PNUCC REPORT Council

Northwest Power and Conservation Council
Meeting Notes
April 14 & 15, 2020
Portland, Oregon

While adhering to social distancing using phone lines, the Council returned to business cramming two full days of presentations into its schedule. The topics ranged from system flexibility and emissions, to conservation acquisition and marine mammal removal.

All Council Members attended the webinar: Chair Richard Devlin, Vice-Chair Bo Downen, and Council Members Jeffery Allen, Jennifer Anders, Ted Ferrioli, Guy Norman, Patrick Oshie and Jim Yost joining by phone. The next meeting also will be a webinar, scheduled for May 12 and 13.

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The Agenda

Flexibility study shows need for additional transmission

A study of the Western Interconnection's flexibility over the next 15 years shows that new generation and transmission will be needed by 2030 to avoid curtailments and meet clean-energy policy goals.

Thomas Carr, staff attorney and economist for the Western Interstate Energy Board, discussed the Western Flexibility Assessment Report released in December 2019. The study provides government and industry decision makers insights on potential options to improve grid flexibility. The study looked at 2026 to 2035, laid out a baseline case and two possible scenarios.

By 2026, Western states will required in aggregate 33% clean energy and up to 64% clean energy by 2035.

Will the system be flexible enough to operate with large amounts of variable generation? By 2035, zero-emission resources will make up 72% of the Western region's capacity and contribute nearly 80% of the system's energy needs by 2035.

The Baseline Case is the expected future, assuming a 7 GW reduction in the coal fleet across the Western Interconnect by 2026. Natural gas stayed fairly constant although its energy output was limited. While wind and solar increased 9 GW a year during the study period. There is very little additional transmission, except for projects that were already in the pipeline and approved. The Baseline Case indicates that by end of 2030, the system would be pressed on capacity, Carr said.

The study showed that curtailments will be an issue in the later years. In 2026, renewable curtailments are 3%. By 2035, they grow to 20%. This also means, absent some solution to increase flexibility, the region won't attain its clean-air policy targets, and it's an important finding about what needs to change in the system, Carr said.

In addition, the growth in renewables will impact energy flows. Increases in solar energy are showing that power flows to wherever it's needed and wherever the prices are highest. We'll be seeing major changes throughout the Interconnection, Carr said. The Powerflow model shows very little system congestion in 2026, but the addition of renewable generation will reveal wide-spread transmission limitations and constraints by 2035.

Baseline Case	Study Year 2026	2035
Curtailments (%)	3%	20%
Clean Energy Penetration (%)	✓ Hit target 33% 36%	✗ Missed target 64% 52%
Transmission Congestion	Isolated/Low	High
Production Costs ($B)	$11.1	$10.0
CO_2 Emissions (Million Metric Tons)	161	134

Carr described the study's two scenarios building off the Baseline Case:

1. **Integration Strategies Scenario** increases flexibility not already built into the baseline, adding transmission upgrades and major buildouts of both 4-hour and long-duration storage. More well-sited solar increased diversity flexibility. This scenario met the 2035 clean energy goal.

2. **Limited Coordination Scenario** shows the effects if increased coordination of Western wholesale power markets does not occur. Without this coordination, curtailments would climb, transmission congestion would increase and clean energy goals would not be attained. Under this scenario, the region would barely hit the clean energy goal in 2026, he said.

Resource adequacy findings

The study also revealed a need for generation to meet adequacy. If no generation is added in the Northwest, a capacity need of 1,100 MW occurs no later than 2030. If no gas is added, a 500 MW capacity need arises by no later than 2030, which is an 8% loss of load probability (LOLP). It increases to a 1,500 MW need in 2035 — a 23% LOLP. Even if public policy needs in the region are met, a minimum of 1.5 GW of firm capacity is needed to ensure reliability.

Council staff reports three years of flat carbon emissions

The Council staff gave its annual emissions report, stating emissions in the region have been fairly flat for the last three years. CO_2 emissions in 2018 were 45 million metric tons. Gillian Charles, senior policy analyst, said next year's 2019 emissions report will likely show an increase, primarily due to a "poor" hydro year. Good hydro years mean less fossil fuels are used. As they are displaced by hydropower.

Fossil fuel generation tracks CO_2 emissions. Coal used to be the region's dominant fossil fuel until natural gas overtook coal generation in 2018. An interesting side note is recent studies show that in the U.S., methane emissions from the gas and oil supply chain are larger than previously expected. Therefore, while regional natural gas generation is still cleaner than coal on a GHG basis, the gap between the fuels is narrowed when considering upstream methane.

2021 Power Plan to stress adequacy

Power Division Director Ben Kujala presented his fourth and final installment of his multi-month presentation on the components used in building the 2021 Power Plan. He discussed resource strategies, electricity forecasting sales, cost-effective methods for providing reserves, model conservation standards, and developing a methodology for identifying cost-effective energy efficiency measures.

Council Chair Richard Devlin wanted to know what made this plan's process different from prior plans, given that there is a lot of focus on utility adequacy and reserves.

Kujala said they want to be more explicit on the adequacy requirement. We have had it in previous plans, he said. There has been a focus on operating reserves due to the increased penetration of variable generation. In this plan, we want to check the box and wrap it into our analytics. We want a model that captures the ups and downs. However, the March 2019 incident would likely be regarded as an odd, infrequent event.

BPA reduces its forecasted energy efficiency savings goals

Bonneville representatives announced that the agency would be reducing its forecasted energy efficiency savings goals from the Council's original Seventh Power Plan Action Plan targets. They said the new savings range reflects uncertainty in market adoption rates, consumer behavior and utility activity.

Joel Cook, BPA's senior vice president of power services, told Council Members that the agency plans to invest $634 million over six years in energy efficiency to achieve 532 MW at the low end, and 567 MW at the high end, which is 90 percent of the original goal. The Plan's goal is 581 MW.

Jessica Aiona, BPA's industry economist, dug deeper into the agency's different savings streams:

- **Programmatic** savings are the direct result of BPA programs and make up the bulk of the agency's budget. The agency's savings goal is 352 aMW. The residential and commercial sectors are expected to achieve 96% to 102% of the original energy efficiency Action Plan goals. It's important to note that Bonneville is shifting away from low cost and abundant lighting savings, to more costly and difficult to acquire HVAC and weatherization savings, she said.

- **Momentum** savings are modeled and reported. Bonneville is looking to achieve 184 aMW at the high end and 168 aMW at the low end. The goal was 200 aMW.

- **Market transformation** savings are the direct result of Northwest Energy Efficiency Alliance (NEEA) initiatives, which span retail products, codes and standards, and residential and commercial HVAC. They anticipate achieving 86% of the original Action Plan forecast of 29 aMW.

Cook asserted that BPA, customer utilities, and the region have much to be proud of and expect to achieve over 500 aMW of energy efficiency savings. He asked that the Council should consider their reliance on savings out of BPA's control when developing goals for the 2021 Power Plan.

The Integrated Program Review will establish BPA's budgets, including energy efficiencies for 2022-2023. That public process begins in June.

NW Energy Coalition concerned over energy efficiency shortfall

Wendy Gerlitz, policy director for the NW Energy Coalition expressed concern during the public comment period about BPA's reported energy efficiency shortfall. She said the actual could be 100 MW greater than presented, or 25% less than the target. Gerlitz said BPA's conservation programs are extremely successful and its member utilities' programs are successful even though costs are going up over time. The problem is the program budgets are consistently underfunded by BPA. Their "direct conservation purchases" have gone down from 2017 to 2021. She suggested that BPA increase its energy efficiency budget in 2022-2023. We had a commitment they would make up shortfall in last period, she said. This would get them on track to meet targets.

Sea lion removal amendment sought

States, treaty tribes and the Willamette Committee are trying to make it easier to lethally remove pesky California and Steller sea lions, which are feasting on endangered salmon and other species in the Columbia River and its tributaries. Since the initiation of the program in 2008, states have removed 230 mammals, but in recent years there was been a large influx of Steller sea lions. The parties submitted an application to amend the Marine Mammal Protection Act ten months ago, and it is making its way through a slow, deliberate process. Robert Anderson, National Marine Fisheries Service West Coast Region manager, told Council Members he expects a positive decision and that a permit will be available following August 14.

Power Committee Briefs

Coronavirus could delay Power Plan

Council Member Pat Oshie, Power Committee chair, reported they are adjusting the expected timeline for the Power Plan's release by a couple of months. A draft is now expected by February 2021, due to the workload impacts due to the coronavirus and the region's response. The final plan should be completed by May 2021. It could bleed into June, depending on public input.

Modest load growth projected across the WECC

Member Oshie said across the WECC, we're seeing very modest projected load growth (at or below 1%), except in California, where electrification policies are expected to lead to greater demand. British Columbia and Alberta are showing significant load increases (6,000–8,300 aMW) going forward. Some of it is driven by economic diversification and moving away from fossil fuels.

Bonneville forecasting slight dip in load

According to Council staff and BPA, there probably will be a slight dip in load in 2028. BPA's overall percentage of load served is expected to be reduced from 35 to 28 percent of regional loads by 2050.