Northwest Power and Conservation Council
Resource Adequacy Advisory Committee/Systems Analysis Advisory Committee
April 23, 2020

John Ollis, NWPCC, began the meeting at 9:30 with introductions and a review of the agenda.

Resource Adequacy Assessment and Adequacy Information for the 2021 Plan
John Fazio, Dan Hua, John Ollis, NWPCC

Garrison Marr, Snohomish PUD, asked about the percent change of the ten-year average and peak load [Slide 11.] John Fazio, NWPCC, stated that the average peak load in December is 35,000MW but can get as high as 44,000MW so it would be 4,000 to 6,000 with a 35,000 denominator. Marr confirmed that the 10% is over ten years. Fazio said no, these are the average loads not the calendar year load, further explaining that the slide represents the 2024 loads using temperature forecasts from 2020 to 2029.

Tomás Morrissey, PNUCC, asked if the load changes are in comparison to historical data or previous load forecasts. Fazio answered that the are from previous load forecasts. Shauna McReynolds, PNUCC, then asked if Hua's conclusions would change much if "seasons" were defined differently, i.e. defining Winter as December to February and Summer as July to September. Hua offered to shift months for his analysis but thought the answer would be the same. Ollis added that the seasons are framed this way to better flow into the RPM.

Robert Heinith, Columbia River Inter-Tribal Fish Commission, asked where the climate change modified flows were derived from, wondering if they are the official modified flows from the RMJOC II group. Fazio answered yes, they are the preliminary flows. Heinith confirmed that the numbers are from BPA, adding that there is still work going on. Fazio said these numbers are from BPA, acknowledging that it is an ongoing project, and said he will incorporate final data when it becomes available.

Fred Heutte, NW Energy Coalition, asked what can be inferred about climate model differences for flows and hydrogeneration, especially in June and July [Slide 13-14.] He wondered if this represents increasing interannual variability. Fazio confirmed that Heutte was asking about more winter and summer flow variability. Heutte said the models show substantial differences between June and July and wondered how the spread would be treated.

Fazio answered that if he plotted all 19 climate models, they would have fallen within the presented range, so they picked models that show the possible spread and will take the aggregate result. Heutte thought this approach made sense.

Morrissey asked if the EUE is higher in the 34% case than the 45% [Slide 17.] Fazio answered yes, saying the EUE is a function of the length and size of a disruption.

Phillip Popoff, PSE, asked if [Slide 18] represents one climate change model or an average of the three. Fazio answered that the slide is an average of the three. Steve Johnson, WA UTC, noted

that peak load day and hour are critical and asked if the climate change models explicitly try to predict the highest peak temperature or if they are guessing the change in average temperature. Fazio said the daily temperature forecast comes from the RMJOC data which was downscaled from IPCC work. Fazio said hourly forecasts were generated from these daily temperatures.

Hua explained the process of mapping the daily average to historic shapes to get hourly forecasts. Johnson asked if the climate change models measure the absolute peak high and low temperature on a given day at a given location. Hua said yes and explained the method to create regional temperatures.

Tanya Barham, Community Energy Labs, asked what consideration was given to increased solar production due to reduced precipitation and cloud cover. Fazio stated he did not change energy efficiency, roof top solar or wind assumptions. Ollis added that the climate change assumptions will flow through all modeling including the energy efficiency shapes and wind pattern assumptions. Ollis added that behind-the-meter solar is included in the load model and directed her to the technical information page. Fazio strongly emphasized that this is not the adequacy assessment for 2024 using the climate change data.

Rob Diffely, BPA, confirmed that the summer market is limited to heavy-load hours [Slide 19.] Ollis answered yes, wondering if heavy-load and light-load hours are really the right way to limit market purchases. Fazio recalled that last year's assessment allowed summer, day-ahead purchases.

Morrissey asked if both the classic and redesigned GENESYS will be run for comparison purposes [Slide 21.] Ollis said they would definitely run the adequacy information in the redeveloped GENESYS but wasn't sure if there was time to also run it in classic GENESYS. Morrissey approved but thought that an adequacy assessment was needed to calculate ARMs and ASCC. Ollis said that will come from a needs assessment which is different than an adequacy assessment [Slide 20.]

Heinith asked if any consideration was given to using daily flows and reservoir storage data instead of the 14 period HYDSIM for the redeveloped GENESYS [Slide 22.] Hua stated he inputted daily modified flow data shared by the RMJOC. Fazio added that he is using end-of-period rule curves for storage data along with all of the hourly and daily constraints. Heinith confirmed that Staff is not using HYDSIM's daily output. Fazio said no and offered to talk further offline.

Morrissey asked about out of region forecast error for demand, wind and solar. Ollis said it could be done and moved to [Slide 23] to explain difficulties.

Morrissey asked if the delta represents how much the redesigned GENESYS could import [inside the model.] Ollis answered no, the delta is how many imports are excluded because of constraints. Diffely stated that some resources are under firm contract for load serving entities

outside the region. Ollis agreed, saying that should be accounted for in the model and presented the power flow to illustrate. Diffely wondered about different types of wind groups in the classic GENESYS. Ollis said the model will innately understand this.

Morrissey asked if the delta value was adjusted to firm as out-of-region resources like Bridger retire [Slide 25.] Ollis said he could, but is proposing not to, explaining his reasoning. Ollis concluded by saying it is still an open discussion.

Heutte agreed that this presentation highlights the importance of imports and hoped the redesigned GENESYS can look at the issue with a finer grain [Slide 26.] He hoped the RAAC will continue to talk about imports, considering ongoing summer needs. Ollis agreed that the WECC enjoyed regional diversity in the past but this is now a brave, new world.

LUNCH

Existing System Resources – What to Include and How to Count Them
Gillian Charles, NWPCC
Heutte stated that there are many more proposed projects in the queue than what is represented on [Slide 6.] Heutte said there is no doubt that PacifiCorp's capacity gap will be closed and the old method of not including proposed projects does not do justice to the Resource Adequacy assessment because it doesn't recognize the likelihood that needs will be filled. He stressed the importance of this point and wanted Staff to be very clear that the Council's Resource Adequacy assessment does not include proposed resources.

Barham agreed with Heutte. She asked if industry representatives could do a better job of delineating between proposed and planned, or if the Council is already comfortable with this delineation.

Popoff voiced concern about the Resource Adequacy assessment, saying the analysis shouldn't take the edge off the need to build resources because of what is "planned." McReynolds agreed with Popoff. Fazio emphasized that the Resource Adequacy assessment will count sited and licensed resources. Charles added that they have a pretty good idea of which projects will move forward in the next year or two, cautioning that it's not perfect. Heutte added that PAC's RFP draft is already in formal review while PGE's RFP will likely move forward this summer. Heutte said this is evidence that these are not merely "plans." Barham agreed with Heutte's comment.

Diffely asked if Staff has the total MWs of solar and wind considered on line [Slide 8.] Charles answered yes saying the information will be posted soon.

Ryan Egerdahl, BPA, asked about proposed SMRs [Slide 6.] Charles answered that it's proposed by NuScale for UAMPS.

Heutte acknowledged Popoff's concern over "planned," but stressed the importance of considering who is doing the planning, a developer versus a utility. Heutte stated that timing is

important and he had an idea about how to deal with the issue for Resource Adequacy. Charles said it sounds like everyone agrees on the importance of the narrative.

Angela Tanghetti, CEC, asked if Amalgamated Sugar is a behind-the-meter CHP resource or if they provide power to the bulk power system [Slide 11.] Charles answered that they are a self-generating resource and sell their surplus to Idaho Power. She said she assumes they are 100% in the region and half of the power is available to the region.

ASCC Review

Nora Xu, PGE, asked what combinations were used to create the ASCC surfaces [Slide 20.] Ollis said this the upcoming topic.

Johnson asked if and why it matters that a battery is associated with a solar farm [Slide 26.] Ollis answered that it does matter, pointing to the symbiotic effect of using the same inverter.

Johnson asked if behind-the-meter solar, which is generally fixed, is being modeled differently than utility scale solar which is generally tilting [Slide 28.] Ollis explained that all utility scale solar are single-access reference plants while behind-the-meter is incorporated into the loads and pointed to the technical information page for more details. Johnson cautioned that this is modeling and we should not let the good be the enemy of the mediocre.

Heutte confirmed that this approach will account for a battery's ability to shift need to a beneficial time period. Ollis answered yes, saying he has a proposal that will be presented in the future.

Heutte approved of the simplification outlined on [Slide 30] agreeing the approach affords a better sense of the value of resource diversity. Popoff worried about simplifying Montana and Southeast Washington wind. Ollis said they are watching that and the two will have different overall capacity shapes.

Popoff stated that he didn't want to undermine the importance of building transmission to support diversity in the name of simplification [Slide 31.] Ollis said they will be watching for that and will report any findings.

On/Off Peak Definitions for Economic Dispatch in RPM
John Ollis, NWPCC

Heutte pointed to the last bullet point on [Slide 5] to say that gas is still setting the price most of the time, especially in California. Heutte said this is changing but the net load is not directly setting the price but the effect on the resource stack does. Ollis agreed. Heutte wished the RPM had four price periods instead of two. Ollis also wished the RPM had this capability but said this approach gets us part of the way there. Heutte approved of the changes already made.

AURORA External to the Region Capital Expansion Parameters

John Ollis, NWPCC
Heutte stated that it would be good to get an update on recent CEC wind estimates, [Slide 3] adding that it's fairly likely that there will be offshore wind in California in the late 2020s. Barham agreed.

Johnson asked if there is an assumption that California policy on wind is at all driven by economic rationalism. Ollis assumed that the model has to follow fundamental economic assumptions, adding that he can model constraints and interpret findings as best he can. Johnson said the combination of a model based on rational economic activity and divergent policy requires a narrative statement. Ollis said model constraints can represent policy

Heutte asked if [Slide 6] is the scope for peak credit in the Northwest or the WECC and if this is summer peak. Ollis answered that this is a WECC-wide starting point. Ollis then said the model finds the peak whenever it occurs because of the dynamic peak credit logic. Heutte asked if the .1 and .7 peak credits are in play or if the dynamic peak logic starts on its own. Ollis thought the dynamic peak logic comes up with its own result.

Heutte thought the approach laid out on [Slide 7] made sense.

Ollis adjourned at 4:00.

Attendees via Webinar

Aaron Bush	PPC
Adam Schultz	DOE
Ahlmahz Negash	Tacoma Power
Alyssa Tavares	
Andrea Goodwin	NWPCC
Angela Tanghetti	CEC
Arthur Haubenstock	Green Energy Institute
Barbara Miller	Oregon
Dhruv Bhatnagar	PNNL
Bill Saporito	Umatilla
Chad Madron	NWPCC
Thomas Chisholm	U.S. Army Corps of Engineers
Cindy Wright	Seattle City Light
Dan Hua	NWPCC
Elizabeth Osborne	NWPCC
Frank Brown	BPA
Fred Heutte	NW Energy Coalition
Gillian Charles	NWPCC
Eric Graessley	BPA
Hazel Aragon	CEC
Elizabeth Hossner	Puget Sound Energy
James Vanden Bos	BPA

Jim Litchfield	independent
Jim Woodward	WA UTC
John Fazio	NWPCC
John Lyons	Avista
John Ollis	NWPCC
Tom Kaiserski	Montana
Kathi Scanlan	WA UTC
Leann Bleakney	NWPCC
Jennifer Magat	Puget Sound Energy
Mark Gendron	BPA
Max Greene	Renewable NW
Mike Hoffman	PNNL
Nora Xu	PGE
Pat Oshie	NWPCC
Paul Nissley	Seattle City Light
Phillip Popoff	Puget Sound Energy
Robert Brown	
Rachel Clark	Tacoma Power
Richard Devlin	NWPCC
Rob Diffely	BPA
Robert Campbell	Northwestern
Robert Heinith	Columbia River Inter-Tribal Fish Commission
Ryan Egerdahl	BPA
Selisa Rollins	BPA
Shauna McReynolds	PNUCC
Shirley Lindstrom	NWPCC
Steve Johnson	WA UTC
Summer Trudell	Energy Exemplar
Tanya Barham	Community Energy Labs
Thomas Lutey	Billings Gazette
Tina Jayaweera	NWPCC
Tom Haymaker	Clark PUD
Tomás Morrissey	PNUCC
Torsten Kieper	BPA
Tyler Tobin	Puget Sound Energy
Villamor Gamponia	Seattle City Light
Verene Martin	Seattle City Light
Zhi Chen	Puget Sound Energy
Brian Dekiep	NWPCC