

Northwest Power & Conservation Council
Systems Analysis/Resource Adequacy Advisory Committee
July 27, 2022

John Ollis, NWPCC, welcomed the Systems Analysis and Resource Adequacy Advisory Committees to the meeting at 9:30 and reviewed the day's agenda.

Chad Madron, NWPCC, reviewed how to best interact with Go-to-Webinar and pointed to where to find relevant web links.

Market Price Study Setup and Methodology Part 1

John Ollis, NWPCC

Nicholas Garcia, WPUDA, asked for a zone map to better understand the AURORA setup outlined on [Slide 4]. Ollis showed AURORA's working zonal topology map and offered to post more map slides during lunch.

Ollis stopped at [Slide 6] to ask how to best split up PG&E loads. Tiana Marmitt, Energy Exemplar, admitted that this question is on her radar, explaining that the model does not split up PG&E but uses the BA load shapes from WECC. She explained that the load shapes are derived from smoothing and ranking the last three years of load data.

Marmitt acknowledged the limitations of this method and called Ollis's proposal interesting. She said that they will perhaps use CEC or IRP data to get at individual utility data. Ollis thought that sounded good and said he is thinking about splitting PG&E hourly loads proportionately.

James Gall, Avista Corp, explained that they split CA into three zones to find a historical load shape based on EVs and DERs. He then explained that they layer on EV, DER, solar, or electrification growth to deal with the load shape change.

Ollis liked this approach and asked if he noticed if the demand shape changes. Gall guessed that it had but was concerned about the electrification efforts.

Roger Gray, PNGC Power, wrote "PG&E really has a major difference between Coast/Bay and Central Valley. This results in a very different shape during the regular summer pattern (coast/bay less AC and Valley lots of AC all summer). SCE and SDGE have a coast/inland difference, but I suspect it is not as pronounced as PG&E. PG&E valley will look more like SMUD" in the question bar. Ollis thanked him for the comment.

Marmitt commented that as a former Integrated Resource Planner in CA she was very aware of the dramatic demand impacts in hour 15-20 calling it problematic. She thought utilities deal with this by incentivizing customers with TOU rates or a mid-day EV charging rate and suggested keeping an eye on these incentives.

Ollis thanked her and said he will keep people informed of further moves.

Load Forecasts for Wholesale Price Analysis

Massoud Jourabchi, NWPCC

Fred Heutte, NW Energy Coalition, called the WECC confidentiality policy unfortunate and over restrictive. He asked which approach is now being favored. Jourabchi said they are using all three sources of information on [Slide 4] and discussed methods.

Heutte asked if anyone looked at WECC's analysis [Slide 6]. Jourabchi said he's seen them but hasn't incorporated them. He offered to try that approach. Heutte noted that there are two branches to the forward assessment and a series of base cases and suggested reaching out to Jamie Austin at PacifiCorp. Jourabchi said he reached out to Austin, noting it can be hard to reach people.

Ollis stopped at [Slide 8] to stress that that room should keep this map in mind when thinking about a high demand scenario.

Heutte agreed that we can never know everything that's going on in the West immediately but commended the Council for digging in over the last few years. He then pointed to the rapid development of new western programs in markets admitting that there is not a lot of information available yet. He thought this could eventually present a good opportunity to compare analysis. Massoud thanked him for this timely information that could point the Council in the right direction and offered to reach out to Heutte for more information.

Scott Levy, Bluefish, said it didn't look like natural gas will disappear from Idaho anytime soon. Ollis said they don't put limitations on gas builds for states like ID, WY, or UT, that don't have clean energy laws on the books. Levy thanked him for this approach.

BREAK

Market Price Study Setup and Methodology Part 2

Gall addressed the issue of existing coal plants that now burn gas [Slide 5] saying the heat rate changes. He suggested reaching out to PacifiCorp as they have experience. Ollis thanked him saying he left the heat rate the same but will follow up.

Marmitt noted that Intermountain Power Plant is transitioning to natural gas, and they had more efficient heat rate. Ollis said he saw that plant and thought they were eventually transitioning to hydrogen. Marmitt agreed, saying her utility exited that plant.

Gray wrote in the comments that it depends on the nature of the conversion. Ollis agreed.

Gall asked about a leveled number [chart after Slide 6]. Ollis thought it was higher than 550. Gall asked about the starting year. Ollis said 2023 to 45. Gall said prices are sky high in 23. Ollis said there is a “persistent global instability” scenario. Gall suggested using a radically higher number for 2023.

Steve Simmons, NWPCC, agreed, noting that Henry Hub prices are presently over \$9.50 during the July Fry which could disrupt winter storage. Ollis asked Simmons if he was comfortable with drastically increasing 2023. Simmons thought that was fine, adding comments about Russia’s plan to cut gas to Europe which will increase price instability.

Adam Schultz, ODOE, commented that persistent global instability will continue to drive LNG exports into the future. Simmons agreed that export facilities are capital intensive and will not be short term projects.

Heutte agreed there is a lot of volatility in the gas world and LNG exports will stay high. He said this will put pressure on the domestic market. Heutte then talked prices lower than Henry Hub and suggested watching it closely along with other LNG export facilities. He predicted prices to stay around \$5 for the foreseeable future. Simmons said they can make some changes in the near forecast.

Gall clarified that [Slide 9] talks about a negative adder in the hourly dispatch and not the long-term study. Ollis called it a negative adder in the long term build out and it’s open for debate whether it should go into the production cost model run.

Gall did not think it belonged in the long-term build as that already has a constraint for renewable build to meet RPS. Ollis agreed but said the model can’t meet the renewable build without it. Gall called that a model problem. Ollis called RECs the compliance factor and explained his method of modeling.

Gall moved the hourly issue, suggesting a lower bid adder to avoid a massive hydro spill. He felt the example shown would move negative quickly. Gall said he uses something closer to the 2023 REC price. Ollis agreed it has crashed the price but not to -60. He thought there could be multiple tiers of bid adders.

Sashwat Roy, Renewable NW, asked if the negative bid adder would also be added to storage resources paired with wind/solar. Ollis answered yes, but just for hybrid and not stand-alone storage.

Garcia pointed to a complications around RECs noting that in 2028 in WA if a utility is net zero, they are in compliance. He thought this would impact REC pricing. Ollis said they “punt” individual state RPS/clean rules and instead reflect the spirit of the rule for the WECC study. Ollis added that the clean credit becomes binding after 2030.

Garcia thought that in general the REC price will go down in 2028 as demand wains. He thought this will impact how REC pricing is used by staff. Ollis explained what happened in the 2021 Plan and outlined challenges. He welcomed any recommended changes. Garcia didn't have a particular solution but said policy issues will affect the market.

James Adcock, independent, did not think the light blue dotted line on [Slide 12] reflects public interest well and preferred the Clean Ramp/Linear Glide Path. He cautioned against putting a stamp of approval on utility behavior. Ollis thanked him for his point, saying the Plan did the Linear Glide Path. Ollis did not call this a "stamp of approval" but a reasonable methodology. He asked for an alternative proposal.

Adcock said utilities often treat Council work as "the voice of God" and may try a delayed buildout. Adcock said market constraints may lead to an unhappy situation. Ollis acknowledged that different entities used Council work for different things.

Adcock asked if there was real information available for Small Modular Reactors being available by 2030 [Slide 13]. Ollis called it a placeholder, pointing to intelligence that suggested there will be some by 2028-34. He said it is mostly a proxy resource and put them where they are allowed and made sense.

Adcock explained that he sees WA utilities using them as a placeholder to meet clean requirements. He wondered if they would really be available and didn't think they would be appropriate in Council modeling if they will not be available.

Gall asked about other storage. Ollis said he has been pitched by different storage people, noting there is a clear signal for storage in the model. Ollis added that lithium-ion batteries have energy security concerns and may be used too loosely in the model vs other storage technologies. Gall cautioned against using "other storage"

Gall noted that ammonia may be favored over hydrogen for peakers because of storage concerns. Ollis appreciated the comments, saying he would like to put all the emerging tech in one scenario.

Roy disagreed with characterizing Oregon Offshore Wind as emerging tech as there are already solid plans in place. Ollis agreed that it is not emerging but wondered when it will be available. Roy countered that the same could be said about SMRs, calling Oregon Offshore Wind more reliable.

Roy then spoke about storage technologies, noting seeing bids for a lithium-ion 8-hour battery that will be online by the end of the year. He also called the tech of some iron flow/iron air batteries pretty commercial and suggested keeping an open mind. Ollis said he has heard from some of these companies and thought that they were likely.

Heutte spoke about what the Council needs to do a fair assessment pointing to information on offshore wind that makes him optimistic. He said lots of cost information is still missing. Heutte said the same could not be said for SMRs. He then talked about storage technologies wondering how those costs will evolve.

Heutte suggested that this is a good time to look at how technology is framed and assessed ahead of the next Power Plan. Ollis thought this was a good suggestion.

Blake Scherer, Benton PUD, pointed to BPA's presentation saying he liked their methodology for emerging technology. Ollis said how you present attribute delineating resources really matters and costs can really shift the system.

LUNCH

Market Price Study Setup and Methodology Part 2 (continued)

Roy asked if the fixed capacity credit is the same for all zones or if it changes [Slide 18]. Ollis answered that it is different depending on zone and it ranges from .5-.7.

Marmitt addressed the question of peak credit affecting battery builds, saying it could be and they are looking into it. She thought some other reasons could be ancillary services in the model as well as outdated capital costs. Marmitt said changing the resource also effects battery builds.

Ollis said he sees similar results in Council modeling as well noting that hybrid is replacing some stand-alone storage. Marmitt agreed that almost all evaluation find batteries economical when they are bid in as ancillary services and the team is working on improving AURORA's response. Ollis thanked her for looking into that and suggested also looking at hydro interactions as well

Heutte reiterated concerns about the hydro system noting that there are times when hydro doesn't have much headroom. He was concerned that models may not reflect this performance and potential for storage. Ollis explained how they manipulate AURORA to do this.

Heutte noted that battery storage in CA went to ancillary services at first but now there are so many of them that they are playing a significant and expanded role. Heutte then noted the cost of storage and suggested looking at cheaper alternatives like spreading renewables across the landscape to take advantage of geographic diversity or DR.

Ollis said AURORA's dynamic peaking credit is a good solution to these issues.

Adcock called this an important area that requires attention, saying he's hearing utility making a variety of comments.

Draft Results Presentation

Gall (Couldn't hear him something about an eastern intertie reaching the NW and not knowing how to model it) [Slide 12].

Jim Waddell, independent, pointed to 80-mile transmission line that connects a wind farm to Colestrip that will be finished in September. Ollis thanked him and asked the name of the wind farm. Waddell did not know. Gall suggested Clearwater Wind by Next Era. Ollis said he will check and it might already be in.

Levy suggested readjusting transmission limitations, noting the line can handle much more than 2500MW.

Heutte thought the big lines would likely be built perhaps within the five-year timeframe. He pointed to CAISO transmission plans. Heutte then spoke about additional lines that could be built but probably not in the next five years, including an upgrade from MT to WA that could move forward quickly. He thought some Oregon offshore wind could happen by 2030. Heutte also mentioned the Cascade proposal of a line that runs from the Dalles to Portland, saying it could be done in the five year period.

Ollis thanked him for the input.

Aliza Seelig, PNUCC, suggested depressing load growth in response to inflation and chaos as it might be hard to source things like EVs [Slide 16]. Ollis said he might be able to pull EV growth. Seelig said she was thinking about economic load growth. Ollis said he doesn't have one for outside the WECC but it could be degraded if she suggests a number.

Seelig wondered what lower load growth would mean in other regions, saying it could mean more resources or a smaller build of resources. Ollis said the model is still running and AURORA is still struggling to create an adequate system that meets policy.

Gall suggested shifting the 50% resource build to less than 50% to start and then reduce it over time to something closer to 80% by 2030. Ollis said that could be done. Seelig suggested making it consistent to the low load for the region.

Jourabchi countered that if gas prices rise there will be more incentive for electric vehicles. Seelig agreed but said she's thinking about battery prices going up as well making it harder to bring EVs to market. Jourabchi agreed with that assessment adding that low trajectory forecasts that could be used.

Ollis said lowering loads will reduce adequacy effects of this resource strategy. He thought the biggest effect on the scenario will be resource ramping.

Heutte wrote "Just to note there are pretty strong indications that the inflationary surge (in part due to logistics constraints) is rapidly subsiding. Commodity prices, shipping indexes, etc. are going down to the levels of last fall or earlier. See for example the Baltic Dry Index, which is

actually a global metric: <https://tradingeconomics.com/commodity/baltic>" in the question pane.

Levy wrote "higher electrification should include increased storage, as per Council Member KC Golden's comments in an earlier Council meeting." In the question pane [Slide 20].

John Fazio, NWPCC, discussed what the RAAC Steering Committee wanted [Setting up Scenarios to Inform Adequacy Assessment] including using 2028 as that is the year BPA contracts expire and some coal plants go away. Ollis said early NW coal retirement is examined without replacement and he is projecting through 2045 along with other scenarios. Fazio thought the RAAC Steering committee would be satisfied with the scenarios proposed.

Ollis asked committee members reach out with comments and questions, hopefully before the next SAAC meeting on August 10.

He ended the meeting at 3:30

Attendees via Go-to-Webinar

John Ollis, NWPCC

John Fazio, NWPCC

James Adcock, independent

Leann Bleakney, NWPCC

Vasanth Baskaran, Energy Exemplar

Neera Vjay Bedmutha, Energy Exemplar

Arthur Berberich, Energy Exemplar

Stephanie Boles, ODOE

Frank Brown, BPA

Pat Byrne, BPA

Jennifer Coulson, PSE

Renchang Dai, PSE

Philip DeVol, PacifiCorp

Rathin Dholakia, Energy Exemplar

Ryan Egerdahl, BPA

Ryan Fulleman, Tacoma Power

James Gall, Avista Corp

Nicholas Garcia, WPUA

Rachel Gardner, Tacoma Power

Eric Graessley, BPA

Roger Gray, PNGC Power

Jared Hansen, Idaho Power

Doug Hart, PSE

Joshua Haver, Idaho PUC

Thomas Haymaker, Clark PUD

Lori Hermanson, Avista Corp

Fred Heutte, NW Energy
Massoud Jourabchi, NWPCC
Ben Kropelnicki, Avista Corp
Jeff Kugel, PNGC Power
Ben Kujala, Dunsky
Dave LeVee, Powercast
Akshay Lele, Energy Exemplar
Scot Levy, Blue Fish
John Lyons, Avista Corp
Jennifer Magat, PSE
Tiana Marmitt, Energy Exemplar
Ian Mcgetrick, Idaho Power
Heather Nicholson, independent
Joel Nightingale, WA UTC
Kevin Nordt, GCPUD
Craig Patterson, independent
Sashwat Roy, Renewable NW
Kathi Scanlan, WA UTC
Blake Scherer, Benton PUD
Adam Schultz, ODOE
Aliza Seelig, PNUCC
John Shurts, NWPCC
Landon Snyder, Snohomish PUD
Jaime Stamatson, Montana
Tyler Tobin, PSE
Allyson Tom, Energy Exemplar
Jim Waddell, independent
Scott Wright, Energy Exemplar
Joni Zenger, Utah
Barbara Miller, USACE
Malcolm Ainspan, NRG
Daniel Catchpole, News Data
Brian Dekiep, NWPCC
Jamae Hillard Creecy, BPA
Shauna McReynolds, PNUCC