

# FAST FACTS on Tri-Cities Clean Energy Needs:

- Washington state is currently the number one producer of clean, renewable hydroelectricity in the United States with hydro power typically accounting for more than two-thirds of Washington's electricity generation each year.
- Washington state wind energy production is typically in the top dozen states and as recently as 2018, Washington led the nation in utility-scale electricity generation from renewable resources with almost three fourths of consumed electricity coming from renewables.
- Hydroelectricity is the primary reason carbon dioxide (CO<sub>2</sub>) emissions attributable to Washington state electric utilities are some of the lowest in the nation and the reason why the four consumer-owned utilities serving the Tri-Cities area currently have power supply portfolios that are more than 90% clean and carbon free (non-emitting).
- Tri-Cities utilities (Benton PUD, Benton REA, Franklin PUD and Richland Energy Services) are all "preference customers" of the Bonneville Power Administration (BPA) which gives them contractual rights to abundant, clean and affordable hydro and nuclear energy from the BPA portfolio. The combined annual energy consumption of the Tri-Cities utilities is 511 average megawatts (aMW) which is mostly provided through 460 aMW of "firm" (guaranteed) contractual rights to BPA power.
- Tri-Cities utilities' incremental needs for electricity above what BPA contracts provide is being met by surplus BPA hydro that occurs in normal water years, other contracts the utilities have in place and wholesale electricity market purchases in the case of Benton and Franklin PUDs. Based on current electricity demand forecasts, Tri-Cities utilities are not yet expressing a need for additional long-term clean energy additions to their portfolios.
- Benton and Franklin PUD's current contracts with BPA allow them to re-sell surplus energy received from BPA when supply exceeds what is required to serve customer loads but in return they must accept and independently manage the risk that their demand for electricity may be higher than what BPA can provide. Any forecasted capacity deficits require Benton and Franklin PUDs to make shorter-term purchases from wholesale electricity markets in order to augment their long-term power supply contracts.
- Benton and Franklin PUD's wholesale electricity purchases are typically made in monthly, weekly, day-ahead and hourly markets from generation resources that can be counted on to run on the days and hours needed (dispatchable). These dispatchable generation resources provide needed capacity to cover energy supply deficits that occur on the hottest and coldest days of the year.
- Since uncertain weather conditions determine wind power electricity production levels, wind power it is not a dependable and dispatchable generation resource and therefore it will not help Benton or

Franklin PUDs resolve their seasonal capacity deficit problems. Particularly during the most acute deficits which occur in summer months with potentially no or low-level winds.

- Beyond hydro and non-emitting nuclear power produced by the Columbia Generating Station in Richland, natural gas and coal-fired power plants have historically provided around 8% each of the remaining annual Washington State electricity supply.
- Based on U.S. Energy Information Administration (EIA) data, depending on how much water is available from year-to-year for hydroelectricity production, CO2 emissions attributable to Washington State electric utilities have been about 11 million metric tons (MMT) per year on average. This is low compared to the average of 41 MMT for all 50 states and 88 MMT for the top ten emitters, not including Texas which leads the pack at 223 MMT per year.
- According to the EIA, national electricity sector CO2 emissions peaked at 2,414 MMT in 2007 and have declined since then to a level of 1,619 MMT in 2019. During this period of declining CO2 emissions, electricity produced by natural gas power plants which emits CO2 at a rate of 37% of some coal plants, replaced coal as the largest source of electrical energy in the United States.
- Due to legislative action through the Clean Energy Transformation Act (CETA), Washington State electric utilities are required to remove coal-based electricity from their power supply by 2025 on the way to a goal of 100% clean electricity by 2045. Coal power has recently accounted for about 6 MMT of Washington state's annual emissions from electricity production.
- The owners and predominant users of electricity produced by coal in Washington state are investor-owned utilities (IOUs) including Puget Sound Energy (Bellevue), Avista (Spokane) and PacifiCorp (Portland, OR). Two other significant northwest IOU's with coal-fired electricity generation assets are Portland General Electric (Portland, OR) and Idaho Power (Boise, ID).
- Currently, the dominant interest in wind power development is with IOUs who are looking to replace the coal-fired electricity they have historically delivered to their customers in Washington State and their need to comply with CETA requirements.
- Other potential purchasers of wind energy include corporations who have set goals for clean energy use and have sustainability as part of their marketing and branding strategies.

# FAST FACTS on Tri-Cities Need for New Electricity Generating Capacity:

- Currently over 3,000 megawatts of coal-fired power is scheduled to be shut down in the northwest by 2025 and in total, over 4,000 megawatts (or more) is expected to be shut down by 2030. This has resulted in an increasing risk of blackouts which by one estimate could grow to a 26% chance by 2026 compared to the 5% probability that is considered acceptable.
- Electricity is simultaneously generated, transmitted and consumed which requires advanced planning and closely coordinated moment-to-moment power grid operations to make sure an adequate number of power plants, in the right locations, with a predictable amount of electricity production are available to meet demand. Failure to achieve the precise balance of supply and demand can result in power grid blackouts.
- Historically, while hydroelectricity has dominated annual electrical energy supplies in the Pacific Northwest, just over 50% of the dependable incremental electrical capacity needed to keep the lights on during the coldest and hottest days of the year has been provided by coal and natural gas.
- Due to anti fossil-fuel sentiment reflected in Washington, Oregon and California state energy policies; some corporations; and in public opinions, utilities are reluctant (and even unable) to replace coal with natural gas power plants even though they produce carbon dioxide at a rate that is more than 60% lower than some coal plants and are a logical replacement for the loss of dependable and dispatchable capacity that will occur when coal plants are shut down.
- One measure utilities use to assess and compare the capacity contributions of various generation technologies is “Effective Load Carrying Capability” (ELCC). This is expressed as a percentage of the installed nameplate capacity (maximum output) of the aggregation of particular generation technologies installed across a large geographical area; i.e. all of the hydro, natural gas, coal and wind power connected to a regional power grid like exists in the Pacific Northwest.
- A study completed by a group of northwest utilities in 2019 (including Benton PUD) assigned an ELCC of 7% to the more than 7,000 megawatts of nameplate wind capacity installed across the greater Pacific Northwest; i.e. about 500 megawatts of wind capacity can be counted on to show up during critical peak loading periods typically associated with winter weather extremes. This study also concluded that increasing the Pacific Northwest’s inventory of wind power from the 2018 level of 7,000 megawatts to a level of 38,000 megawatts by 2050 would increase the effective capacity contribution from wind to 19% and that the installed wind farms would cover an area as much as 37 times the combined areas of Seattle and Portland.
- Large “grid-scale” batteries have been proposed as a way to deal with the variability and intermittency of wind and solar power. And while a few utilities are moving ahead with small investments in batteries, the scale that would be needed to bridge the capacity deficit emerging in

the Pacific Northwest would be massive and costly. Additionally, current battery technology typically can only deliver energy for four hours and a battery can only deliver energy after being charged by some other means. So, if wind is the source of battery charging and a multi-day, cold or hot spell occurs with no or low-level winds, a battery in the worst case simply becomes another electrical load creating more demand for electricity supplied from other sources.

## Additional RESOURCES:

[Scout Clean Energy Wind Farm Project in Benton County \(horseheavenwindfarm.com\)](http://horseheavenwindfarm.com)

[Horse Heaven Wind Project | EFSEC - The State of Washington Energy Facility Site Evaluation Council](#)

[Save Our Ridges | Help Us Preserve the Panoramic Views in the Columbia Basin- Version 2 \(save-our-ridges.org\)](http://save-our-ridges.org)

[Wind Power and Clean Energy Policy Perspectives – Benton PUD](#)