

Minutes for the Climate & Weather Advisory Committee

April 3, 2025

Daniel Hua, NWPCC, began the meeting at 1:00 by welcoming Climate & Weather Advisory Committee members and members from the Generating Resources Advisory Committee. Christian Douglass, NWPCC, took roll and reviewed the best way to interact with the Zoom Webinar platform.

Sanjeev Joshi, Critfc, asked for further explanation of co-incident data sets [Slide 7]. Hua explained that co-incident means that the four variables represent the same climate system at the same time. Hua said he will discuss more aspects of the co-incident data sets later in the presentation.

Justin Sharp, Epri, addressed extrapolating wind speeds from 10 meters to 80 or 100 meters saying the diurnal contribution of wind is different at 10 meters than it is at 80 or 100 meters [Slide 15]. Sharp said this method will not deliver the right diurnal profile on an hourly basis. Hua said these data are daily and not hourly. Sharp acknowledged that it is probably not a problem.

Joshi asked about the bias correction for historical time periods and future time periods [Slide: Comparison of Daily Averaged Wind Speeds by Month] as historical time periods are observed. Hua said there is climate data for the historical climate period and staff bias corrected the historical climate windspeed to the ERA5 windspeed. Hua said this is then applied to the future unbiased windspeed to be the bias corrected windspeed. Joshi thanked him for the explanation.

Sharp said he was troubled by future wind speeds that show a significant increase [Slide: Apply ERA5 Historical Hourly Shapes to Climate Scenario Daily Averaged Wind Speeds (II)]. Hua said the slide is made-up data. Sharp was relieved.

Nathalie Voisin, PNNL, wrote: have you considered analog selection? in the question pane [Slide 39]. Hua asked for more information. Voisin said co-incident wind speed, temperature, and precipitation provides a connection to cloudiness. She asked if it is possible, based on those conditions, to look in the ERA5 for +/- 10 days that have the same conditions within the grid cells to check for spatial consistency.

Hua said they are using the same spatial location. Voisin said it's important to keep spatial coherence when selecting a day for one location and another for a nearby site. Hua thanked her

saying the climate scenario data uses a grid cell that is 1/16 of a degree. Hua thought the next grid cell was five km or miles away, offering to talk more offline.

Sharp commented that the outlying points in January are due to cold air trapped in the Gorge while a storm system is coming through [Slide ERA5 GHI vs Diurnal Range for Days around Jan 1]. Hua thanked him for the explanation.

Guillaume Mauger, UW, asked if staff are seeing many changes in solar and wind results [Slide 45]. Hua said he only ran a few example dates and was waiting for input from the CWAC to proceed with the whole set.

Mauger said it would be interesting to look at big trends as the group may not necessarily believe the model output. Hua said solar uses only historical data and climate temperature diurnal range to classify that data into cloudy/sunny days bins.

Mauger asked if there could be a trend introduced structurally that staff/committee members do not think likely to manifest. Hua offered to talk more offline.

Mauger then pointed to the temperature bins saying they are on the low end, adding that there is good research that shows that this is a model bias. Hua thanked him, saying there has been an effort to correct this bias. Mauger saying it's only worth looking into if the cold snaps make a big difference in the analysis.

Hua said there were concerns about really low temperatures voiced during his <u>presentation</u> about extreme temperatures in December 2024. Mauger urged Hua to check the trend on cold snaps, acknowledging that historical agreement is better.

Voisin asked to revisit the question around doing a random selection between bins [Slide: Matching a CanESM2 Climate Year of Interest to an ERA5 Historical Year for Jan1] saying it goes back to her earlier concern. Voisin said you could start with random, but the ultimate goal is to have as much co-incidence with wind and temperature. Voisin said this is where staff can use the climate patter over a couple of grid cells. Hua asked to talk more about this method offline.

Hua ended the meeting at 2:15.

Attendees via Zoom Webinar

Christian Douglass Jennifer Light John Ollis Daniel Hua Dor Hirsh Bar Gai Nathalie Voisin Massoud Jourabchi Jim McMahon Haley Ellett Douglass Hart NWPCC NWPCC NWPCC NWPCC NPWCC PNNL Greenway Research Better Climate Hood River PSE

Sanjeev Joshi Ryan Bottem Garret Hartung Rick Williams John Lyons Bryan Neff Cindy Strecker David Graves Guillaume Mauger Justin Sharp Critfc Public Gen Pool PGE PSU Avista Corp CA Dept of Energy CLEAResult Critfc UW Epri Ronda Strauch Greg Brunkhorst Eric Graessley Rob Del Mar Annika Roberts Kevin Smit Seattle City Light Tacoma Power BPA ODOE NWPCC NWPCC Phyllis Bernard Tomás Morrissey Mary Kulas Devin Mounts Mark Sellers-Vaughn Doug Grob Clallam PUD NWPCC consultant PGE Cascade Natural NWPCC