

**Northwest Power and Conservation Council
Conservation Resources Advisory Committee
October 24, 2019**

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Summary: The following is a summary of key feedback & recommendations from CRAC

- Bonneville expressed reservation about using indirect impacts of climate change
 - BK meeting with BPA
- Deferred T&D values were questioned for being low. Suggestions for more data were made. ETO (Cullen) offered to bring estimates from PGE. NWECC suggested collecting all the values and methods used by utilities in their most recent IRPs
 - Working on getting at least PGE and Puget
- Bundling EE by cost bin was questioned – melding measures into cost bins will obscure resource value of capacity-rich measures and thus cannot be tested by RPM. Staff should look for ways to test impact of bundling by capacity
 - Will test in GENESYS (later in the game) and come back to CRAC as report out
- NWECC: Fuel choice policy should get revisited with respect to carbon. Should be analyzed in 8P
 - Deep decarb scenario will explore
 - Maybe something comes out of the Plan
- Suggestions to expand family of ramp rates if needed. Suggestions to add a step function for standard-based ramp rate
 - Will create new ramp rates outside of the family if needed, on a case by case basis
 - CRAC will be seeing ramp rates
- Shani Taha (UCONS) suggested the CRAC support maintaining a focus in the 2021 Plan on equitably and comprehensively serving HTR customers in manufactured housing in the 2021 Plan. She briefed the CRAC on findings from a recent study and made several suggestions for action of parties and staff and the Council focused on
 - We will be discussing Action Items at later point
 - Will attached public comment to minutes
- NWECC asked what can be analyzed in 8P that would illuminate HTR issues. Suggested taking a look at recent multi-agency study in Oregon
 - Staff will review study and explore what analysis we might be able to do with the data we have
 - Connect with NEEA to see if they have ability to do additional analysis

Meeting Minutes

Charlie Grist, NWPCC, began the meeting at 9:30 with introductions and a review of the agenda.

2021 Plan: Update on Decisions to Date

Charlie Grist, NWPCC

Jessica Aiona, BPA, asked if Council staff plans to run one temperature and precipitation scenario or multiple scenarios based on levels of uncertainty. Tina Jayaweera, NWPCC, answered that they will probably run around three GCMs for the hydro system, around three for the load forecast and just one for EE.

Jennifer Light, NWPCC, added that choosing just one weather file for EE is consistent with past EE work.

Aiona pointed to information BPA sent around indirect effects, adding that Bonneville has concerns around the uncertainty of projected population and industry shifts due to climate change. She suggested exercising caution on these indirect impacts.

Grist noted that the Council received feedback on this and believed the Council members were comfortable with the presented indirect impacts. He agreed that in-migration had a bigger impact than some other effects.

Rich Arneson, Tacoma Power, asked how extreme events, like cold snaps, will be reflected in the modeling. Grist wasn't sure since a climate model hasn't been chosen yet but agreed that reflecting changes in the frequency of events is important.

Tom Eckhardt, UCONS, stated that the T&D deferral could lower avoided costs and asked for the primary reason for the change. Jayaweera called this work a refinement on past efforts and pointed to an October 2018 presentation for more context.

Wendy Gerlitz, NW Energy Coalition, asked if Energy Trust values were used in the T&D work. Jack Cullen, ETO, confirmed that they used values supplied by utilities. Jayaweera added that the new numbers from PacifiCorp are not that different.

Gerlitz said the values seem low compared to previous work. Jayaweera agreed. Gerlitz thought it would be beneficial to look at the data more closely. Jayaweera agreed and called for more utilities to provide values.

Eckhardt added that the Puget Sound region just completed a major T&D upgrade that wasn't used for this process. Jayaweera said that she didn't get any data from PSE and reminded Eckhardt about the Council's "peanut butter" approach of treating the region as one entity.

Amy Wheelless, NW Energy Coalition, said she examined the data which didn't include any "hot spots" but is having an impact on Seattle City Light's potential. Jayaweera called for utilities do develop numbers using the same methodology so she could create a more apples-to-apples comparison.

Cullen offered to work with PGE to help figure out consistent methodologies. Cullen asked if peak is still 6:00 pm in winter. Grist didn't know yet. Jayaweera didn't think it would change but said they will also look at summer.

Eli Morris, AEG, asked if they will still use 85% for discretionary and go above for lost opportunity. Grist said 85% is a default and the real key is moving to a measure-by-measure approach. Gurvinder Singh, PSE, asked if Maximum Achievable EE can go up and down from 85% or just up. Jayaweera pointed to some 60% measures in the last Plan saying that 85% will be the floor for most.

Eckhart asked if avoided costs will go down in the 2021 Plan. Grist said it's too early in the process to know that now.

Residential Lighting—Quick Update

Tina Jayaweera, NWPCC

Singh noted that the "lost" amount is really just a shift between the load forecast and program savings. Grist agreed saying the move is cost effective but may not be captured by Federal Standard. Singh confirmed that it will be captured in the load forecast if it's captured by Standards. Grist agreed saying he understands that it's being captured by the WA standards.

Aiona asked if the 65 aMW will be re-incorporated into the potential if the DOE makes a ruling prior to the pencils down cut off. Jayaweera answered yes, adding that they will try to get it in even if the ruling comes in after pencils down

Aiona asked about preemption standards. Jayaweera reiterated Council lawyers' position that it's not the DOE's role to determine if a state is violating preemption standards and it must go through the courts. Aiona asked how to qualify what's on the books versus what will be determined through the courts. Jayaweera said no one is comfortable projecting how the courts will rule. Kevin Smit, NWPCC, agreed that it is confusing but if the WA standard will be on the books then that's what will be used.

Aiona wondered about manufacturers and retailers not being compliant with WA law. Jayaweera pointed to delays and non-compliance across other standards, adding that staff goes with the assumption that the standard is the standard. Light said the load forecast baseline looks at whatever is more efficient, the standard or current practice. Aiona called it difficult to treat this when everything is in legal limbo. Grist said the highlights the value of looking at real market data and called for more market assessments.

BREAK

Developing EE Supply Curves

Kevin Smit, NWPCC

Smit reminded the room that the presented numbers [Slide 11] are draft.

Gerlitz addressed the methodology saying that availability by time of day is also important. She wondered how this bundling methodology addresses a peak-constrained future. She then asked how the modeling identifies the highest value EE and how a utility can evaluate a 6:00 pm price curve. She concluded that this worksheet does not examine supply curves this way and asked about exploring other bundling methodologies.

Jayaweera answered that they will discuss bundling next.

Singh asked if the RPM can delay the selection of EE beyond 2022 if it is the least-cost solution. Grist answered yes, the RPM tests different buying paces. Jayaweera added that ramp rates will constrain some EE while the RPM will always buy classically economic measures. She said this varies across the different futures and the model will test above that.

Singh confirmed that this means that timing is addressed by varying ramp rates. Jayaweera said the availability of EE and what the RPM purchases is within that constraint. Singh asked if the RPM could say there's no need for EE until 2025. Jayaweera answered yes, with the caveat that it will always buy anything less than \$0.

E. Morris confirmed that the RPM can't say it needs more than offered. Jayaweera confirmed that the ramp rates give it a maximum availability. E. Morris asked if this is a "use it or lose it" approach. Grist said that will be discussed shortly but the "use it or lose it" is picked up in the construction of turnover.

Gerlitz voiced concern over averaging the hourly contribution [Slide 17]. She said averaging capacity by bin loses nuance and could miss out on valuable individual measures. Grist agreed, saying if a bin fails an hourly Adequacy metric the RPM would find a bundle with a high capacity contribution. He agreed that testing in aggregate is clunky but Staff is recommending an avoided cost calculation that picks up individual measures for implementation.

John Ollis, NWPCC, reiterated that there should be a seasonal capacity contribution by bundle along with an Associated System Capacity Contribution that will add more fidelity.

Gerlitz confirmed that she is not advocating bundling by shape but pointed to BPA's resource plan that bundled by shape and found both higher costs and higher system value resources. She said this tells her we're missing something by bundling by cost and wanted to push the thinking. Ollis said it might be possible to sample individual measures in bundles so see if shape matters. He added that this is a better approach for utilities with a smaller foot print. Grist said he will keep testing comfort with the bundling approach. Gerlitz thanked him.

E. Morris asked if combining LO and Retrofit means you lose the nuance of LO [Slide 18.] Jayaweera explained that, because turnover is consistent, savings lost in year one will be accounted for later. E. Morris asked if the same holds true for retrofits. Jayaweera said no but pointed to some smoothing logic. Grist added that the RPM will also test delay strategies. Morris confirmed that ramp rates are program years and not necessarily calendar years. Jayaweera answered yes.

Aiona called for granularity elsewhere when using this kind of bundle consolidation strategy. Jayaweera said the 2021 Plan will have 14 smaller bins.

Arneson called attention to technical difficulties with the webinar that caused him to miss much of the conversation. He was cut off in the middle of asking a bundling question. Jayaweera and Smit offered to speak to him off line.

Commercial Building Prototype Models

Jennifer Light, NWPCC

Wheless asked about timing [Slide 14] as this effort will overlap with WA Dept of Commerce work and she didn't want to miss the opportunity to inform each other. Light said she will focus on existing buildings first then new buildings.

LUNCH

Scenarios in the 2021 Power Plan

Ben Kujala, NWPCC

Jeff Harris, NEEA, suggested establishing a 0-carbon target and let the model optimize to that [Slide 16.] Kujala explained that the Seventh Plan backed out the carbon tax and explained the methodology. He said doing a 0-carbon target would mean that every scenario had to have the same target and pursuit. Kujala hoped that adding in the social cost of carbon would represent the incremental costs and the carbon costs.

Harris asked for clarity around "Optimize BPA's resource portfolio" on [Slide 17.] Light said there's plans to come back in March with more details.

Aiona asked for clarification around baseline conditions for GHG emissions [Slide 19.] Kujala explained the method to get an emission amount that will be converted into a dollar value and discounted. He said the plan to test different cost levels would be brought back to the same cost of carbon to make them comparable. Aiona thanked him for the explanation.

Jeff Harris [Slide 24] includes a diversity of scenarios including extreme cold temperatures. Kujala said they are looking for the right subset of climate models but his general sense is they will compare the historic, 80-year record with the forward-looking projections. He added that

they are not testing if climate change will happen or not but testing how robust the strategies under the assumptions are.

Harris wondered how badly temperature excursions could affect the system. Kujala said staff always looks at expectations and probabilities. He expected the probability of those events will shift and predicted that summer peaks where everyone is competing for the same resources would be a more likely driver. Harris agreed that the real “crash” would be coincidental summertime peaking.

Grist pointed to other variances that may come up, like an out-of-season cold snap.

Harris suggested a scenario that looks at enhanced import/export capability to the Southwest. Kujala said the California intertie expansion came up but it seemed like there were other organizations better suited to understand transmission expansion, adding that Council staff may look at it as part of testing an organized market.

Harris noted that BPA has their own governing statutes and asked about sideboards. Kujala said the Power Act says the Council will look at adding resources for BPA to acquire if their contracts allow. Kujala said, for instance, the Council could find that solar resources would change Bonneville’s portfolio and Bonneville could absorb that information whether or not they acquire those resources. Harris suggested casting a wide net with this approach. Kujala agreed.

Aiona asked if the Bonneville Resource Portfolio Optimization will be a sub-scenario of Test Robustness of EE or be kept separate [Slide 25.] Kujala said they will use whatever modeling best describes the issue.

Aiona asked what the process looks like from today to March. Kujala pointed to internal work that examines model interaction and parameters that will generate a straw proposal to be presented to the different Advisory Committees. He said that while this work is particularly vital to the Resource Adequacy Advisory Committee, staff will reach out broadly for input before presenting to the Council.

Harris revisited Path to Decarbonization and asked if electrification of end-use loads and transportation will be explored. Kujala said the intent is to explore what is practical and how far it gets. He didn’t want to commit to examining each end use but added that an end-use natural gas forecast and transportation forecast has been added to capture baseline trends.

Harris asked about demand management and flexible demand resources coming in to beyond the supply curve. He said this scenario imagines a highly-interactive, intelligent, transformed grid. Kujala answered that they are looking at developing DR supply curves that can be used in multiple ways. He stressed that a look at a dynamically dispatched hydro system will give a better sense of system flexibility.

Kujala realized the work will be challenge and said staff is looking for feedback and understanding from the experts on the Advisory Committees.

BREAK

Conservation Progress Report Results: Learnings for the 2021 Plan

CRAC Staff

Harris added that the wedge between codes and standards has been growing and looks more like a step function [Slide 5]. He called for investigating measures for codes and/or standards that could be accelerated and match it to a ramp rate.

Singh asked about declining shower head savings [Residential Water Heating.] Light said the data shows a decline but was unsure about what utilities are claiming.

Gerlitz asked about the assumption that no homes with gas-fired water heaters would switch to Heat Pump Water Heaters [Slide 16.] Harris clarified that the NEEA data showed a large portion HPWHs installed in new construction and not retrofits. He called the equations right for a replacement scenario but 80% of the NEEA data is for new construction. Light said she can break that out. Christina Steinhoff, NEEA, confirmed that she tries to break out new and existing numbers.

Jayaweera addressed fuel switching saying staff will look at what happens if there is a deep decarbonization policy but, for now, the Council doesn't consider switching from gas to electric conservation.

Gerlitz suggested that it might be time to re-examine the question as the paper that informed the policy is five-years old and dated. Jayaweera said that may be revisited as part of the Plan. Gerlitz stressed that this doesn't seem realistic and called for more discussion. Grist noted her concern. Jayaweera added that incorporating state and local policies may change the percentage of electric water heaters over time.

Harris called [Slide 17] an applicable place for a step-function curve as it's a hard market with no non-energy benefits. He added that the new construction segment will look very different as HPWHs are becoming standard practice.

Light said there will be opportunity to dig in when the actual supplies curves are presented.

Harris imagined a scenario where state policy drives a steep ramp installation. Jayaweera said that could be part of a deep decarbonization scenario but the baseline case only has federal standards.

Aiona said she wasn't familiar with the Seventh Plan curves and asked if these are the only ramp rates available to choose from. Jayaweera answered no, adding that they can make a new ones but don't want to create an infinite number of rates. Aiona referenced an earlier meeting

where it was decided that max achievable can go above 85%. She said she understood that that would require customized and dynamic ramp rates.

Jayaweera said it would be false precision to create a separate ramp rate for every measure. She said they can add more but didn't want 100 unique rates. Grist said it will be important to look at measure bundles and think strategically.

Grist asked Harris about step functions saying they will be tricky for staff to estimate. Harris said this will result in customization linked to the Federal Appliance Standard. Harris then stated that the Act could include the possibility that utilities "buy the whole darn measure." Harris said that would make steep ramp rates possible adding that barriers have been addressed and HPWH could move rapidly in our region.

Wheless added that she switched from gas to a DHP [Slide 21.] Light said the data shows that a DHP is not a resource for all applications. She suggested limiting DHPs to homes that are a better fit. Wheless said her question was less about ramp rate and more about market data. Light said she doesn't have data on where DHPs are going but evaluations are showing a lot of DHPs going into homes other than electric zonal homes.

Harris requested reaching out to NEEA as they have an S-curve plotted for DHP in electric homes calibrated to prior year data.

Aiona asked how data is used in reference to ramp rates using DHPs as an example. She asked how you marry growth and cost effectiveness data sets. Jayaweera said staff tries to isolate cost effective applications because if they didn't the RPM wouldn't select the technology.

Harris asked why increasing usage doesn't show up in the load forecast as it would drive savings [Slide 22, 23.] Light said she wasn't sure how granular the load forecast gets but that is how staff always treated this issue.

Harris offered NEEA's codes and standards team to determine best guesses and guide thinking. Grist thanked him, cheekily asking if they know which way direction standards and codes will go.

Public Comment

Shani Taha, UCONS, explained UCONS's mission of serving hard-to-reach markets and stressed the importance of the Seventh Plan's Action Items for with this work. She called for a continuation of that in the 2021 Plan, adding that it will send the right signal to state regulators. Taha explained that low income and fixed income residents suffer \$300-\$400 heating bills and rarely buy new manufactured homes. She called this a small but important piece of the overall market.

She applauded all of the work that went into creating the Seventh Plan Action Item and singled out ETO for their ongoing work with this segment. Taha pointed to two papers that "declared

victory” in participation levels but cautioned against declaring victory for the market. As example she pointed to PSE where this market accounts for 5% of energy use but only 2% of conservation spending.

Taha noted that only one measure, ducted ceilings, were delivered to a community that needs comprehensive service. She said this is a big deal to the community and a big deal for a state that has tasked all utilities with securing all potential energy cost savings.

Taha hoped the 2021 Plan would continue this work and pointed to her paper for details.

Grist said future CRAC meetings will address this and the Action Items will be written in summer 2020.

Gerlitz challenged staff to think about hard-to-reach markets during analysis pointing to low residential numbers during the progress-to-date presentation. She asked if there was analysis to inform an Action Item for the whole hard-to-reach market. Jayaweera answered that that is something staff thinks about adding that it’s a struggle as the RCP has no income data except for BPA’s low-income program data.

Gerlitz asked staff to look at a geographic set based on work from a group of Oregon agencies, noting that Washington is working on something similar. Jayaweera said she didn’t know about the Oregon report and looked forward to seeing it.

Smit reviewed future meeting dates and agendas. He adjourned the meeting at 3:35.

Attendees

Tina Jayaweera	NWPCC
Kevin Smit	NWPCC
Charlie Grist	NWPCC
Jennifer Light	NWPCC
Jessica Aiona	BPA
Aaron Leatherwood	Evergreen
Amy Wheelless	NW Energy Coalition
Brandy Neff	PNGC Power
Aaron Bush	PPC
Adam Schultz	ODOE
Jack Cullen	ETO
Wendy Gerlitz	NW Energy Coalition
Eli Morris	AEG
Shawni Taha	UCONS
Andrea Goodwin	NWPCC
Jeff Harris	NEEA
Ben Kujala	NWPCC

Attendees via Webinar

Andrea Long	PacifiCorp
Bobbi Wilhelm	Idaho Falls Power
Christina Steinhoff	NEEA
Michael Coe	Snohomish PUD
Eugene Rosolie	NEEA
Greg Kaleka	NEEA
Jennifer Snyder	WA UTC
John Morris	D+R International and NWECC
Kathryn Bae	NEEA
Garrison Marr	Snohomish PUD
Matthew Kozuch	Tacoma Power
Nicolas Garcia	WPUDA
Patrick Oshie	NWPCC
Rich Arneson	Tacoma Power
Shirley Lindstrom	NWPCC
Gurvinder Singh	PSE
Tom Eckhart	UCONS