out of the garage adds another benefit. He also said that combi units are more efficient that plain heat pumps.

Sarah Widder, independent, agreed that this is an interesting DR technology as the water gets more thermal storage on the space heating side than air. Douglass agreed that could affect economics.

Widder wondered how SEM could play a role as well.

Angus Duncan, independent, asked about the potential for transmission energy efficiency for loss reduction. Smit said that will come up later in the presentation.

Voltage Optimization including CVR

Ted Light, Lighthouse Energy, asked if AMI assumptions will be updated to correspond with the assumptions made on [Slide 8]. Smith thought so, offering to double check the data. Douglass agreed that only utilities that have AMI are included.

Lazar presented a few slides outlining his recent work in Burbank, CA [Slide 10]. Amanda Welch, ODOE, wrote Jim what was the software that Burbank used? // is this meeting being recorded and if not, Jim do you have a link to this? Really great example! in the question pane. Lazar responded, Reply to Amanda. It was called Smartsaver, and the company that produced it merged into Landis&Gyr. These slides are a part of a story on how Burbank achieved smart grid with no rate increase. https://www.raponline.org/blog/smart-grid-and-community-benefits-with-no-rate-increase-how-burbank-made-it-happen/ in the question pane.

Commercial Rooftop Solar

Rich Arneson, Tacoma Power, observed that a state building code review revealed that solar is a measure that builders like to comply with which may accelerate adoption [Slide 6]. Arneson asked if this kind of thinking was incorporated into the Council's projections. Smit was not sure and offered to double check. Smit said that building performance standards were not included in the baseline but were put in the potential and may require some tweaking. Arneson offered to send a helpful tool to staff.

Lazar spoke about how the WA state code is constructed, saying it resulted in dinky residential solar installations that were not cost effective. Because of this Lazar agreed it belonged on the forecast side. He did observe that shading a commercial roof could be counted on the commercial conservation side, pointing to a San Diego study that showed a 30% conservation bonus in AC use and wondered if that was in the potential.

Smit said he couldn't find a study that was relevant to the Northwest, making it hard to quantify. Quentin Nesbitt, Idaho Power, asked about a shading decrement in the winter in the question pane. Lazar wrote, Shading WHAT in winter? Not much sun to shade. Maybe a value to rain deflection? In the question pane.

Lazar then spoke about commercial solar installations in Hawaii saying he's seeing a similar trend in California. He predicted seeing non cost effective commercial solar eventually becoming cost effective and competitive with retail rates in some service territories.

Lazar stated that some of the larger retailers that have solar programs in other regions are waiting for the costs to come down in this region [Slide 14].

Finnigan wrote, How sensitive are PV costs to tariffs? In the question pane [Slide 15]. Smit called this the big elephant in the room. Smit said staff are discussing this and will probably be represented through a scenario. Douglass agreed with this assessment.

Harris wrote, What about tax credits? Would the cost just increase 30%, in the question pane. Douglass answered yes, tax credits would come out and the cost would go up 30%. Smit confirmed that the base case would include the tax credits and current costs while handling the uncertainty with a scenario. Smit pointed to [Slide 15] to illustrate the possibilities.

Lazar wrote, To Jennifer F: Residential panels, at import, are about 20 cents/watt. Res installed PV is $3-$4/watt. Only the import cost is subject to tariffs, so even at 150% (!) that's a 30 cents/watt tariff, or about a 5% increase in installed cost. Costs have been declining at 1% per month, but obviously a lot of that has been panels, not labor and soft costs, and that part of the cost cannot continue to decline much, in the question pane.

Residential and Commercial Lighting

Lazar asked if the WA mercury ban is on new or existing lights [Slide 7]. Douglass answered that the code applies to new installations. Lazar asked if anyone is choosing that path today. Douglass said it applies to lamps and lots of people are buying new mercury lamps but not fixtures.

Bonnie Watson, BPA, agreed with Council staff's approach [Slide 9].

Finnigan agreed with Lazar's earlier comment about seeing who is in the room, calling it helpful to know who is attending the meeting.

Kim Boynton, Avista, asked about the scope of commercial lighting measures, wondering if it includes display lighting, indoor ag, and more [Slide 15]. Douglass pointed to a separate ag and industrial lighting categories, while noting that commercial is limited to commercial buildings. Douglass added that outdoor display lighting, like for grocery stores, falls under commercial.

Lazar understood the logic of the dramatic decline on [Slide 17] asking if there is equal decline in the forecast. Douglass answered yes.

Arneson confirmed that WA's CETA's ban on mercury is built into the assumptions [Slide 21]. Douglass answered yes.

Arneson asked how staff plan to address tariff costs [Slide 25]. Douglass said they will be addressed in a scenario.

Finnigan wrote, Similar to before - how sensitive are lighting/controls to tariffs? And Also, please remind me: what happens if federal standards back slide, particularly for states that don't have mercury standards? in the question pane.

Douglass said staff is monitoring this for mercury and water heaters as well. Douglass said if something major happens it will have to reflected, perhaps in the base scenario. Smit said there is still time to make some changes up to a year from now.

Andrew Grant, Cadmus Group, wondered if staff did any back-of-the-envelope calculations for exterior residential lighting controls to see if they would be cost effective. Douglass said that may be possible, depending on the wattages. Douglass thought they would be fairly expensive but are worth looking at.

Finnigan said everyone is wondering how to model what is happening at the federal level and appreciated the Council's proposed approach, calling it sensible. Finnigan wondered what would happen if staff got it wrong or things changed dramatically, calling five years a long time to live with a best guess that turned out to be wrong.

Douglass called this a good point, saying the Council and staff are thinking about it too. He pointed to some possible pathways including more dynamic reporting instead of a static mid-term assessment or creating a set of contingencies instead of a single Plan. Finnigan asked where these discussions are taking place. Douglass pointed her to Council meetings.

Industrial Heat Pumps

Duncan wondered if staff considered using heat pumps to preheat high-temperature industrial applications [Slide 5]. Smit answered yes but said there's a lack of data to get that deep right now.

Lazar thought the food processing industry in certain low-electricity-cost areas would be one of the first places to adopt industrial heat pumps. Smit was not sure, saying he only knows about them in Clark PUD. Smit agreed that food processing was a good sector for this technology.

Nesbitt asked if staff are looking at this as an EE measure or a factor in load growth. Smit answered EE. Nesbitt asked if converting from gas to an electric HP would be considered load growth. Smit called this tricky, refering to a memo the Council put out about fuel switching that said policy or corporate goals that drive this action are outside this process. Smit said the baseline right now is electric resistance and staff have heard that some entities are considering electric boilers.

Nesbitt questioned if anyone with a large load is considering electric boilers as that would double the load and require new infrastructure.

Debbie DePetris, Clark PUD, confirmed that her service area is seeing three to four high-tech customers with gas boilers that want to explore DR opportunities with a HP. DePetris reported pursuing a decision from the WA Dept of Com to use the electric baseline strategy to claim savings.

Lazar said he's seen a need for industrial HPs in hotels and restaurants. Smit said that is represented on the commercial water heating side. Douglass added that staff are mainly looking at domestic hot water loads which is not the same thing. Smit said he will take an additional look.

Grant asked if the process heat share on [Slide 7] is just for electricity. Smit answered yes.

Lazar wrote Seems to me that food processors attached to cold storage warehouses are an ideal opportunity for industrial heat pumps, since they have a use for both the hot water on the food processing side and the chiller output for the cold storage. I worked in a plant with both on-site in college (it's still there!) and we had boilers and chillers. A heat pump can do both, in the question pane. Smit said he will look at that.

Lazar said in Europe they use MW hours as a gas metric and wondered what the $/kW numbers on [Slide 11] represent. Smit answered that his intent was to represent electricity saying the domestic numbers were $ per kW and offered to check.

Nesbitt voiced concern over how realistic it was to use an electric resistant baseline for customers who would never use this for high temperature applications. Smit said there is very little electrification or fuel switching built into his assumptions. Smit said he added a little bit of growth over time but the load forecast does not assume much fuel switching.

Grant noted that there is more than just equipment costs to consider, pointing to process design costs. Smit said he tried to find the all-in cost but will double check, adding that there is not a lot of data available.

Adam Hadley, RTF Contract Analyst, agreed with Nesbitt that this would create new huge electric loads to serve, but wondered if they would be so large when divided by a COP of two or three. Smit said they would be smaller but still large.

Lazar wrote, Those who think electricity can't do the work of fossil will find this video, of an electric semitruck company in Australia doing all of its charging with on-site solar. Swappable batteries, so they are charged when the sun is shining, but the trucks can deliver concrete 24/7. https://www.youtube.com/watch?v=jTRHEtfdxOo in the question pane

Arneson asked about the ramp rates for adopting this new, complicated technology. Smit said there is a lot of interest but not a lot of experience or data, adding that ramp rates are coming up.

Lazar understood measuring levelized cost per mW/h when replacing an electric boiler with an HP but wondered how staff calculated a levelized cost per mW/h for incremental use or the displacement of fossil fuel [Slide 13]. Smit said the baseline is an electric resistance system and the delta is the HP savings while the cost is the cost of the HP.

BREAK

Heat Pump Water Heaters

Lazar wrote, The Trane combi units deliver both hot water and chilled water for serving DHW plus AC needs. The Ascend units provide 140 to 230-ton cooling capacity; 1500 to 2500 MBh heating. Because both hot water and chilled water can be stored (separately), this allows for both energy savings and for full curtailment during peak hours, in the question pane [Slide 11].

Lazar asked about apartments with water heaters set in closets [Slide 14]. Douglass said they will cover that soon.

Boynton found it interesting that the industry has proposed something so phenomenal, yet we already recognize that no one wants it [Slide 19]. Boynton said his water heater is in his basement, right next to his home office, and does not make a lot of noise. Boynton said a HPWH would make his basement colder, noisier, and require venting, calling the issue a PR battle that he does not want to fight. Douglass said there are legitimate constraints along with a PR problem, mostly with contractors.

Boynton agreed that ramp rates should be slow.

Light compared this to how the 7th Plan treated residential general-purpose lighting where there was a standard that was a few years out from the beginning of the Plan. Light said the Plan included the measure but only for the first couple of years. Douglass said they could do that here, but said the big question is what to do after 2029.

Arneson said this is a legitimate concern, pointing to apartments where an electric resistance water heater is tucked into a hard-to-vent closet. Arneson thought apartment owners will come up with some workaround when it was time to replace the unit, but thought this technology seemed more like a new construction opportunity than a retrofit.

Watson asked for clarification about the implications of using 30% or higher for the savings potential. Douglass repeated his thinking about a dial that could turn from 0 to 500MW. Watson asked about the time period. Douglass answered that it's over the next 20 years. Watson asked about the next five to six years. Douglass said that gets to Light's earlier suggestion, saying the standard doesn't go into effect until the summer of 2029 and he suspects people will ramp up inventories to meet that.

Watson reluctantly said that is only if the federal standard stands under the current administration. Douglass called that another issue to consider. Watson asked if anyone in other states has done surveys about this. She realized it's not ideal but called this a WAG, and proposed ideas to tighten up that guess.

Boynton said the 2021 Plan showed a savings potential based on the availability of better technology. Boynton asked if this generated some data around adoption. Douglass answered yes, people have been buying HPWHs. Boynton thought it would be easy if the standard ate all the potential. He then said some people might resist so some potential would remain. Boynton wondered if the resisters would eventually change their mind when their workaround breaks.

Douglass clarified that this is usually modeled as current practice, and staff always assume some people will never change (max achievable). Douglass thought 85% might work here with an additional factor for space constraints or other issues.

Boynton wasn't sure staff would want to count the 30% as potential if customers are literally resisting the technology. Douglass suggested this might inform the max potential.

Lazar said multifamily will never adopt this technology as there is no place for the air flow, adding that this group represents ¾ of the electric resistance water heater usage. Lazar also thought the current federal administration will trash this regulation, along with many others, so it would be safe to assume that 100% is available for incentive, half is technically feasible and another fraction of that is achievable.

Lazar said this is a mature technology that works well for single family but would not work for retrofit multifamily. Lazar added that codes will handle new construction, saying he is seeing outdoor heat pumps all over the place.

Residential HVAC
There was no discussion.

Commercial Sector HVAC
There was no discussion.

Commercial Refrigeration and Other Remaining Measures
There was no discussion.

Smit asked for more questions and comments be sent by email. He ended the meeting at 5:00pm.

Attendees via Zoom Webinar

Kevin Smit	NWPCC	Paul Lee	independent
Christian Douglass	NWPCC	Kim Boynton	Avista
Laura Thomas	NWPCC	Nolan Kelly	BPA
Jim Lazar	independent	Brandy Neff	PNGC
Sophia Spencer	Nauvoo Solutions	Andrew Grant	Cadmus Group
Michael Coe	Snohomish PUD	Danielle Walker	Bright Line Group
Sarah Widder	independent	Jennifer Finnigan	Seattle City Light
Debbie DePetris	Clark PUD	Zachariah Baker	NW Energy
Jilliuan Greene	Resource Inno	Ted Light	Lighthouse Energy
Emily Gilroy	WA UTC	Kyle Morrill	Energy Trust of Oregon
Mary Kulas	Consultant Public Power	Elizabeth Osborne	NWPCC
Pat Alvarado	IEEE	Amanda Welch	ODOE
Arlene Sherrett	OR PUC	Joe Walderman	NWPCC
Jennifer Snyder	WA UTC	Andy Cameron	ODOE
William Gehrke	NEEA	Quentin Nesbitt	Idaho Power
Kasey Curtis	PSE	Aquila Velonis	Cadmus Group
Craig Patterson	independent		

Brian Dekiep	NWPCC
Angus Duncan	independent
Rich Arneson	Tacoma Power
Jeff Harris	NEEA
Kerry Meade	Building Potential
Bonnie Watson	BPA
Adam Hadley	Hadley Energy
Peter Jensen	NWPCC
Chris Johnson	Benton PUD
Nate Baker	Resource Inno
Ryan Bottem	Public Gen Pool
Frank Brown	BPA
Christian Steinhoff	NEEA
Landon Snyder	Snohomish PUD
Ross Ferguson	AESIC Inc
Phyllis Bernard	Clallam PUD