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Aug. 19, 2022

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 provide the attached summary of the second annual electricity resource adequacy meeting held on June 17, 2022. We convened this meeting and submit this summary pursuant to [RCW 19.280.065](#). The meeting agenda, a recording of the meeting, and presentation materials are available on the [Department of Commerce webpage](#) and the [Utilities and Transportation Commission webpage](#).

The presentations at the June 17 meeting indicate that the Northwest has adequate resources to meet current demand for electricity and does not face a significant risk of outages in the short term, but that much work still needs to be done to bolster the electric grid over the long-term. The effort to develop the Western Resource Adequacy Program, in which most of the meeting participants are engaged, has made much progress over the last year. Utilities have yet to make binding commitments to participate, but assuming they do so, we expect the program to improve future resource planning and acquisition across the West. Our agencies continue to encourage participation in the Western Resource Adequacy program.

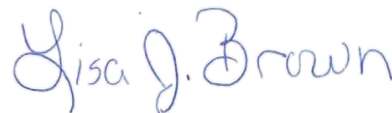
At the meeting national experts on resource adequacy metrics shared the potential insights offered by new resource adequacy metrics. Regional and utility planners continue to evaluate new resource adequacy metrics for regional planning. While current metrics provide us confidence in the resource adequacy of our state, we remain hopeful that new metrics will further strengthen resource planning.

Meeting participants were in agreement that additional regional transmission and electric generation will be needed in the coming years to maintain resource adequacy and meet the state's long-term climate objectives. They also agreed that Washington utilities must have unrestricted access to clean energy resources across the West to benefit from differences in peak loads, generation mixes, and weather patterns.

We look forward to convening the next resource adequacy meeting in 2023. 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.



Dave Danner  
Chair  
Washington Utilities and Transportation  
Commission



Lisa Brown  
Director  
Washington Department of Commerce

## Summary: Electric Power Resource Adequacy Meeting June 17, 2022

### Introduction

On June 17, 2022, the Washington Utilities and Transportation Commission (UTC) and the Washington Department of Commerce (Commerce) convened a public meeting 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 says:

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.<sup>1</sup>

The state's 100% clean electricity law, the Clean Energy Transformation Act,<sup>2</sup> includes requirements for utilities to establish specific standards for resource adequacy and incorporate those standards into their planning and compliance.<sup>3</sup> 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 over 120 attendees at the June 17, 2022 meeting.

This year, Commerce and the UTC circulated a survey in advance of the meeting to collect ideas on how resource adequacy could be improved. The survey solicited proposals to prevent severe blackouts and suggestions on potential regulatory or statutory changes and utility actions to improve resource adequacy. Several of the survey responses received prior to June 17 were discussed at the meeting. Staff left the survey open until the end of July to give participants time to consider what they heard at the

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

<sup>2</sup> [Chapter 19.405 RCW](#).

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

meeting and submit additional proposals. A summary of the proposals received is provided on the [Department of Commerce webpage](#) and [Utilities and Transportation Commission webpage](#).

The following summarizes the presentations and discussion at the June 17, 2022 meeting.

#### **Western Electricity Coordinating Council**

Western Electricity Coordinating Council (WECC) is a regional entity with authority delegated under the Federal Power Act to ensure a reliability and secure bulk power system throughout the Western Interconnection. As the only independent, interconnection-wide organization in the west, WECC creates and enforces reliability standards. WECC's resource adequacy assessment examines every hour over the next ten years using data collected from balancing authorities throughout the Western Interconnection. It identifies periods when the bulk power system may not have enough electricity to serve customers.

The most recent resource adequacy assessment conducted by WECC reveals that resource adequacy planners need to consider not only the hours of greatest demand on the electric system, but also potential fluctuations in wind and solar generation.<sup>4</sup> The assessment showed that shortfalls can be mitigated with higher planning reserve margins, which would increase the number of resources utilities would have on standby in case some generators do not produce as much electricity as expected. Increased trade between different sub regions within the Western Interconnection was also shown to significantly reduce the risk of a shortfall.

WECC staff stressed that their analysis was a region-wide assessment. Further analysis would be needed to understand operational risks to individual balancing authorities and utilities. Asked if they could conduct a Washington-specific assessment, WECC staff said they could model future scenarios for Washington.

#### **Northwest Power and Conservation Council**

Every five years, the Northwest Power and Conservation Council (NWPPCC) produces a power plan for the Pacific Northwest, which includes Washington, Oregon, Idaho, and the part of Montana west of the Rocky Mountains. Since 1999, NWPPCC has also conducted probabilistic resource adequacy assessments and published annual reports on resource adequacy. The latest assessment will be released later this year. With no new analysis since their presentation last year, NWPPCC staff summarized how they conduct their resource adequacy assessments and discussed the findings of the 2021 Northwest Power Plan Resource Needs Assessment.

The Council considers the electric power system to be adequate when the probability of not having enough resources to meet demand – what the Council calls a “loss of load probability” – is less than or equal to five percent. NWPPCC staff stressed that the loss of load probability is not the probability of a blackout because not all contingency actions can be incorporated into the Council's adequacy model.

Council staff explained that using an individual resource adequacy metric does not capture the magnitude, duration, and frequency of loss-of-load events, and that NWPPCC is considering using a combination of multiple adequacy metrics in future assessments to tell a more complete story. While calculating these additional metrics is straightforward, identifying the “right” balance between the economic costs of having enough resources to mitigate every potential shortfall and the potential risks

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<sup>4</sup> <https://www.wecc.org/Administrative/WARA%202021.pdf>

of a shortfall is a challenge. Council staff said the organization is exploring ways to improve its analytical models and evaluating which additional metrics would better assess regional risk.

Turning to the 2021 Power Plan, Council staff noted that the likelihood of potential loss of load events in the region is shifting from the winter to summer months. Warmer temperatures in the fall and winter increase the amount of available hydropower and reduce electric load used to heat homes and buildings in the winter. In contrast, warmer temperatures in the spring and summer increase demand for electricity to cool homes and buildings and decreases the water flows that power our dams. Power plan results concluded that short-term future resource needs through 2027 could be met with clean energy resources which include wind and solar, energy efficiency, and low-cost demand response.

**National Renewable Energy Laboratory (NREL)** presented high-level findings from the work of the Energy Systems Integration Group's Redefining Resource Adequacy Task Force about how resource adequacy metrics should evolve to meet the needs of a modern power system. Four key suggestions were:

1. Place a greater emphasis on normalized unserved energy metrics<sup>5</sup>
2. Report a suite of metrics, rather than a single metric
3. Study full outcome distributions and quantify tail risks, and
4. Examine the nature of individual shortfall events.

**Moment Energy Insights** presented a resource adequacy analysis of the western United States using an open-source GridPath RA Toolkit. The results illustrated the wide range of resource additions that are necessary depending on which resource adequacy standard is used, and what – potentially subjective – assumptions are made in the analysis, including assumptions about import availability from neighboring regions. In other words, different assumptions and the use of different resource adequacy standards, can lead to different conclusions about what resources (and how much) are needed.

#### **Lawrence Berkley National Laboratory**

Lawrence Berkley National Laboratory presented results from a case study on the impact of changing certain modeling assumptions on resource adequacy metrics. In the study, traditional resource adequacy outcomes and metrics were not changed significantly when errors in short-term forecasts were removed. Ignoring transmission constraints and adjusting thermal outage assumptions tended to mask some of the resource adequacy risks in traditional metrics. The study also looked at the impacts these changes to modeling assumptions had on alternative resource adequacy metrics. The results of the analysis suggest that improvements in model granularity may not be captured by traditional RA metrics. Metrics should be carefully chosen to measure different aspects of resource adequacy to produce a more holistic understanding of risk.

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<sup>5</sup> Unserved energy metrics capture frequency, duration and magnitude of loss-of-load events (as opposed to other common resource adequacy metrics which often only capture frequency or duration). Normalizing them allows unserved energy metrics to be compared across different system sizes, demand levels, analysis periods, etc.

## **Energy + Environmental Economics**

Energy + Environmental Economics (E3) presented on the role of capacity accreditation in resource adequacy planning, and suggested the use of the effective load carrying capability<sup>6</sup> (ELCC) metric for this purpose. E3 shared the importance of comparing different resources' contributions to resource adequacy in a technology agnostic way, which includes the application of capacity accreditation to all types of resources – variable/energy-limited resources and traditional thermal resources alike.

## **Western Power Pool**

The Western Power Pool (WPP), formerly the Northwest Power Pool (NWPP), provided an update on the Western Resource Adequacy Program (WRAP), which would establish a common resource adequacy standard across the region. The program will help participating utilities consistently forecast and acquire resources based on their electricity needs and available generating resources across the West. By identifying available resources, the WRAP will increase and diversify the potential resources participating utilities can use to serve their customers, and efficiently coordinate those resources when the electric power system becomes strained. This will reduce costs and improve resource adequacy across the West.

The WRAP is currently in an initial non-binding phase. This phase allows utilities to submit data and view what their resource obligations would be under the program, but it does not require utilities to make any changes to their operations. Utilities that opt into the binding phase of the program will be required to meet their resource obligations under WRAP starting in the summer of 2025, pending approval of the program by the Federal Energy Regulatory Commission (FERC).

WRAP governance continues to be reviewed and strengthened. The current proposal makes the board of WPP independent of financial interests and other biases. A proposed committee of state representatives would enable state regulators of participating utilities to have influence and oversight over the direction of WRAP. Participating utilities would have their own committee. A program review committee will engage the public and review and administer suggested changes to the program. Together these committees provide checks and balances on one another and have the potential to enhance resource adequacy governance across the West.

## **Avista**

Avista presented its resource position in the context of broader changes in markets, policy, technologies, and climate. Its current resource plans show it has enough resources to meet a planning reserve margin of 16% until 2026. Avista noted its participation in WRAP would lower the amount of resources it would need to acquire, provide greater certainty that resources would be available to serve customers, and reduce its reliance on volatile spot markets. These benefits have the potential to translate into more reliable and affordable electric services for its customers.

Avista said the retirement of fossil generation and increased building and transportation electrification will increase demand for renewable generating resources. Avista stressed that regional coordination and transmission will be required to meet its resource needs, and that transmission construction needs to begin now to meet the state's 2040 climate goals.

Bonneville Power Administration

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<sup>6</sup> Effective load carrying capability (ELCC) provides a means of translating a resource's contribution to resource adequacy in terms of equivalent "perfect" capacity

The Bonneville Power Administration (BPA) is obligated under the Pacific Northwest Electric Power Planning and Conservation Act to assure the adequate supply of power to its load following customers. 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 reported that it is actively participating in WRAP and believes the program will improve generation supply reliability and has the potential to lower costs for BPA, its customers, and the region. BPA stressed that additional transmission capacity will be needed in the future to deliver generation resources to where they are needed.

### **Snohomish Public Utility District**

Snohomish Public Utility District (PUD) reported that resource retirements, market liquidity, policy and technological change will create challenges and opportunities for resource adequacy. Snohomish PUD is excited about the next phase of WRAP and continues to participate in conversations about the 2028 BPA contract. Snohomish PUD noted that additional regional transmission capacity is needed. In the meantime, it is pursuing demand response, energy efficiency, and storage resources within its service area to improve resource adequacy and provide energy benefits to highly impacted communities and vulnerable populations.

### **Open Discussion**

This year UTC and Commerce surveyed meeting participants to gather insight into what they see as potential solutions to Washington's resource adequacy needs. Ahead of the meeting, the meeting organizers categorized these results under the five headings listed below to frame an open discussion with attendees. Below is a summary of the conversation.

### **Generating Resources**

Discussion of generating resources included opportunities for deploying newer technologies like demand response, small modular reactors and off-shore wind. There was also discussion on the challenges of siting generation far from its intended use as potential barrier to developing clean energy resources. Another topic of focus during this discussion was the need connect resources to loads, via transmission, or alternatives to transmission (e.g., liquid fuels, storage). One participant noted that the treatment of renewable energy resources as "must-run" may not capture the reliability benefits of otherwise oversized renewable energy resources.

### **Grid Enhancements**

A participant suggested emphasizing applications for long duration energy storage (e.g., hydrogen, iron air batteries) to meet resource adequacy needs. Participants also noted that Washington's abundance of hydropower tends to make some storage applications less cost-competitive than they may be in other states.

### **Demand Response and Distributed Energy Resources**

Some participants believe residential utility customers should be incentivized to use electricity when it is most available and curtail their use when electricity is scarce. They also want utilities, regulators, and lawmakers to account for resiliency benefits when considering local distributed energy resources, including electricity storage.

### **Public Policy**

One suggestion related to public policy was to amend CETA to allow utilities to use unspecified source power contracts without attesting that the source is not coal. One observation was that if a utility does not know the source of its power, it can be hard to have a good sense of whether that power will be available when you need it. It was also noted that this may present challenges for load-serving entities participating in the Western Resource Adequacy Program (WRAP) based on its requirements.

#### **Planning Methods and Data**

Discussions about planning methods and data included suggestions to use independent models in resource planning to avoid the appearance of bias, and incorporating climate change projections into integrated resource planning processes.