



Fact Sheet

JUNE 2023

BPA's Evolving Grid: Update on the State of Transmission

The Bonneville Power Administration is in an era of transformation. As the Pacific Northwest's largest high-voltage transmission provider, we are embarking on a strategy to meet customer needs driven largely by national and regional decarbonization objectives, electrification of transportation and appliances and other factors by enabling fundamental changes in power supply and demand.

These changes come as the region has begun retirement of carbon-emitting resources, primarily coal. A significant amount of the renewable resources are being proposed on the east side of BPA's service territory (Montana, Idaho, eastern Oregon and Washington) to serve growing needs in load centers on the west side, such as the Portland-metro area and the Puget Sound region. The significant changes in the type

and location of generating resources has caused an exponential increase in requests to connect new resources to the grid. In addition, customers have submitted unprecedented requests seeking to meet growing energy demand, and to deliver energy from the source to where it's needed — often across vast distances. The scale of the demand is creating challenges related to studies and other work necessary to accommodate this clean energy transition. However, BPA has implemented solutions and has a number of initiatives in flight to help meet this challenge.

BPA has a proven track record of supporting and leading the Pacific Northwest through eras of transformation. Between 2000 and 2023, BPA interconnected more than 8 gigawatts of renewable resources into the region's power grid. This included 7 gigawatts of wind and 525 megawatts of solar energy. To ensure its grid could allow the transfer of this energy, BPA completed six high-voltage projects. The graphs below show a steady increase in demand for service on the BPA transmission system.



GENERATOR INTERCONNECTION REQUESTS



Figure 1: With over 120 gigawatts of requests consistently in its queue, BPA is receiving 15 times more requests for new interconnections than the interconnections that were completed over the last 23 years.

Process improvements and proposed infrastructure solutions

Clean energy requirements will be phased in over time with the first milestone in 2030, when entities that operate in Oregon and Washington must meet the requirements listed in the timeline below. BPA and other utilities have identified projects that are either proposed or in flight, and are expected to be completed in time to meet the 2030 mandates. Over the longer horizon, BPA is implementing other new measures to move the region toward a zero-carbon power grid.

As a transmission provider, BPA must work with customers who want to site new generation projects as

well as with customers who will buy the output. The challenge is matching up the needs of the suppliers with the buyers and building the transmission to accomplish this goal. Currently, this matching process is managed separately and is not well-informed by each other. This often leaves BPA making a number of assumptions, which may not lead to identifying the most optimal transmission needs. BPA has had to rely just on requests in the queue to determine transmission needs, and to also work with the buyers to identify their needs and timing in order to enable them to meet the 80% clean energy targets. All of that said, the outlook is more positive than negative for success as BPA efforts relate to the 2030 requirements.

REGULATORY TIMELINE

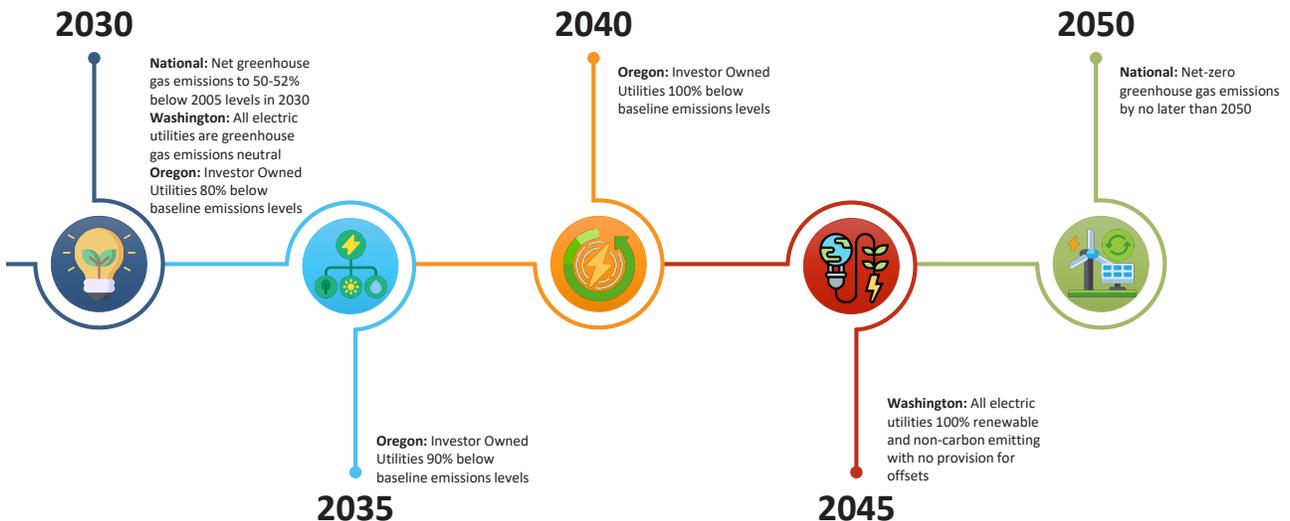


Figure 2: Oregon and Washington regional clean energy targets and policies target net-zero greenhouse gas emissions by 2050.

BPA'S TRANSMISSION QUEUES

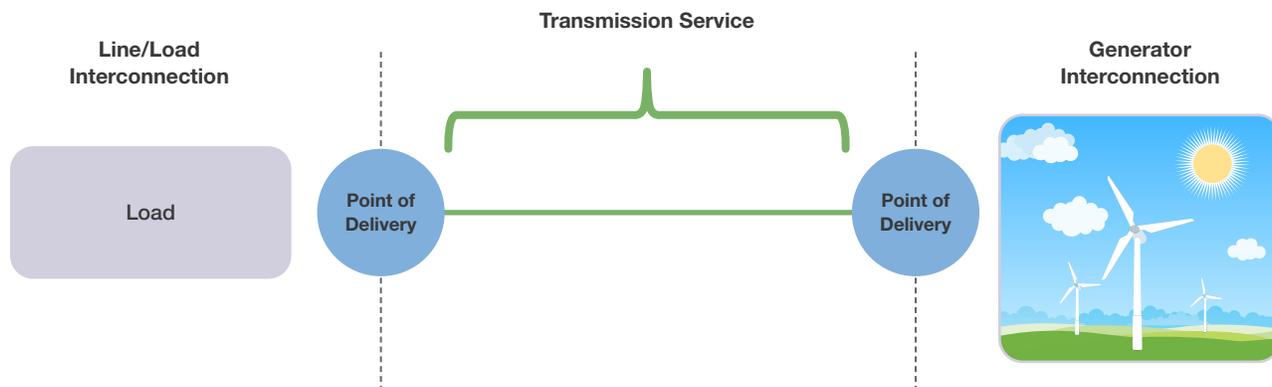


Figure 3: BPA administers the Line and Load interconnection, Transmission service and Generator Interconnection queues.

Transmission Queue Improvements

There are different types of requests for interconnection of loads and resources to the grid. BPA operates three distinct queues as part of its planning process: generator interconnections to connect new resources to the grid; line and load requests to serve new load growth; and transmission service requests to get energy from the source to where it's needed. All three of these queues are experiencing exponential growth. BPA is exploring reforms to manage the demand, which shows no signs of slowing down.

GENERATOR INTERCONNECTION QUEUE

BPA may conduct a [TC-25 Terms and Conditions Tariff Proceeding](#) to modify our Standard Large Generator Interconnection Procedures. BPA's proposed reforms will be focused on migrating from a serial first-come, first-served study process (where interconnection requests are studied individually in the order that BPA receives them) to a clustered "first-ready, first-served" process (where readiness requirements are imposed to ensure that those entities who enter the interconnection queue are commercially ready and able to advance through the study phases). BPA has held several pre-proceeding workshops to engage with stakeholders and discuss potential reforms to our Large Generator Interconnection Procedures that will provide a regional solution to address interconnection queue backlogs and improve the process overall. In preparing for these workshops, BPA considered reforms proposed by

the Federal Energy Regulatory Commission in its "Improvements to Generator Interconnection Procedures and Agreements" Notice of Proposed Rulemaking, which BPA provided comments on in October 2022. First-ready, first-served is a significant underpinning of FERC's proposed interconnection reforms. BPA also reached out to other utilities that have adopted first-ready, first-served LGIP reforms, which FERC has approved. This outreach informs BPA's understanding of how some of FERC's proposed reforms have worked in practice. BPA is also considering feedback provided by stakeholders during the pre-proceeding workshops.

LINE AND LOAD INTERCONNECTION QUEUE

BPA adopted a policy that allows it to secure outside resources to help hasten the scoping, design and construction of projects to connect loads.

TRANSMISSION SERVICE REQUESTS QUEUE

In March 2023, BPA incorporated [business practice changes](#) to process requests more efficiently. BPA continues to improve its [Transmission Service Request Study and Expansion Process](#) and related cluster study, which is how we process requests, award transmission service, and identify projects that would be needed to serve requests that can't be met with existing capacity. Process improvements include clarifying data requirements for transmission service requests, which gives BPA planning engineers the specificity needed to complete a higher quality and actionable cluster study.

CROSS-CASCADES NORTH AND SOUTH REINFORCEMENT PROJECTS

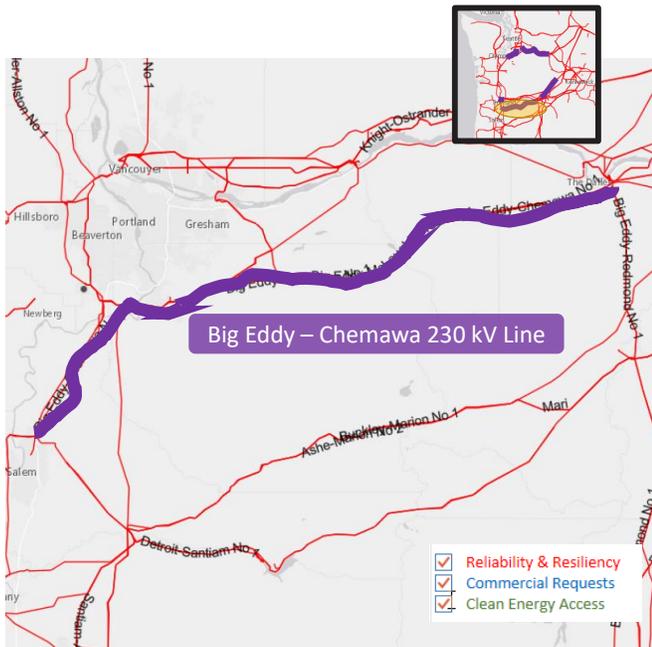
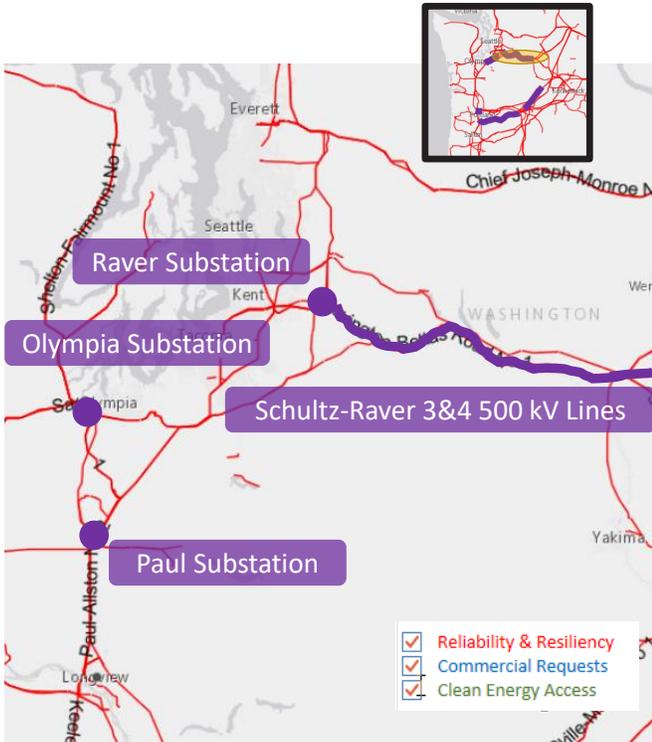


Figure 4: The Cross-Cascades North (top) and Cross-Cascades South (bottom) Reinforcements enable delivery of renewable resources to the Portland and Puget Sound region.

Transmission Build Out

BPA has identified several new transmission projects to meet our customers' reliability and commercial needs.

TRI-CITIES REINFORCEMENT

BPA is proposing several [projects](#) in the Tri-Cities, Washington area designed to increase the ability to deliver energy into the area during peak-energy demand situations. BPA expects to begin environmental review of the two largest projects in the fall of 2023.

LARGE LOAD AND GENERATION

INTERCONNECTIONS

BPA has conducted scoping and environmental review work on several large substations needed to serve areas with new large loads and renewable resources.

TRANSMISSION EXPANSION

The 2022 cluster study identified six projects that provide substantial benefits to the region in our planning scenarios. The Cross-Cascades North Reinforcement and Cross-Cascades South Reinforcement are the two largest projects among them, and BPA is currently conducting preliminary engineering on these two projects. Once that process is complete, each project will transition into environmental review. While these processes take time, BPA believes it can complete the work necessary to reinforce the grid and allow utilities to meet their clean energy requirements.

EVOLVING MARKETS

BPA is exploring participation in a day-ahead market as an additional tool to optimize the use of our transmission system. We are participating in the development of two market options — the Southwest Power Pool's Markets+ initiative and California Independent System Operator's Extended Day Ahead Market. In supporting the development of these markets, our goal is to ensure there are two viable options that work with our statutory obligations and support our customers' needs and interests.

TRANSMISSION BUSINESS MODEL

BPA's Transmission team is updating the TBM in alignment with the new agency strategy, to be released this summer. Transmission expects to release the updated [TBM](#) in the coming months.

For more information, visit the [Evolving Grid section](#) of BPA's website.