

**Northwest Power & Conservation Council
Generating Resources Advisory Committee
March 26, 2025**

Annika Roberts, NWPCC, began the meeting at 1:00pm by calling for introductions.

Nicolas Garcia, WPUDA, pointed to uncertainty in the Federal government and asked how long staff thinks the ITC will be available [Slide 6]. Garcia wondered if any tax credits would be available for the full life of the Plan, suggesting staff run a scenario where they go away. Garcia concluded by noting budget support in WA for wind/solar has decreased. Roberts said there is a planned sensitivity to test this risk, adding that staff want to represent all policies presently on the books.

David Clement, NEEA, appreciated the sensitivity, asking if it was one of the four main scenarios. Jennifer Light, NWPCC, said staff have two scenarios and this is one of six planned sensitivities. Clement was not sure how the scenarios worked, wondering if the ITC change would only appear in 20 out of 100 runs.

Roberts said the Council members produce the Plan after looking at all of the information. Light added that the sensitivities are not associated with probabilities but represent a world that is examined. Clement confirms that the sensitivities do not reflect a probability. Light said yes.

Katie Chamberlain, Renewable NW, asked if staff talked to developers to get a sense of their feelings around the PTC versus the ITC. Roberts answered no, saying she could check in on that. Roberts said past work revealed that choosing one over the other does not make a huge difference in the cost of the resource. Light added that the feedback to use the ITC was developed by talking to developers, asking for more insight from the group.

Fred Heutte, NW Energy Coalition, called the political situation dynamic and complex but felt that some or most tax credits would be preserved in some fashion. Heutte said many projects already have completed their upfront requirements meaning there will not be huge disruptions in the next few years.

Heutte pointed to the [Lazard annual assessment](#), saying wind/solar do not look too different over time with or without the tax credits. Heutte stated that Texas' solar footprint rapidly grew bigger than California's, and concluded by saying that the tax credits are available to nearly all resources.

Heutte understood why some IRPs continued the tax credits until the 2040s [Slide 7] but thought the Council should represent them more accurately. Roberts asked if staff should tie the end of the credits to actual emissions. Heutte conceded that no one has perfect

foresight but asked for a reasonable effort to suss out what happens given the current state of the law.

Garcia also suggested following currently existing law. He then said reality dictates that it's highly uncertain these credits will last. Garcia called for two major scenarios: one with tax credits and one without as the region does not want to learn that a base assumption was wrong two years into the process.

John Ollis, NWPCC, offered some context, saying the models do not have a dynamic option for emissions throughout the US. Ollis added that the Northwest is cleaner than the rest of the country, calling the region a small fish. Ollis said sensitivities around the tax credits will be tested but having too much nuance presupposes that staff know more than we do while a phase out will trigger the model to front load.

Ollis then said the model has issues with giving too much value to the PTC as it can be sunk to load. Ollis thought that might not be fully true, saying the PTC could push negative pricing further down.

Garcia asked about the improved offshore wind profile, saying the current federal administration banned offshore wind. Roberts said staff has more accurate shapes, but offshore wind still remains limited and appears far out in the study (late 2030s).

Heutte made an impassioned pitch for extended geothermal generation, offering to send a formal letter. Roberts pointed to internal discussions about the topic, saying staff feels the resource still falls into the emerging technology bucket. Heutte argued that it is time to put some real numbers behind the technology pointing to 70MW coming out of Utah next year with more to come.

Light asked Heutte to send the information ASAP as the reference plants are almost ready to be wrapped up. Heutte said he will get something to staff by the end of the week.

Garcia agreed with Heutte, saying two of his client utilities are seriously examining geothermal. Garcia said the biggest challenge is not the resource but the permitting.

Clement asked how the numbers on [Slide 9] line up with transmission deferral costs. Roberts said Tomás Morrissey, NWPCC, will be talking about that later in the presentation.

Carla Essenberg, BPA, asked about the units. Roberts said they are KW per year.

Garcia pointed to BPA's plan to spend \$5 Billion on transmission upgrades, asking if the represented costs will escalate over time. Roberts said not in this Plan, adding that the represented costs come from Bonneville tariffs and are updated every few year.

Garcia asked if the costs are set for five years, wondering if that is realistic given the proposed costs. Garcia had no problem with the proposed methodology but wondered if BPA could hold the line on actual costs.

Roberts called this a valid concern but stated that staff cannot just make up new numbers. Garcia said staff use escalators all the time and didn't think that using a firm cost would be appropriate.

Ollis said the resource transmission risk scenario will test higher costs which should address some of Garcia's concerns.

Heutte stated that staff need costs for the models but cautioned that no two projects are the same. Heutte suggested reaching out to BPA, PGE, PacifiCorp, and more before asking if the models are building expansions in urban areas with high costs or less expensive rural projects.

Morrissey said staff are using the same costs across all the supply side resources so even if costs change it wouldn't change the rank order of resources.

Heutte asked about capital costs for a CCCT [Slide 18]. Morrissey reported that overnight capital costs are \$1500 kW. Heutte called that not insignificant. Morrissey agreed.

Garcia agreed with the approach and use of backup fuel but pointed to WA state legislation around environmental justice that protects groups from higher levels of development and emissions. Garcia said he was concerned if anyone could get storage projects built because of this. Morrissey said he thought the air shed issues are larger with bigger plants, agreeing that infrastructure is tricky.

Roberts said staff represent WA policy as best they can. Garcia said the WA Dept of Commerce proved that neither of WA laws prevent the development of a combined or single cycle turbine, but the [HEAL Act](#) might make it very difficult.

Light said the scenario work will reveal what is getting picked up, but Council members also take qualitative issues into account when building the final Plan.

Shannon Souza, Solcoast, added that Oregon modeling was pulling up new turbines as a resource. She said resource adequacy for the WRAP is getting closer every day and people are looking for ways to keep the lights on while taking environmental justice into account. Souza supported staff's approach, adding that there is no prohibition of turbines though they have to be small.

Morrissey asked that committee members send him data soon.

Ian McGetrick, Idaho Power, asked if the 300 MW of iron-air storage is for the entire Plan over the entire region [Slide 20]. Roberts said that might be annually and offered to double check. Ollis thought that the numbers represent the max amount for the whole study, noting that Form Energy is building their first iron-air factory now. McGetrick said he saw a few hundred MW in his last IRP, adding that Form Energy actually has pilot projects in the works as opposed to SMRs.

Roberts said it is worth taking a second look. Ollis said staff studies have also seen a larger uptake of the resource but said there are probably some limits.

Light encouraged committee members to look at the slides and workbook from the January 31 GRAC meeting and send in data, thoughts, and insights soon.

Clement asked about the hydrogen source. Roberts answered that there is no source for the maximum buildout. Clement asked if there is a co-location assumption. Roberts answered yes, the assumption is hydrogen produced by an electrolyzer on site. Clement asked if that means a net generation assumed. Roberts said yes.

Heutte said he was interested in iron-air ramp rates and maximum outputs, saying it doesn't look or act like other batteries. Ollis said staff are using information provided by Form Energy and they realize the limitations.

McGetrick pointed to his utility's Clean by 45 run that assumes that simple and combined cycles convert to hydrogen. McGetrick asked if Washington state would stage things in or assume everything converts at the end. Morrissey said staff are discussing this and do not have an answer. Morrissey revealed that staff was skeptical that could all be done in one year. McGetrick said the current plan is to provide a glide path for staging but admitted it would be cheaper to all convert at the last minute.

Heutte said he traditionally thought about a one-for-one replacement, but CCTs underuse available transmission capacity. Heutte asked to look at other options for replacing these units.

Alexandra Karpoff, PSE, reported looking at both represented methods and thought, given the real constraints of getting a thermal plant permitted and built, it makes sense to assume the resource has the capability to transition to a different fuel. Karpoff said her utility stopped modeling combined cycles and are only looking at peakers to dispatch at peak with fuel switching and built with a storage tank.

Karpoff said this is a conservative approach that includes the tank and fuel costs which increases costs. Karpoff said they are still seeing the need for some peak. Karpoff thought both options were good but advocated for some ramping into 2045. Morrissey asked if she runs into fuel limit issues and how often the model allows the tank to fill. Karpoff said her staff had to limit capacity factors for those units.

Souza said projects she works on all assume ramping, adding that co-location is very important. Souza said hydrogen storage is very expensive. She called pyrolysis an important steppingstone but supported staff taking it out of the equation.

Morrissey asked if Souza is looking at hydrogen as an intermediate step towards another fuel. Souza said yes, saying it's important to read the room, for instance if they are near a large, international port they are looking at ammonia.

Garcia said when it comes to reading the room, things may look very different 10-15 years from now. He said fundamentally changing the fuel would require permitting which will be challenging and expensive. Garcia said this approach makes engineering sense but predicted that permitting will present a barrier.

Morrissey asked committee members to send data and comments. Light urged members to check out old meeting materials.

Eric Graessley, BPA, wrote "Nothing to add here, ty. Can you remind me about whether you're planning on applying a social cost of carbon to NG resources for this next plan? Would it be on top of CETA or just for resources outside of states / areas with carbon requirements?" in the question pane.

Light said that is an active discussion among Council members and staff are proposing an approach similar to the 2021 Plan. Light said the Council is thinking this through and there is some interest in applying it only to areas where required and not the whole region. Light said the decision is not yet final.

Roberts thanked committee members and ended the meeting at 3:00.

Attendees Via Zoom Webinar

Annika Roberts	NWPCC	Leann Bleakney	NWPCC
Kevin Smit	NWPCC	Nicolas Garcia	WPUDA
Jennifer Light	NWPCC	John Lyons	Avista Corp
Joe Walderman	NWPCC	Chris Johnson	Benton PUD
Tomás Morrissey	NWPCC	Fred Heutte	NW Energy Coalition
Landon Snyder	Snohomish PUD	Katie Chamberlain	Renewable NW
Frank Brown	BPA	Dor Hirsh Bar Gai	NWPCC
Kaitryn Olson	PSE	Alexandra Karpoff	PSE
Heather Nicholson	Orcas Power & Light	Elizabeth Osborne	NWPCC
Mark Sellers-Vaughn	Cascade Natural	Terry Toland	Clark PUD
Blake Scherer	Benton PUD	Lisa Stites	GC PUD
Haley Ellett	Hood River	Eric Graessley	BPA
Marky Kulas	consultant PPC	Bryan Neff	CA Dept of Energy
Craig Patterson	independent	David Clement	NEEA
John Ollis	NWPCC	Robert Diffely	BPA
Carla Essenberg	BPA	Nora Hawkins	WA Dept of Com

Peter Jensen
Brian Dekeip
Shannon Souza
Ian McGetrick |

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