

**Northwest Power & Conservation Council  
Resource Adequacy/Systems Analysis Advisory Committees  
February 27, 2025**

Dor Hirsh Bar Gai, NWPCC, began the meeting at 1:00 by calling for introductions. He also suggested checking out the minutes from the last RAAC/SAAC meeting.

John Ollis, NWPCC, reviewed the day's agenda.

**Representing Markets in Council Model**

Nicholas Garcia, WPUDA, was curious about pushback against certain types of builds, wondering how local policies would affect build choices [Slide 4]. Ollis answered that Annika Roberts, NWPCC, focuses interpreting and tracking policies. Ollis said state policies will be represented while local policy/utility goals will also be included, but the exact representation for the market study still has room for nuance.

Garcia asked to flag this issue to ensure accuracy in how much of a resource can be built. Ollis agreed, saying the new modeling infrastructure allows for a more nuanced look.

Sanjeev Joshi, Critfc, asked about the difference between AURORA and GENESYS [Slide 6]. Ollis explained the similarities and differences.

Joshi confirmed that the two models have different outputs despite both being cost product models. Ollis said they are different software products, meaning their structure is different. Ollis said they complement each other.

David Clement, NEEA, wrote, Which models are used for which purposes at a high level? For example, is the capital expansion done in Aurora or Itron, in the question pane. Ollis moved back to [Slide 2] to explain the process.

Ryan Bottem, Pub Gen Pool, noted that for BPA large acquisitions have different approval processes than small ones [Slide 9]. He wondered if Council models follow a similar path. Ollis confirmed that Bottem was talking about utility-scale resources versus upgrades. Bottem said yes. Ollis said the market study doesn't have a lot of delineation but will look at utility scale in general. Ollis said the way things are interpreted for Bonneville happens later in the process when doing scenario analysis.

Bottem confirmed that regional resources/acquisitions are not associated with any one entity. Ollis said this is mostly true adding that EE and DR in a particular service territory is easy to assign to a particular utility, but utility scale resources can be built remotely and wheeled into another service territory.

## **GENESYS Modeling Updates**

Mary Kulas, consultant, asked if [Slide 2] represents basic transmission. Hirsh Bar Gai answered yes, adding that this is just the topology and staff will track which lines need expanding.

Garcia asked about representing the inevitable degradation in solar generation capacity due to aging equipment [Slide 8]. Hirsh Bar Gai said the Climate and Weather Advisory Committee finds that there is no expectation of changes due to climate over the coming years. Hirsh Bar Gai then addressed a drop in efficiency caused by aging equipment, saying that is not captured in the model but lifetime decisions are.

Ollis added that GENEYSIS takes a snapshot of a single point in time and is not meant to capture degradation over time, other capital expansion modeling does. Garcia admitted that this may not be significant but notices a drop in output on his personal equipment.

Glenn Blackmon, WA Dept of Commerce, wrote, I suggest looking at the technology assumptions at [https://atb.nrel.gov/electricity/2024/utility-scale\\_pv](https://atb.nrel.gov/electricity/2024/utility-scale_pv) in the question pane.

Jared Hansen, Idaho Power, said that solar degradation used to be a bigger issue in the past and now most developers install more panels than inverters to keep capacity level. Hansen said that because of this Idaho Power no longer models degradation.

BREAK

## **Methodologies for Developing a Reserve Margin**

Garcia asked if [Slide 8] assumes a cold snap event in January or a one-in-two winter scenario. Hirsh Bar Gai answered that the data on the slide is not from any individual scenario but a look at the maximum loss at any given hour across 180 studies. Hirsh Bar Gai added that only a few specific years across the 180 had major challenges.

Aliza Seelig, PNUCC, wrote, Is Capacity the nameplate capacity, in the question pane [Slide 11]. Ollis said in practice it doesn't have to be but in practice it is. Ollis said there is a bit of nuance for Hydro in OptGen but for most plants it's the available capacity multiplied by the credit.

Clement pointed to Slack variables wondering if there is a feature that looks at how quickly a resource could be deployed [Slide 12]. Ollis asked if he means a resource is capable of providing that reserve. Talk over on the recording. Ollis answered yes, saying this is doing unit commitment, further explaining the process.

Clement then asked about new capacity. Ollis said that is treated in the same way, using a battery as an example.

Clement confirmed that the expansion model will account for the time it takes for new resources to come online. Ollis said yes. Clement thought the represented build times were largely optimistic, particularly for SMRs.

Carla Essenberg, BPA, asked a clarifying question about the difference in the math between the dynamic probabilistic reserve inequalities and the contingency reserve inequalities. Ollis said they are very similar, and there might only be one joint reserve Slack variable.

Essenberg was more confused. She said you have to consider both reserve to cover uncertainty in VER output and uncertainty in load, which is not what is written out on the slide. Ollis agreed, explaining his process and agreeing to update the slides to better represent the math.

Garcia heard that the economic/societal cost of the inability to serve load is much higher than the cost of excess resources to serve load [Slide 13]. He agreed that the region does not want a vastly overbuilt system but wondered if staff analyzed the risk/cost of an outage as compared to the risk/cost of overbuilding.

Ollis answered yes staff have thought about it, admitting that it is probably not perfect. He said staff plan to run the answer back through GENESYS to see if it meets the agreed upon adequacy criteria or not.

Ollis continued, saying staff do not render an opinion on the value of lost load, but that value is implied by what the region chooses for the adequacy criteria.

Garcia said this leaves open the fact that the objective function has both objective and subjective measures. He said he was asking if it was possible to include an objective measure for the risk of loss of load. Ollis said in practice the price of the slack penalty is in a similar order of magnitude of what the literature describes as the first segment of the value of lost load. Ollis said the slack penalty is not meant to be perfect but enough of a signal to the model that we are not meeting the energy/capacity requirements.

Blake Scherer, Benton PUD, asked if the objective function on the slide is the complete or generic objective function. Scherer said he wanted to distinguish between what is currently being done and what is new.

Ollis said this is meant to be the full function with some generic components, explaining his process.

Scherer said he understood, confirming that Ollis is proposing new additions to the Slack category that were not included in the past. Ollis answered yes, saying the past had a

dynamic probabilistic reserve in expansion modeling while this new model thinks more about short-term operational decisions.

Scherer admitted that he never understood the details of optimization and why a model can select resources with low LCOEs. He continued, saying in the real world we continue to see the cost of electricity going up and reliability is going down even though the resources we're selecting are supposedly cheaper and more reliable.

Ollis called this a philosophical question that needs more time. He did say that a patchwork of utility plans does not add up to an adequate system. Ollis said the Council is not a planner for everyone and there is often a mismatch.

Scherer said he was thinking that this looks like a perfect mathematical way to value resources located right near load and there should be a penalty for needing transmission. Ollis said that is part of the operating cost and this is focused on the power resources size.

Essenberg moved back to [Slide 7] asking for more information about Step 2. Ollis explained that this happens before OptGen, adding that this process will be presented in greater detail at an upcoming meeting.

Ollis pointed to upcoming RAAC and SAAC meetings later in the month. He ended the at 4:00.

#### **Attendees via Zoom Webinar**

Dor Hirsh Bar Gai	NWPCC	Sarah Harper	Fervo Energy
Jennifer Light	NWPCC	Craig Patterson	independent
John Ollis	NWPCC	Kody McConnell	WA UTC
Daniel Hua	NWPCC	David Clement	NEEA
Pat Byrne	BPA	Brian Dekiep	NWPCC
Ahlmahz Negash	Tacoma Power	Heather Nicholson	Orcas Power & Light
Blake Scherer	Benton PUD	Andrea Talty	PSE
Brittany Andrus	WECC	Eric Graessley	BPA
Ian McGetrick	Idaho Power	Caity Du	PSE
Mike Hermanson	Avista Corp	Roxana Vilchis	PSE
Aliza Seelig	PNUCC	Brian Dombeck	BPA
Katie Chamberlain	Renewable NW	Carla Essenberg	BPA
Frank Brown	BPA	Nicholas Garcia	WPUDA
Anna Kim	OR PUC	Elizabeth Osborne	WPUDA
Heather Moline	WA UTC	Jake Kennedy	NWPCC
George Hopley	Engie	Brad Westmoreland	PGE
Kathy Eichenberger	BC Gov	John Lyons	Avista
Ryan Bottem	Pub Gen Pool	Jared Hansen	Idaho Power
Kaitryn Olson	PSE	Laura Buford	BPA
Alexandra Karpoff	PSE	Joel Nightingale	WA UTC
Mary Kulas	Consultant	Tomás Morrissey	NWPCC
Nelson Lee	PSE	Dan Kirschner	NWGA
Devin Mounts	PGE	Jaime Stamatson	Montana

Josh Haver	Idaho PUC	Peter Jensen	NWPCC
Mike Swirsky	Critfc	Sanjeev Joshi	Critfc
Glenn Blackmon	WA Dept of Com	Melissa Buchler	PGE
Robert Diffely	BPA	John Mertlich	GC PUD
Nathan Critchfield	PSE	Ryan Egerdahl	BPA
Xuping Li	CAISO	Jason Sierman	ODOE
Jennifer Magat	PSE	Zhuoyi Zhao	OR PUC