

**Northwest Power & Conservation Council
Systems Analysis Advisory Committee
March 17, 2021**

John Ollis, NWPCC, opened the meeting at 9:00am with a review of the day's agenda. He pointed to minutes posted from the February 17th meeting and asked for comments or corrections, adding that there was still time to email responses. Chad Madron, NWPCC, explained the best way to interact with the Go-to-Webinar platform.

Early Coal Retirement Scenario: Assumptions

Gillian Charles, NWPCC

Charles walked through the scenario's purpose (to analyze the effect of 100% coal retirement in the region/WECC on resource strategies) and the assumptions and parameters included therein (retire all coal by 2027 for the region, retire all coal by 2030 for the WECC), and compared the early retirement assumptions with the baseline condition inputs. Lastly, Charles noted a potential future sensitivity study that allows Colstrip 3 and 4 to run through a later date to test the adequacy of the system with this units still available, which may be a sensitivity to this scenario or another scenario in the plan.

Tomás Morrissey, PNUCC, asked about the impact of Idaho Power and other NW IRPs that indicate they would like to pull out of coal plants before retirement [Slide 5.] Charles said there is a lot of uncertainty. She said that doesn't change the baseline as she went with what was announced, stressing that Council members will look at all of the information. Charles added that she has more information on Colstrip 3 & 4, calling it another area of uncertainty.

Morrissey asked if those units become partial IPPs for modeling purposes. Charles did not think so. Ollis added that it depends on the model but said this scenario is actual unit retirement. He said other scenarios will explore other uses of the market.

Ben Fitch-Fleischmann, Northwestern, called the sensitivity study outlined on [Slide 11] a key issue, noting that February's cold snap really underscored potential issues. He applauded the addition of this sensitivity.

Early Coal Retirement Scenario AURORA Results

John Ollis, NWPCC

Ollis walked through early coal retirement AURORA results, noting overall WECC build is lower than baseline, CO2 emissions drop, annual/seasonal planning reserve margins are ineffective at efficiently enforcing adequacy on a power system, clean requirements more expensive to meet than in the baseline, and reserve capability more difficult to replace. Ollis noted the early model buildouts were counter to expectations, walked through why that might be, and solicited feedback and recommendations from the SAAC members for further model refinement.

Nicholas Garcia, WPUA, had no comment on early retirement analysis but repeated his concerns based on his observations of the WA and OR legislature [Slide 2.] He said that policy

will drive additional load at the same time it's calling for coal retirements. He suggested looking at the both policies together with a connected analysis. Ollis called this a good point and noted the scheduled analysis of the vast array of load conditions in the RPM, particularly in the Paths to Decarbonization scenario.

Garcia reiterated that his concern is with policy makers who have what he calls, a limited understanding of the joint implications of multiple policies that might be pancaked on top of each other. Ollis said he will mention this to Council members and said future analysis will be looking at this to the best of the modeling capability.

Robert Diffely, BPA, asked what "ineffective" means [Slide 2.] Ollis said he will show how AURORA is underbuilt in the coming slides. Diffely asked if the reserves are being met. Ollis said yes and no, depending on the case.

Fitch-Fleischmann voiced confusion on the lower build depicted on [Slide 7.] Ollis was also confused and said staff plans to dig into the issue. He also asked the SAAC for ideas about how to address the concern.

Ahlmaz Negash, Tacoma Power, was perplexed by the similarities in gas buildout and wondered if there was an imposed constraint. Ollis said there is a gas constraint in the baseline. Negash then asked if wind or solar ever have zero generation no matter how much is built. Ollis answered absolutely, especially for solar and solar + battery. Negash thought that the lack of thermal may have curbed the solar build as it would not contribute during times of zero generation. Ollis agreed.

Charles Grist, independent, suggested that storage might have caused the lower buildout. Ollis thought there was actually a little less storage in the build out and said the issue will be covered in the presentation

Diffely asked how much coal is left in 2045. Ollis thought 15GW in the baseline and 0 in the Early Coal Retirement example.

Eric Graessley, BPA, suggested running a base with fewer restrictions on gas, removing the coal and testing if that delta makes sense. He said in his experience you get pretty reasonable changes for this kind of analysis. He thought this might be related to the base and a lack of good alternate resources. [Slide: Why Might Not Be as Important as Where. Winter Reserve Margins.] Ollis thought this was a good point, adding that there might not have been alternatives, like Small Modular Reactors or another emerging tech, at the right place and price.

Ollis addressed Diffely's earlier question, asking if the reserve margins are really right and what other modeling tricks could be used to send a better signal. He also wondered if this is something that could be lived with. He added that AURORA is not good at meeting cliffs like removing 15GW of coal all at once.

Elaine Hart, Moment Energy Insights, called seeing more curtailment with less baseload and a smaller renewable build, fishy [Slide 21.] Ollis said he has had limited time to look at the run and is still working on it but was also surprised. He thought there might be a signal issue in the model. Hart agreed it would be smart to look at the WECC-wide unit dispatch by fuel type to see what's forcing the renewables off the system.

BREAK

Update on Power Plan Needs Assessment: Revised Baseline ARMs and Capacity Contribution Studies

John Ollis, NWPCC

Ollis began with a baseline needs assessment summary before transitioning to a comprehensive presentation reviewing first the role of the needs assessment in picking a resource strategy, next the methodology and assumptions for 2023, 2027, and 2031, and ARM results, and, finally, how well different resources meet the regional needs--associated system capacity contribution results..

Garcia summarized Ollis's presentation [Slide 20] noting transmission issues make it look like there's congestion issues when there isn't. Ollis said a westside BA with a remote, eastside resource for reserves would have a transmission schedule that reflects that reality. He said the model is selling transmission, but stressed that would never happen in reality.

Garcia confirmed that there is sufficient transmission in this scenario but it wasn't held with the reserves. Ollis confirmed.

Garcia noted the challenges of cold-starting a gas plant for a few hours and wondered if Ollis heard the same [Slide 21.] Ollis agreed that this can be difficult, stressing that there are minimum ramps and up times built into the data.

Fred Heutte, NW Energy Coalition, added that Kevin Harris, Columbia Grid, looked at EPA data to examine gas. He summarized his findings saying plants divide into two categories: combined cycles that operate a few days at a time and peakers that can stop and start several times in a day. Heutte couldn't find wear and tear costs for gas but thought they were not significant. He concluded that gas plant operations were pretty knowable through CMS data.

Garcia suspected that gas plants owned/operated by utilities will operate and dispatch with limited concern for cost and wear & tear. He thought that IPPs are much more likely to have a higher dispatch threshold. Garcia wondered if the model could set different parameters depending on ownership [Slide 28.] Ollis said that is a possibility if that information is available.

Scott Levy, Bluefish, thought that 4.4 aMW need is pretty small, and asked if he is missing something. He added that primarily, the Peak Capacity Needed is the important point. Ollis agreed adding that winter issues tend to have higher energy needs.

Morrissey noted that issues tend to be in the summer and asked what has changed. Ollis pointed to the buildout, near-term vs long-term issues and non-action continuing from the Seventh Plan. Ollis agreed that there are issues in the summer but said the baseline doesn't see enough to push the region over a 5% LOLP. Ollis thought the scenarios may show something else.

Garcia was curious about what the RPM does when there is a lot of need in the early years and basically none in the out years. Ollis said the capacity contribution will play role. He said the RPM responds to the early need and does see issues later when there are coal retirements. He pointed to Ben Kujala's, NWPCC, presentation for more details.

Heutte compared data from the September run to [Slide 35] and wondered about changes in ranges. Ollis called this a bit of tuning and any resource type under or above the parameters would get the same ASCC as resources at the ends of the range. Heutte then asked about something in between, like 1000MW of thermal. Ollis moved to [Slide 38] to show an example of the methodology and [Slide 39] to show how different resources work together.

Heutte asked if 8361 peak needs met means the hydro system is enhanced by the different combinations. Ollis said yes within the context of the existing systems. Heutte asked what is different between Q1 and Q4. Ollis answered that it's due to more uncertain, conservative hydro operation. Heutte then said this is an intermediate number to be used in modeling and is not meant to stand alone. Ollis strongly agreed.

Garcia said [Slide 39] shows adding 5300MW but meeting 6016 peak needs in Q1. He wondered if the best way to express this is nighttime peak means that you store extra water during the day to be available to meet those needs. Ollis agreed, moving to [Slide 40] for illustration.

Morrissey referenced a past slide that showed regional loads bumped up 8% and asked if that is also done to the greater western load. Ollis said they are still on average conditions and are hoping market reliance is limiting the effect.

Grist noted that Q3 represents summer peak on [Slide 39] and wondered how the resource combination isn't contributing. Ollis said he used a very particular set of simulations, including really bad winter hydro with high winter loads. He said the summer needs are not as high but more frequent. Ollis said operational issues add to the difficulties. He added that it might be time to re-examine the adequacy metric.

Heutte wondered what a hybrid resource analysis would do for summer outcomes and said he would send an email with further ideas. Ollis thanked him noting that he gave solar + battery a better contribution than just solar.

Ollis ended the meeting at 12:45.

Attendees via Go-to-Webinar

John Ollis	NWPCC
John Fazio	NWPCC
Gillian Charles	NWPCC
Chad Madron	NWPCC
Leann Bleakney	NWPCC
Ian Bledsoe	Clatskanie PUD
Frank Brown	BPA
Aaron Bush	PPC
Zhi Chen	PSE
Robert Diffely	BPA
Ben Fitch-Fleischmann	Northwestern
Nicolas Garcia	WPUDA
Andrea Goodwin	NWPCC
Eric Graessley	BPA
Charlie Grist	independent
Elaine Hart	Moment Energy Insights
Fred Heutte	NW Energy Coalition
Mike Hoffman	PNNL
Jeff Kugel	PGNC
Scott Levy	Blue Fish
Ian McGetrick	Idaho Power
Shauna McReynolds	PNUCC
Silvia Melchiorri	PGN
Tomás Morrissey	PNUCC
Heather Nicholson	
Paul Nissley	SCL
Elizabeth Osborne	NWPCC
Will Price	EWEB
Sashwat Roy	Renewable NW
Bill Saporito	Umatilla Electric
Kathi Scanlan	WA UTC
Ben Ulrich	EWEB
Bill Wahl	CPower Energy Management
Marissa Warren	Idaho OER
Cindy Wright	SCL
Jim Yost	NWPCC
Brian Dekiep	NWPCC
Ahlmahz Negash	Tacoma Power
Tanya Barham	Community Energy Labs
Jim Waddell	Clallam PUD