

Northwest Power & Conservation Council
Systems Analysis Advisory Committee
August 31, 2022

John Ollis, NWPCC, opened the meeting at 9. He asked that any questions or corrections to the minutes from the August 10, 2022 meeting be sent to him. Chad Madron, NWPCC, reviewed how to best interact with the Go-to-Webinar platform.

Load Forecasts with High Electrification (work in progress)

Massoud Jourabchi, NWPCC

There were no questions or discussion. Jourabchi asked that any future questions or comments be forward to him.

Market Price Study Modifications, Results, and Analysis

John Ollis, NWPCC

Sashwat Roy, Renewable NW, asked if the dollar figures on [Slide 11] account for IRA related impacts like new tax credits for storage resources. Ollis replied, absolutely not, as he did these studies before the Act passed. Ollis said they will try to incorporate IRA impacts in the next study. He added that he also did not update fixed costs for Generating Resources, acknowledging that this is older vintage data.

Fred Heutte, NW Energy Coalition, asked if the results show transmission constraints playing a significant role in the results. He then asked if the modeling considers only the transmission available now or incorporates possible new investment.

Ollis answered that they are seeing more building early in the study that the zonal transmission system represented in Aurora can figure out easily. He said he often sees that the transmission links are fully utilized.

Heutte restated his question, asking how sensitive the system is to transmission constraints. He said a lot of local transmission will be built but added that assumption is if you want full advantage of the coming buildout without overbuilding there needs to be sufficient transmission. Ollis agreed saying behind the meter resources help. He also pointed to the model building stand-alone storage where there are issues.

Heutte appreciated the points about non wire transmission and storage as a transmission asset, pointing to a WECC study about the issue. He said it would be important to gauge how big a problem transmission constraints are and if they significantly bind the system.

Nicholas Garcia, WPUDA, agreed with many points about transmission. He commented that over 60 years ago demand did not go up when prices increased. Garcia wondered if a \$50

Billion investment would significantly impact on retail rates. He thought this impact might have a limiting effect on future demand.

Ollis reminded him that load is growing so rates may not go up to the same degree or not all. Ollis said that keeping the system adequate is driving most of the investment. He added that different parts of the system invest in different ways.

Garcia said this make him feel more confident. He thought that doubling rates would incentivize people to reduce consumption but spreading fixed costs over more kWh may not have a significant impact. Ollis added that rates are very bespoke to individual areas. He said he focuses more on the paradigm shifts between fixed and production costs.

BREAK

Jourabchi shared some back-of-the-envelope calculations about revenue requirements saying, in very gross terms, the WECC's \$74 Billion grows to \$92 Billion by 2045. He said there could be rate impacts but warned that his calculation is very rough.

Roy said he was hoping to see more offshore wind in 2035 baseline [Slide 16] and wondered if the reason was curtailment or transmission access. Ollis answered that it was mostly due to cost which are higher than the NREL numbers. Ollis thought running the study with lower costs would change that.

Roy asked if the resource profile includes OR and CA or just OR. Ollis said they have five sites in CA and two in OR. Roy pointed to a PNNL transmission study on offshore wind that found an over 45% capacity factor Coos Bay and Bandon. Ollis said they have higher numbers for those areas and lower for the central coast.

Blake Scherer, Benton PUD, asked for the difference between clean baseload and clean baseline [Slide 23]. Ollis said that clean baseline was a typo and the slide should always read "clean baseload."

Garcia voiced concern about the areas west of the Cascades from Portland to Bellingham [Slide 24]. He wondered about model granularity and the many challenges of delivering power to this area. Garcia said identifying a west side need doesn't mean a resource can get built.

Ollis offered to test scenarios live. Garcia chose two: the Baseline and Persistent Global Instability. Ollis did live calculations for zones west of the Cascades. For the baseline the model called for building some storage. For the Persistent Global Instability, the model called for even more storage and some solar builds.

Garcia asked for the 2027 storage numbers for the Persistent Global Instability scenario. Ollis said it comes to 960MW.

Scherer confirmed that the High West Demand case would have a difficult path to meeting adequacy. He then asked that this information be contrasted with [Slide 11] that says the High West Demand is adequate. Ollis said it is mostly adequate if you allow the 19GW build but the Adequacy Assessment doesn't allow in-region builds unless they are sited and licensed.

James Gall, Avista, asked about the assumed storage duration. Ollis moved to [Slide 14] to show that most battery storage is in the four-hour range while pumped storage varies between eight to 12 hour. Gall confirmed that west side storage is four hour batteries. Ollis confirmed.

Gall asked about the peak credit in the resource build out. Ollis said it is dynamic for all renewables and short duration storage. He added that the short duration storage has a pretty bad peak capacity contribution.

Ollis asked that the SAAC contact him, or anyone else on staff, with any questions or concerns. He ended the meeting at 12:00.

Craig Patterson, independent, asked the following questions on the question pane:
Have you studied which energy sources contribute the most emissions of carbon emissions?

- *We will look at the avoided market emissions rates later in the study.*

How does the historical energy shortfalls (in the 1970's) inform or bring insights to the coal curtailments and the potential of cost increases and their impacts?

Can you give an example of a load control event? Thanks

What are the differences and/or similarities between load control and marketplace?

Is anyone anticipating the decommissioning of Nuke #2 in Richland which is 38 years old, past its projected lifetime?

Or curtailing Biomass as an energy source 40 times dirtier than coal and 300 dirtier than Natural gas?

Are my questions being seen by anyone? As I don't hear any response to them.

Attendees via Go-to-Webinar

John Ollis	NWPCC
Massoud Jourabchi	NWPCC
Selisa Andrua	BPA
Leann Bleakney	NWPCC
Frank Brown	BPA
Laura Burford	BPA
Pat Byrne	BPA
Rachel Clark	Tacoma

Nathan Critchfield	PSE
Renchang Dai	PSE
Robert Diffely	BPA
Ryan Egerdahl	BPA
Ryan Fulleman	Tacoma Power
Dor Hirsh Bar Gai	NWPCC
James Gall	Avista Corp
Nicolas Garcia	WPUDA
Eric Graessley	BPA
Jared Hansen	Idaho Power
Doug Hart	PSE
Fred Heutte	NW Energy Coalition
John Lyons	Avista Corp
Ian Mcgetrick	Idaho Power
Elizabeth Osborne	NWPCC
Jessica Porter	NWPCC
Sashwat Roy	Renewable NW
Blake Scherer	Benton PUD
Adam Schultz	ODOE
Aliza Seelig	PNUCC
Landon Snyder	Snohomish PUD
Jaime Stamatson	Montana
Danielle Szegeti	Tacoma Power
Tyler Tobin	PSE
James Yost	NWPCC
Brian Dekiep	NWPCC
Doug Drob	NWPCC
Ahlmahz Negash	Tacoma Power
Craig Patterson	independent
Haley Ellett	Hood River