



July 8, 2021

Honorable Jay Inslee, Governor of Washington
Brad Hendrickson, Secretary of the Senate
Bernard Dean, Chief Clerk of the House
Olympia, WA 98504

Dear Governor Inslee and Members of the Washington State Legislature,

It is our pleasure to submit to you the attached summary of the first annual electricity Resource Adequacy meeting held on May 11, 2021. We convened the meeting and submit this summary pursuant to [RCW 19.280.065](#).

In addition to this summary, the Department of Commerce and the Utilities and Transportation Commission have posted the meeting agenda, a recording of the meeting, and presentation materials here: [Resource Adequacy - Washington State Department of Commerce](#) and here: www.utc.wa.gov/casedocket/2021/210096/docsets.

While the summary demonstrates that electric utilities, transmission system operators, regulators, and regional organizations are all working to improve resource adequacy, it is also clear that there is much work to do. The effort to develop a regional resource adequacy program, in which most meeting participants are engaged, shows promise. Participants at the May 11 meeting recognized that more electric generation will be needed in the western region, both to meet load growth and replace retiring fossil fuel generating plants. Meeting participants made clear that Washington utilities must be able to freely import and export available power to and from other regions to benefit from differences in peak loads, generation mixes, and weather patterns. Transmission improvements will be required to ensure that power can move from generation to load.

Our agencies will convene another forum in 2022 to address electric resource adequacy, as required by statute. In the meantime, know that we are continuing our important work in overseeing utility resource planning to ensure our region has adequate power to fuel our economy, heat our homes, and maintain our quality of life.

A handwritten signature in black ink that reads "Dave Danner".

Dave Danner
Chair
Washington Utilities and Transportation Commission

A handwritten signature in blue ink that reads "Lisa J. Brown".

Lisa Brown
Director
Washington Department of Commerce

Summary of May 11, 2021 Resource Adequacy Meeting

Introduction

On May 11, 2021, the Washington Utilities and Transportation Commission (UTC) and the Washington Department of Commerce (Commerce) convened a meeting of electric industry representatives and other stakeholders to review the adequacy of energy resources to serve the state's electricity needs. This meeting was held, and this summary of the meeting is being submitted to the Governor and the Legislature, pursuant to RCW [19.280.065\(1\)](#), which reads:

At least once every twelve months, the department and the commission shall jointly convene a meeting of representatives of the investor-owned utilities and consumer-owned utilities, regional planning organizations, transmission operators, and other stakeholders to discuss the current, short-term, and long-term adequacy of energy resources to serve the state's electric needs, and address specific steps the utilities can take to coordinate planning in light of the significant changes to the Northwest's power system including, but not limited to, technological developments, retirements of legacy baseload power generation resources, and changes in laws and regulations affecting power supply options. The department and commission shall provide a summary of these meetings, including any specific action items, to the governor and legislature within sixty days of the meeting.

Maintaining an adequate supply of electricity is a core obligation of the utilities that provide electric service to the residents and businesses of Washington. State policy reinforces this obligation as Washington transforms its electric power system and economy, reducing and eventually eliminating emissions from fossil fuels combustion for electricity generation.¹ The state's 100% clean electricity law, the Clean Energy Transformation Act,² includes requirements for utilities to establish specific standards for resource adequacy and incorporate those standards in their planning and compliance.³ As utilities reduce reliance on coal-fired and gas-fired power plants and add renewable resources such as wind and solar, new approaches and resources will be required to maintain resource adequacy to ensure reliable service to customers.

While resource adequacy is an obligation of each electric utility serving end use customers in the state, it also is a shared responsibility of the overall electric power system and the entities that operate, plan, regulate, design, and fund the generation, transmission, and delivery of that system. The breadth of responsibility is reflected in the list of organizations and stakeholders identified in [RCW 19.280.065](#) and in the number of participants in the May 11, 2021 meeting. An estimated 135 people participated in the six-hour virtual meeting.

¹ *Washington 2021 State Energy Strategy*, page 119-120. <https://commerce.wa.gov/energystrategy>

² [Chapter 19.405 RCW](#).

³ [RCW 19.280.030](#). This resource planning statute was amended by the CETA legislation to add explicit resource adequacy provisions.

In addition to this Summary, Commerce and the UTC have posted the meeting agenda, a recording of the meeting and presentation materials here: [Resource Adequacy - Washington State Department of Commerce](#) and here: <https://www.utc.wa.gov/casedocket/2021/210096/docsets>.

The following summarizes the presentations and discussion at the May 11, 2021 meeting.

Western Electricity Coordinating Council (WECC)

WECC is a non-profit corporation that exists to assure a reliable bulk electric system in the geographic area known as the Western Interconnection, consisting of 14 western states, two Canadian provinces, and northern Baja California.⁴

The WECC presentation described the organization's authority, purpose, and long-term strategy and presented the findings of its Western Assessment of Resource Adequacy (WARA) report.⁵ The WARA study approach reported the Western Interconnection in five sub-regions and ran two scenarios covering 2021-2030. In Scenario 1 each sub-region was constrained to meeting its electric load without imports from the other sub-regions. In Scenario 2 the sub-regions were allowed to meet their electric load with the addition of imports from other sub-regions. For both scenarios, the study included three variations that constrained the resources considered in the study to:

- existing resources only,
- resources under construction that were planned to be in service by the specific study year, and
- resources currently in the licensing and siting process.

The WARA study included Washington in its Northwest Power Pool (NWPP) Northwest sub-region. The sub-region is a winter-peaking area that also includes British Columbia, Oregon, and parts of Montana, Idaho, and California.⁶

The WARA report concludes that without imports (Scenario 1) the NWPP Northwest sub-region would experience hours with insufficient resources to meet its electric load obligation and maintain its planning reserve margin.⁷ With the ability to import and export electricity (Scenario 2) the NWPP Northwest sub-region would be able to meet its electric load obligation and maintain its planning reserve margin. Exchange of resources among sub-regions enables utilities to take advantage of diversity in loads and resources, increasing resource adequacy.

⁴ <https://www.wecc.org/Pages/home.aspx>

⁵ <https://www.wecc.org/ResourceAdequacy/Pages/default.aspx#WesternAssessment>

⁶ <https://www.wecc.org/Administrative/Western%20Assessment%20Northwest%20Power%20Pool-Northwest%20Report%2020210226.pdf>

⁷ Planning reserve margin is additional generation, beyond that being used to generate electricity to match load, necessary to replace generation outages.

The WARA report recommends greater coordination between sub-regions to assure that they are not relying on the same resources at the same time. The report also recommends that planning reserve margins account for the variability of different resources available at different times of the year.

California Independent System Operator (CAISO)

CAISO manages the flow of electricity for about 80% of California and a small part of Nevada. It is the largest of the 38 balancing authorities in the Western Interconnection, handling an estimated 35% of the electric load in the West.⁸ In addition to being the system operator of its balancing area, CAISO designs and operates a wholesale electricity market. Several Washington utilities routinely buy and sell bulk power from and to markets operated by CAISO.

CAISO provided an overview of the organization's forward planning for, and measurement of, resource adequacy. The presentation also described CAISO's mechanism for enforcement of resource adequacy and the provision of capacity to the CAISO system operators during real-time operations to assure system reliability. The presentation concluded with an overview of the actions CAISO is taking to prepare to meet load in the summer of 2021.

Increasingly reliant on solar generation in California, CAISO described a shift in peak demand on the electric grid, from 4 p.m. to 7 p.m. when the output from solar generation decreases as the sun goes down, but there is a continued demand for air conditioning. Focusing on the "net peak" evening hours, the CAISO Board of Governors has taken actions to assure batteries are charged and ready at the time of net peak demand and that there is backup generation to replace generation capacity that must go off-line for maintenance during those critical hours. CAISO has also enhanced its market rules governing priorities for exports and load scheduling, as well as the dispatch of demand response resources. In addition, CAISO noted that the California Public Utility Commission has taken action to effectively increase the planning reserve margin in California from 15% to 17.5%.

Northwest Power and Conservation Council (NWPPCC or Council)

NWPPCC prepares an annual resource adequacy assessment for the Pacific Northwest region, which includes all or parts of the states of Washington, Oregon, and Idaho, and Western Montana. The assessment uses a loss of load probability (LOLP) metric, measuring the likelihood of at least one shortfall occurring in a future year.⁹

NWPPCC described this assessment as an early warning on resource adequacy in the Pacific Northwest. The Council's resource adequacy modeling examines the load and generation balance five years in the future based on sited and licensed generation and certain import assumptions. The resource adequacy model uses an hourly dispatch, probabilistic analysis to

⁸ <http://www.aiso.com/about/Pages/default.aspx>

⁹ <https://www.nwcouncil.org/energy/energy-topics/resource-adequacy>

calculate the effective LOLP and planning reserve margin, first measuring the resource gap, if any, and then adding generation as necessary to reach a normative value of 5% LOLP.

The Council described recent and significant improvements in its resource adequacy study capability with the use of a new model that, among other things, incorporates the effects of climate change on temperature, which affects load and hydroelectric generation. However, it was also noted that the new model is still being tested.

The Council's preliminary resource adequacy assessment for 2023 shows a 16% LOLP and the need for approximately 1,600 MW of additional capacity to reach a 5% LOLP. However, this result reflects an assumption that fossil fuel generating facilities in the region would not be used to serve Northwest loads, due to expected low market prices for electricity. The Council's LOLP for the region in 2025 is expected to be well below the 5% threshold if existing fossil fuel generation in the Northwest is added to the region's reserves. The expected addition of generating resources in the Western Interconnection between now and 2025 also reduces LOLP by enabling additional imports of power into the Northwest.

Northwest Power Pool (NWPP)

The Northwest Power Pool is a voluntary organization composed of major generating utilities serving the western United States, British Columbia and Alberta.¹⁰ Its membership includes 11 Washington utilities and the Bonneville Power Administration (BPA).

NWPP reported on the status of an effort to design a resource adequacy program that began development in 2019. The NWPP provided information on the program's membership, objectives, design, timeline and proposed governance. NWPP expects the design phase to conclude in July 2021 upon approval by participating members.

NWPP members plan to launch the resource adequacy program as a capacity program. The program will not address energy constraints. It is envisioned as a dynamic program that can evolve over time, with the goal of creating a common resource adequacy standard across much of the Western Interconnection, as each utility and balancing authority in the region applies a different resource adequacy standard. The program is designed to improve reliability, create cost savings, improve system visibility, and create greater coordination among balancing authority areas.

The NWPP resource adequacy program will establish a uniform method for calculating capacity, allowing the pooling of generation resources. The program will be operated by a central administrator. To determine the delivery of generation capacity within two seasons — summer and winter — the resource adequacy program will use a zonal approach to model transmission constraints. The evaluation and enforcement of capacity obligations would begin seven months before the operational day, and it would continue through the operational day. Throughout this

¹⁰ <https://www.nwpp.org/about/purpose/>

period, the program administrator would calculate a certified rating of the utility's resource capacity position and the capacity contribution of each resource to enable trading of capacity.

As currently proposed, the governance of NWPP's resource adequacy program would include a participants' committee with certain control including the ability to approve or reject amendments to the program and to approve or reject program rules. The program would ultimately be governed by an independent board that would have the final decision-making authority over all aspects of the program (including overruling the participants' committee). Load serving entities will be the point of compliance with the program. Participation in the resource adequacy program is voluntary absent any contractual or other regulatory requirement for a utility to participate. The proposed governance structure includes a Regulators' Committee that, during the non-binding Stage 1 phase, would have an advisory role. The proposal provides that the ultimate role of states and provinces in the governance structure will be determined after discussions during this phase.

NorthernGrid

NorthernGrid is a transmission planning entity. Members include investor-owned and consumer-owned utilities located in California, Idaho, Montana, Oregon, Utah, Washington, and Wyoming, as well as BPA.¹¹ NorthernGrid performs transmission studies for projects that cross multiple transmission operators' footprints. For certain qualified transmission projects, it has authority subject to Federal Energy Regulatory Commission review to allocate the cost of transmission projects to utilities that would otherwise not choose to participate in the transmission project. NorthernGrid's transmission plan is not a transmission construction plan but only a planning document.

NorthernGrid presented the organization's mission, scope, structure, and planning process as well as forward looking results from the work developing the 2021 Transmission Plan. The presentation discussed several of the power flow maps that its study produces, showing the projected changes in power flows from 2020 to 2030 for selected critical hours. NorthernGrid's initial conclusions are that transmission flows in 2030 would be generally similar to 2020, but that California will supply more midday power to the Northwest, and Montana and Wyoming will supply more power to the Northwest during nighttime hours.

Pacific Northwest Utilities Conference Committee (PNUCC)

PNUCC is a membership organization of consumer-owned and investor-owned electric utilities in Washington, Oregon, Idaho, and Montana west of the Continental Divide. The organization produces an annual Northwest Regional Forecast (NRF), representing the utilities' perspective of loads, resources, and future power supply.¹²

¹¹ <https://www.northerngrid.net/northerngrid/purpose/>

¹² <https://www.pnucc.org/system-planning/northwest-regional-forecast/>

PNUCC presented the methods and results of its 2021 NRF. The NRF uses conservative planning assumptions based on the lowest 8th percentile of historical hydropower conditions. For other resources, the NRF includes owned or contracted resources with no short-term market activity and new resources that utilities have committed to acquiring, while excluding resources that are planned but not committed. Under these assumptions, the 2021 NRF study shows a projected 6,500 MW capacity gap in winter and a 5,900 MW capacity gap in summer for the operating year 2031. This represents a narrowing in the size of the resource gap between summer and winter over the last six years. However, meeting summer load may be more challenging due to the higher rate of growth of summer peaks and the summer-peaking character of the overall Western Interconnection.

Utility Panelists

Every electric utility serving end-use customers is responsible for resource adequacy. As it was impractical to hear from the more than 60 utilities serving Washington customers at the May 11 meeting, Commerce and the UTC invited the three Washington investor-owned utilities and, in consultation with the Public Generating Pool members, invited two consumer-owned utilities and the BPA. All of BPA's load-following customer utilities have contracted with BPA for resource adequacy services.

All of the utility panelists expressed support for the development of the NWPP resource adequacy program. All but Benton Public Utility District are participating in development of the program.

PacifiCorp

PacifiCorp discussed its perceived shortage of capacity and intended actions to address that shortage. PacifiCorp believes that development of a day-ahead wholesale electricity market will assist it in acquiring capacity across a multi-regional footprint, and it is hopeful that as more entities join the CAISO energy imbalance market, the likelihood of creating a day-ahead market will increase. As part of an effort to develop a clean resource portfolio, PacifiCorp's integrated resource plan calls for large additions of wind and solar generation and storage capacity. PacifiCorp also described added and planned transmission capacity to meet the utility's need for clean energy.

PacifiCorp sees transmission additions as essential to connecting wind, solar, and storage resources that are spread across the Western Interconnection to load centers.

Avista

Avista described its resource position and its concerns with resource adequacy in the Northwest. Avista is resource sufficient through 2025 with a 16% planning reserve margin. After 2025 Avista projects resource insufficiency due to several thermal plants reaching their end of life. Compared to other utilities, Avista's load is small relative to the size of its largest single generating unit, resulting in a higher planning reserve margin to be prepared for the forced

outage of that unit. Avista has concluded that, in addition to probabilistic analysis, utilities need to engage in scenario planning to operate in worst case conditions such as extreme heat or cold conditions.

Avista described the region as short of the resources needed to ensure reliable service. Avista encouraged focus on the aging natural gas plants in an era of coal divestiture. Avista also stressed the importance of planning for the risk and length of time it takes to develop transmission to deliver wind and solar to load centers.

Puget Sound Energy (PSE)

PSE's presentation expressed the importance of balancing the objectives of affordability, sustainability, and reliability while working toward compliance with CETA. PSE concluded that moving toward a clean grid requires additional attention to reliability needs. PSE's integrated resource plan removes coal from its baseload resources by 2025, adds renewables, accelerates demand response and leverages the use of distributed energy resources, mainly in the form of energy efficiency. PSE is moving to reduce its reliance on short-term market purchases and to use biodiesel to back its natural gas-fired generation facilities. Over the next 24 years PSE's IRP forecasts 3,200 MW of distributed energy resource within its system, the addition of 1,500 MW of renewables by 2031, and an incremental addition of 2,500 MW of renewables by 2045. PSE emphasizes that new dispatchable resources beyond batteries will be necessary to maintain system reliability and integrate renewables, and that new transmission will be needed to reach diverse wind resources. PSE discussed its partnership with Mitsubishi to develop renewable hydrogen as a source of fuel for thermal dispatchable plants.

Benton Public Utility District

Benton PUD presented information on its situation as a summer-peaking utility with irrigation loads. As a BPA slice customer, Benton PUD is responsible for its own resource sufficiency. Benton PUD noted that even though it is a net energy seller on an annual basis, in 90% of the summer days (June through August) it has significant summer capacity and energy deficiencies. To cover part of these deficiencies, Benton PUD currently has a 50 MW call option on the Frederickson combined cycle gas fired power plant and relies on market purchases.

In determining its ability to rely on market purchases, Benton PUD pays close attention to the NWPPCC's resource adequacy work and PNUCC's assessments. These inform a determination of whether an adequate inventory of physical resources are available in the market to help fill the utility's persistent summer resource needs and periodic winter capacity deficits. Benton PUD also emphasized that planners must understand that the retirement of coal plants without the addition of dependable and dispatchable resources is likely to cause resource capacity shortages. As evidence in support of this observation, Benton PUD cited the 2019 winter price spikes in the wholesale power markets during which coal-fired power plants were providing more than 3,000 megawatts of much-needed capacity.

In response to the chilling effect CETA has had on investments in new natural gas plants to replace retiring coal, Benton PUD issued two requests for proposals, one in October 2019 and another in September 2020, with the ultimate goal to cover capacity deficits of 150 MW in the summer and 50 MW in the winter. After receiving only four combined responses to their RFP, Benton PUD ultimately acquired resources for roughly half these amounts over a term from December 2022 through August 2025. With the capacity retirements and relatively low qualified capacity factors of wind and solar, Benton PUD anticipates there will be a need for new natural gas generation during the transition to a CETA-compliant clean energy portfolio.

Tacoma Power

Tacoma Power described the current power system as capacity short and the importance of the NWPP resource adequacy program in addressing that shortfall. To illustrate the capacity shortage, Tacoma Power pointed to California's rolling blackouts of summer 2020 and the number of other utilities that were under emergency conditions. It also warned of the possibility that the Western Interconnection will experience additional outages as additional resources are retired and that the size and duration of those outages may increase.

Tacoma Power observed that capacity resource options are limited in that they are dependent on developing technologies or are very expensive. Price signals are not present to create the incentive for the development of new capacity or assure that clean capacity resources such as hydroelectric resources are kept online. Tacoma Power believes the NWPP resource adequacy program will direct and coordinate capacity development to meet the region's needs. The program will also support needed investment in emerging technologies and storage resources, and lower costs for ratepayers while assuring reliability.

Bonneville Power Administration

BPA explained its role in resource adequacy, how the organization fulfills its resource obligations to its utility customers, and the value of the NWPP resource adequacy program. Even though BPA is not a load serving entity, BPA has obligations to meet the full power needs of its load following utilities. Those obligations are satisfied through 20-year contracts that are up for renewal in 2028. Utilities that elect slice or block contracts retain responsibility for their own resource adequacy.

BPA maintains its resource adequacy obligations using its annual white book,¹³ projecting retail loads, contract obligations, contract purchases, and resource capabilities over a 10-year study horizon. From that analysis, BPA develops its budget and conducts rate cases to set rates. In near-term operations, BPA optimizes resources by considering water conditions, weather, loads, and resource availability as well as market conditions. The long-term outlook to operational optimization is an iterative process that BPA has been practicing for decades to assure resource adequacy in the region.

¹³ <https://www.bpa.gov/p/Generation/White-Book/Pages/White-Book.aspx>

However, BPA noted a real possibility that the supply of capacity in the spot market will not be sufficient in the near future to meet the region's needs. Consequently, BPA is participating in the NWPP resource adequacy program and believes that there is much value in developing a resource adequacy program that establishes a consistent and transparent measure of whether a utility is resource adequate. BPA also noted that the program will give utilities an incentive and clear signal to be resource sufficient. BPA supports a decision by NWPP to add transmission deliverability to the analysis that will be conducted under the resource adequacy program.