

Northwest Power & Conservation Council
Systems Analysis Advisory Committee
May 19, 2021

John Ollis, NWPPCC, began the meeting at 9:00. Chad Madron, NWPPCC, explained how to best engage with the Go-to-Webinar platform. Ollis asked that attendees look at the meeting minutes from the April and explained that analysis time is running out.

Unit Commitment Challenges Leading to Adequacy Issues

Ollis reviewed that all needs revealed in the current assessment can be solved with a mix of more resources, more reserves, and more market exposure. He explained that most deficits and high pricing events occur during morning and evening ramps and thermal generation is not fully utilized due to low prices at midday and overnight. Ollis reviewed the issues with investing in new resource and the fact that more market exposure opens the Region to additional risk. Ollis said that increasing reserves can alleviate operational challenges.

Shauna McReynolds, PNUCC, confirmed that the charts [Slide 8] show the average capacity factors for the year 2023 in hour five. Ollis said yes, they are the summer of 2023 with all the different hydro and load conditions and at least one deficit. McReynolds moved to hour 12 to confirm that this is the average of what happened. Ollis confirmed. McReynolds asked if there are four plants could one be running while the others were not. Ollis said yes, adding that he has seen plants running in parts of the region having an issue while the others do not.

Ben Fitch-Fleischmann, Northwestern, moved to [Slide 7] to confirm that there was only one spring outage. Ollis thought it was probably right. Fitch-Fleischmann asked about the capacity factor of the plants that did run, calling the result puzzling. Ollis said different places use different plants to meet both reserves and load. He said he will show an example of the behavior adding that the region has a similar price signal and the capacity factors for thermals are between 8% and 15% in general.

Craig Patterson, independent, called this information meaningless without historical context. He then said COVID has changed realities pointing to shifts in peak loads. Patterson said these differences should be incorporated in the planning process and lamented that they are not. Ollis said the load futures capture some of the effects of COVID adding that model simulations look like actual operations even during COVID.

Patterson asked for a decades' worth of historical context to show the trends. Ollis countered that there are limits in data sourcing but offered to try.

Dave LeVee, Powercast, said that energy is the commodity but not all energy is priced the same. He thought if you could provide those prices to suppliers, they could anticipate and look at value to those resources. LeVee called this a marketing problem. Ollis agreed that energy is a

commodity, and that markets and delivery times are causing the issue. He said CA has an organized market and is dealing with similar issues in the way that LeVee proposed.

Eric Graessley, BPA, said it might be an interesting exercise to see reliability impacts from just varying the negative price assumption [Slide 15.] He said BPA has seen large(ish) differences between \$0 and significantly negative (-\$50/MWh) prices. Ollis said the prices are not -\$50 but closer to -\$11. He said they haven't removed negative prices, but low prices are causing this. Ollis agreed that it would be an interesting test but countered that this slide shows prices seen on a day-to-day basis.

Patterson asked what an organized market is and how it differs from what is presently in the region [Slide 16.] Ollis explained that, in this case, he means an agreement needs to be struck within the region to create an adequate daytime system. He noted that a lot of regional collaboration could be leveraged through the NW Power Pool RA effort and other venues.

Patterson asked if excess consumption and waste and how they relate to adequacy will be addressed. Patterson said the goal is unlimited resource and utilities with declining block rates encourages excessive use adding that he heard about a residential user consuming over 22,000KWh a month. Patterson thought that if excessive consumption is not addressed then the region has learned nothing from history.

Ollis pointed to markets for capacity and energy scenario work from AURORA that showed significantly less renewable curtailment, more price stability, and more build of energy-limited resource. He said this pointed to a benefit for an organized market structure for the region and said details, advantages, and disadvantages will be covered later in the presentation.

Tomás Morrissey, PNUCC, asked how many price futures are run in the model, wondering if it is the full AURORA set for every water/temp year in the redeveloped GENESYS [Slide 19.] Ollis answered that it is expected prices from the entire set and is not aligned by water year. Ollis said it is not really prices in GENESYS but a supply curve with prices, so it is dynamic.

Morrissey understood but called the model sensitive to prices and wondered about price variability. Ollis restated that the prices will be dynamic as they are modeling the supply curve external to the region. Morrissey asked if the model generates the prices that units look at or if that comes from AURORA. Ollis answered that the supply curve comes from AURORA, but the prices are generated by the model endogenously.

Fitch-Fleischmann asked if near term outages are due to loads that are too low [Slide 20.] Ollis answered that it depends on your perspective but there is enough surplus overnight and during the day. Ollis said we don't have high enough loads to support thermal commitment overnight. Fitch-Fleischmann said the key takeaway for the 2021 Plan should be a call for conservative operations as the Region is seeing inadequate pricing to support less flexible, dispatchable resources. He called this a classic public good game, and no one will do it unless there is a call for everyone to participate.

Ollis agreed and related a story about a panel discussion where an Oregon Commissioner discussed this topic. He thought Regional coordination would be needed to prevent outages when there is so much steel already in the ground. Fitch-Fleischmann suggested the subtitle to the 2021 Plan be, “Low Loads Cause Outages.”

John Fazio, NWPCC, countered that that assumption is not correct, saying that the LOLP went down after running the study with 200MW of EE. He said this shows that time of day really matters.

Fazio then said it is fine to force a project to be committed or carry a reserve, but it cannot be assumed that it will be the most cost-effective solution. He said all alternatives need to be explored. Fitch-Fleischmann, after saying the subtitle was offered in jest, said load growth over time removes this problem and understanding what is changing would help.

Fazio said it is the load growth in all WECC and not just the NW that is causing this and just increasing the NW would solve the issue. Ollis agreed, saying there are not enough resources for overnight. Ollis said it is not just load growth, but overnight needs.

Fitch-Fleischmann revised his subtitle to, “Low Prices Cause Outages.” Ollis said low prices cause operational challenges for sure.

McReynolds continued to worry that some variability/uncertainty around using thermal in 2027 was missed. She then wondered if there will be an eventual need for some physical resources if some small issues continue to pop up. Ollis said this is one scenario and asked her to point to a scenario. He mentioned the early coal retirement scenario which showed small needs arrive later. Ollis added that the RPM suggests adding resources.

McReynolds said utilities she speaks to feel caught between a rock and a hard place in that they have thermal units and are wondering if they will get to use them. Ollis called this an important point but added that operational challenges are shown in almost every scenario.

Fitch-Fleischmann offered to facilitate a conversation with operators [Slide 25.] Ollis thought that would be helpful.

Jim Waddell, independent, asked if operators are nervous because of low prices or something else. Ollis said they are eager to take advantage of low prices but worry that they don't have enough units online if there is any forecast error.

BREAK

Paths to Decarbonization Scenario Update

Ben Kujala, NWPCC

Kujala presented a SAAC-framed look at that Paths to Decarbonization Scenario

Patterson asked if the assumption is the perpetuation the single-passenger car, adding that he sees about 70% of cars with one driver. He wondered when the region will start focusing on public transportation over individual cars. Kujala said there is an embedded assumption around the reduction of personal vehicle miles driven.

Massoud Jourabchi, NWPCC, added that this policy along with adding more electric busses are part of an approach of looking at increased public transportation. He said they are seeing cases of decreasing driving loads due to telecommuting, telehealth and online shopping.

Kelli Schermerhorn, Northwestern, asked if there was an attempt to quantify the cost of decarbonizing the electric sector and if that work is part of Staff's scope. Kujala replied that the cost would be very hard to isolate but said it would be extreme. He added that new technologies and approaches might be called for and this different perspective would be out of the scale, scope, and questions that are part of the work today.

Jourabchi added that some studies he has seen from the IEA talk about a small fraction of GDP used to pay for the investments. He remembers seeing the proxy retail rates eventually going down. Kujala agreed that the RPM shows downward pressure under baseline pressure but that has nothing to do with a world that is asking its electrical grid to do so much more.

Kujala added that our current tool set cannot answer questions about long-term hydrogen production for transportation.

Ollis asked that feedback and questions be sent to him via email or phone call and closed the meeting at 12:00.

Attendees via Go-to-Webinar

John Ollis	NWPCC
Ben Kujala	NWPCC
Steve Simmons	NWPCC
Massoud Jourabchi	NWPCC
Chad Madron	NWPCC
Leann Bleakney	NWPCC
Frank Brown	BPA
Aaron Bush	PPC
Zhi Chen	PSE
Rachel Clark	Tacoma Power
Robert Diffely	BPA
Ben Fitch-Fleischmann	Northwestern
Andrea Goodwin	NWPCC
Eric Graessley	BPA
Fred Heutte	NW Energy Coalition
Mike Hoffman	PNNL
Charlie Inman	PSE

Torsten Kieper	BPA
Dave LeVee	Powercast
Douglas Logan	independent
Jennifer Magat	PSE
Ian McGetrick	Idaho Power
Sauna McReynolds	PNUCC
Tomás Morrissey	PNUCC
Heather Nicholson	independent
Elizabeth Osborne	NWPCC
Patrick Oshie	NWPCC
Craig Patterson	independent
Sashwat Roy	Renewable NW
Bill Saporito	Umatilla Electric
Kelli Schermerhorn	Northwestern
Adam Schultz	ODOE
Landon Snyder	Snohomish PUD
Tyler Tobin	PSE
Ben Ulrich	EWEB
James Vanden Bos	BPA
Jim Waddell	independent
Dan Catchpole	News Data
Brian Dekiep	NWPCC
Ahlmahz Negash	Tacoma Power
Ryan Fullerman	Tacoma Power
Elaine Hart	Moment Energy Insight
Scott Levy	Bluefish
William Thompson	independent