



Puget Sound Energy
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PSE.com

April 22, 2022

Filed via Web Portal

Amanda Maxwell
Executive Director and Secretary
Washington Utilities and Transportation Commission
621 Woodland Square Loop SE
Lacey, WA 98503

Re: Docket UE-210183: Comments of Puget Sound Energy

Dear Ms. Maxwell:

Puget Sound Energy (PSE) respectfully submits these comments in response to the Washington Utilities and Transportation Commission's (Commission) March 23, 2022 Notice of Opportunity to File Written Comments (Notice) in the above-captioned docket. The Notice solicits comments on the frequency, magnitude, economic significance, and contribution to reliability of market-driven dispatch - and specifically, hydroelectric generation storage and dispatch - to PSE and Washington state's load service. PSE appreciates this opportunity to comment on this matter that is core to achieving the clean energy objectives of the Clean Energy Transformation Act (CETA).

Response to Notice Question

- 1. Washington state utilities with hydroelectricity generation will, to the extent the hydroelectric generation resource has the pondage or coordinated dispatch with other hydroelectric generation facilities, purchase off system power during lower load or lower price time periods to meet their load obligations and in turn use the reserved water in hydroelectric generation facilities to facilitate peak hour or peak price off system power sales, including, at times, electricity from their own hydroelectric generation facilities. The Commission requests commenters explain the frequency, magnitude, economic significance, and contribution to reliability of this market driven dispatch to the utility and Washington state's load service.**

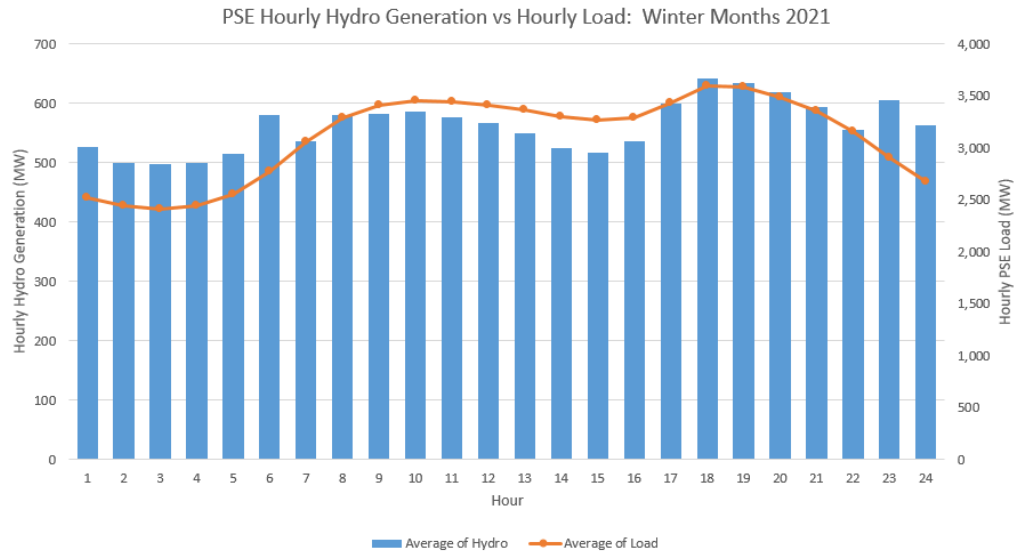
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PSE's hydroelectric resources are critical to its operations and ability to meet the goals of CETA. Utilities are constantly optimizing a portfolio of generation to ensure reliability and maintain lowest reasonable cost for customers across the entire system. Market interactions are a key tool in the system reliability toolbox. In creating multiyear compliance periods for CETA clean energy standard compliance, legislators recognized the interactive nature of system balancing and coordination that is necessary for reliability and managing costs. While this question focuses on hydroelectric generation, PSE observes that market interactions, beyond those attributable to hydropower generation are critical to cost-effective, reliable electric service to PSE's customers.

PSE primarily uses its hydroelectric resources and its share of the coordinated Mid-Columbia (Mid-C) hydroelectric system to serve its own load in a cost-effective manner. It may sell small amounts of system surplus into the market in certain hours, but does not seek to sell its hydroelectric generation on any significant basis. The flexibility from these resources allow PSE to distribute demand and supply over a wider operational window, therefore reducing customers' exposures to price and reliability events. Nevertheless, it is important to remember utilities are constantly optimizing a portfolio of generation, energy efficiency, and demand-side resources to meet fluctuating demand – and analyzing the operations of one resource type alone cannot represent all the variables of day-to-day operations.

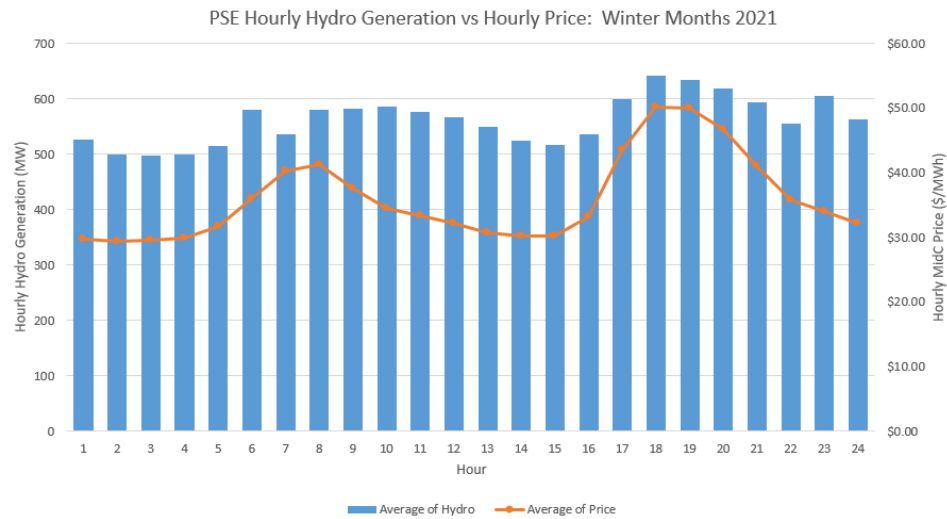
With regard to frequency, in addition to operating within its licensing, environmental, and recreational constraints, PSE manages its water usage and its pondage shares of Mid-C resources on an intra-day basis to remain within its allocation – not exceed or fall short of its required usage. The company has a modest amount of storage capability at its Lower Baker hydro facility that it can move between days, but is constrained to a dispatch flexibility window of no more than a few days. At times, PSE holds back water in lower-priced hours, and displaces that foregone hydro generation with low-cost market purchases to serve its load. It can then generate from that stored capacity in higher-priced peak hours, and avoid high-cost market purchases that would be needed to serve load.

The following figure demonstrates how PSE shaped its hydro generation to meet its hourly load during Winter 2021.



With regard to magnitude, in most cases, PSE can achieve between five to ten hours of intra-day flexibility with its hydro portfolio, and at times, may have a few days of flexibility. But its flexibility can be constrained during Fall when projects must be lowered in preparation for flood control, during summer when water levels must be maintained for recreational considerations, or during spring when excess water must be managed to avoid spillage and operate for environmental parameters.

PSE offers a highly simplified analysis of the economic significance of its hydro resources in which it has overlaid aggregated hourly Mid-C prices, and hourly hydro generation. Since 2020, the region has seen an increased frequency of weather and outage events that have led to very high market prices, and in some cases, at or above \$1,000/MWh. This analysis shows in Winter 2021 the company was able to use hydro in higher priced hours to minimize market purchases during higher-priced hours. This is a very basic chart and does not take into account other benefits such as reliability, renewable integration, emissions reductions, etc.



To demonstrate how its hydro dispatch capabilities contribute to reliability, PSE offers the examples of an August 2020 Level 1 Energy Emergency and a June 2021 hot weather event. On August 17, 2020, PSE notified its reliability coordinator (RC West) that it was facing potential supply shortages for hours 15:00 through 18:00. Higher than forecast temperatures, lack of supply in the regional market, and a forced outage at a PSE facility led to the shortage. Energy Emergency Alerts were declared for other utilities, as well. PSE ultimately procured sufficient supply and met its firm load and reserve obligations in all hours, aided by the ability to utilize more than 800 MW of hydro generation to its most constrained hours. Similarly, in the June 2021 heat event, PSE was able to leverage hydro flexibility to meet its obligations. Hydro units were running at 86 percent capacity factors, vs. 15-29 percent factors for wind. PSE was able to run combined-cycle and peaking units in some hours in which the market heat rates supported their dispatch, but PSE was able to move water to ramp hours when peaking generation was not economic. It was also able to use hydro to backfill for low wind output on those days.

The regional electricity market does a reasonable job at sending price signals when the region is surplus and constrained. One of the benefits of hydro is to quickly and optimally respond to those signals by shifting generation from periods of surplus to periods of scarcity (a few hours or a few days). Distorting those signals could have both reliability and cost impacts that are not easy to predict at this time.

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Please contact Wendy Gerlitz at (425) 462-3051 for additional information about this filing. If you have any other questions, please contact me at (425) 456-2142.

Sincerely,

/s/ Jon Piliaris

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