

**EXH. PKW-8C
DOCKET UE-20____
2020 PSE PCORC
WITNESS: PAUL K. WETHERBEE**

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

Docket UE-20____

**SEVENTH EXHIBIT (CONFIDENTIAL) TO THE
PREFILED DIRECT TESTIMONY OF**

PAUL K. WETHERBEE

ON BEHALF OF PUGET SOUND ENERGY

**REDACTED
VERSION**

DECEMBER 9, 2020



To: Paul Wetherbee
From: Colin Crowley, Tom Flynn, Cindy Song
CC: Shauna Tran, Janet Phelps
Date: May 21, 2019
Re: Talen Energy BPA Transmission RFP

Talen Energy issued a Request for Proposal (RFP) on April 23, 2019. Bids are due on May 22, 2019, at 10 a.m. MDT. The RFP is for two 50 MW Bonneville Power Administration (BPA) long-term point-to-point (PTP) transmission contracts, with rights from the period January 1, 2020 through June 30, 2025. At the May 16th EMC meeting, PSE staff reviewed the potential uses of the transmission, benefits and risks, the current and future trends in regional transmission, and potential approaches to establish a bid premium. Following the EMC presentation, the team completed further analysis to establish a bid premium and recommended to the EMC that PSE submit a \$ [REDACTED] bid to Talen for one of the 50 MW contracts. The EMC approved the recommendation on May 21st via email. This document describes the methodology, assumptions, and results of the final analysis for submitting the \$ [REDACTED] bid.

BPA Long-Term PTP Transmission Contracts

The Point of Receipt (POR) for the two contracts is Garrison 230kV. One contract has a Point of Delivery (POD) to PSE's system and the second contract is to a POD at Mid-C. The team is recommending that a bid be submitted for the 50 MW contract with delivery to PSE's system, but not for the 50 MW contract with delivery to Mid-C.ⁱ The successful bidder is reassigned the full contractual rights including rollover rights, and would be obligated to pay BPA directly for the transmission service.

Future Transmission System Constraints

The Integrated Resource Planning (IRP) team has estimated that the Washington State Clean Energy Standard will require PSE to acquire approximately 5,000 MW of new renewable resources by 2035. PSE has about 2,000 MW of BPA transmission, currently from Mid-C, Colstrip, Goldendale and Mint Farm, which could be repurposed to provide delivery from those new projects. **This leaves PSE 3,000 MW short of the amount of transmission needed to meet the Clean Energy Standard.** The addition of any BPA transmission to PSE's portfolio will be a critical and urgent need over the next 15 years.

In addition, the BPA transmission grid has areas of severe constraints especially across the Cascades and North/South along the I-5 corridor. The North Cascades North Flowgate has 850 MW of unmet

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transmission requests in the queue by 2028 (see Table 1 below). BPA and other regional transmission providers are not adding significant new capacity to the regional transmission grid.

Table 1: North Cascades North Flowgate Available Transmission Capacity

	2020	2021	2022	2023	2024	2025	2026	2027	2028
Remaining ATC (MW)	758	732	705	648	474	417	359	301	242
Less Pending Queued Requests (MW)	379	13	(502)	(553)	(832)	(888)	(746)	(803)	(856)

The Clean Energy Standard establishes a high priority on obtaining new transmission service to meet delivery of renewable resources to PSE’s system. As a result, it is recommended that PSE submit a bid on this RFP, especially considering the value of future Montana wind projects in PSE’s energy portfolio discussed below and the scarcity of future cross-Cascades transmission.

Alternative Uses of Transmission

This transmission has three main alternative uses including 1) transmission for a future Montana wind resource, 2) a seasonal energy contract or multi-year PPA with a POR at Garrison, or 3) for transmission redirects to other BPA paths for use in the Energy Imbalance Market (EIM) or other new renewable resources.

Future Montana Wind Project

Ongoing IRP analysis indicates that the Montana wind projects are of potential high value to the future PSE renewable portfolio with their high capacity factors and diversity from Washington wind resources. Preliminary results of the 2018 All Source Request for Proposals support this assessment. The recent passage of the Washington State Clean Energy Standard will require PSE to acquire nearly 5,000 MW of new renewables by 2035, which will likely include Montana wind resources. This 50 MW BPA contract would add to the amount of Montana wind PSE could deliver to our system in the future.

Seasonal or Multi-Year Power Purchase Agreement

In an interim period, the front office could contract with a third party for a seasonal or multi-year power purchase agreement (PPA) with delivery at Garrison. A 50 MW energy contract could be used to meet resource sufficiency for winter peak months.

Transmission System Redirects

This 50 MW transmission could also be used for a variety of redirects to other parts of BPA’s transmission system. It could be redirected for use in the CAISO EIM, to Mid-C for winter peak capacity, or used for renewable resource interconnecting to a different location in BPA’s system.

Risks

Each of these alternatives carries some amount of risk. While there is currently available transmission capacity on other wheels to deliver an additional 50 MW from a Montana wind project, future capacity may be limited if other parties secure this available transmission before PSE submits a transmission service request. For a seasonal PPA, there may not be a third party willing to sell energy at Garrison.

Successful redirects to other parts of BPA's system are not guaranteed and vary according to a number of factors out of PSE's control.

Pricing Strategy

The cost of the BPA transmission with assumed future rate increases to current rates is \$5.5 million over five years and would be charged against power costs.

The bid amount to Talen is a one-time payment to secure the transmission rights. This payment is expected to be amortized over five years according to guidance from PricewaterhouseCoopers and recovered in a future rate case.

To establish a price range for the bid, the team considered alternatives and identified opportunity costs associated with the alternatives.

Alternative 1 – purchase 50 MW transmission directly from BPA

If PSE submitted a 50 MW request for transmission to BPA on the Garrison – PSE path today, the required upgrades to provide service would be the Montana to Washington (M2W) project, which BPA estimates will cost \$140 million, and Garrison to Ashe (GASH) project, which BPA estimates will cost \$1.06 billion. These project upgrade costs total \$1.2 billion. The M2W project is scheduled for 2023 completion and the GASH project is currently scheduled to be completed in 2029.

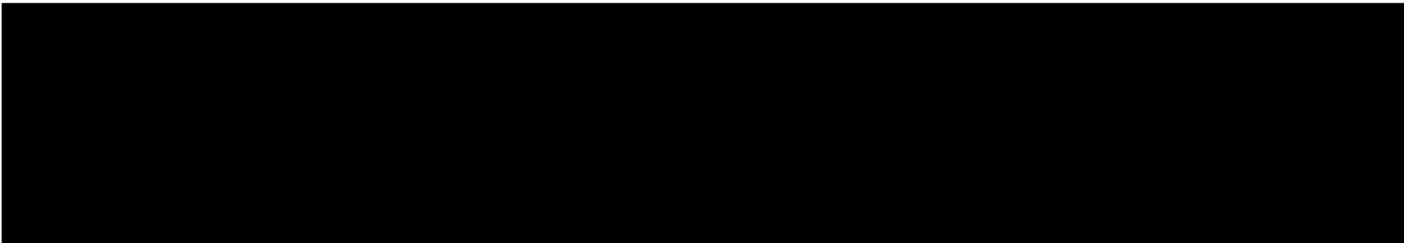
Based on total demand in the queue for service from Garrison (965 MW), PSE's share in the upgrades would be 5.2 percent, or \$62 million. This assumes that all customers would agree to participate in the upgrades.

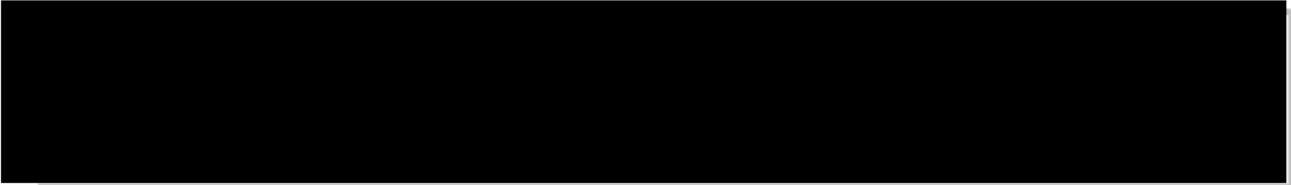
BPA funds the projects and its current policy is to require transmission customers to post collateral for their share of the project upgrade costs. PSE would be required to post the collateral at the end of the project (2029) for the duration of the transmission service agreement, which is typically 5 years. The collateral could be posted in the form of a letter of credit. The amount of security held by the transmission customer is reduced over the period of their service agreement.

Alternative 1 Results

The estimated interest cost, assuming that a letter of credit is required to be in place starting in 2029 for 5 years and the balance goes down by 20% each year, is presented in Table 2.

Table 2: Estimated Interest Cost for Additional BPA Transmission





Across the 5 years, the company would pay total interest on the letter of credit of \$ [REDACTED] or \$ [REDACTED] on an NPV basis.

Alternative 2 – use resources in Washington State to meet the need

The team performed a cost and benefit analysis between Montana wind and Washington wind resources. The cost assumptions used for the wind resources are from a draft of the 2019 IRP. The team utilized the Portfolio Screening Model (PSM) to perform the analysis. PSM is an Excel based capacity expansion model that the company uses to evaluate incremental costs and risks of wide variety of resource alternatives and portfolio strategies. It has also been used by the IRP team for resource analysis.

Alternative 2 Results

Energy Need

IRP analysis indicates that Montana wind resources have a capacity factor of 42% and Washington wind resources have a capacity factor of 37%. A 50 MW Montana wind resource would produce an output of 185,972 MWh. To get to the same level of output, a Washington wind resource will need to be 57 MW. However, the benefit of Montana wind’s higher capacity factor as compared to Washington is offset by higher transmission costs to deliver the energy to PSE’s system. There is minimal difference in the net costs between Washington and Montana wind.

Capacity Need

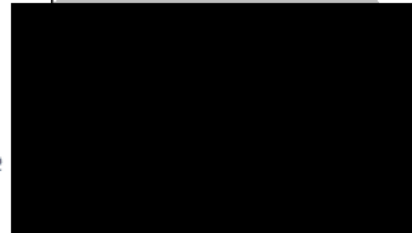
Montana wind resources have a much higher peak capacity credit than Washington wind sources, 45% versus 6%. The peak capacity credit or the effective load carrying capability indicates the coincident peak to meet peak load. A 50 MW Montana Wind resource would provide 21 MW of peak capacity. To provide the same level of capacity benefit, an additional peak capacity resource would be required to supplement Washington wind. The team assumed that a [REDACTED]. The estimated cost, based on the IRP analysis, of [REDACTED]. In conclusion, the benefit of Montana wind compared to Washington Wind is [REDACTED] as indicated in Table 3 below.

Table 3: Cost Comparison of Montana Wind and Washington Wind

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	MT Wind	WA Wind
MW	50	57
Capacity factor	42.46%	37.28%
Output MWh	185,972	185,972
Peak Capacity Credit %	45%	6%
Peak Capacity Credit	21	4

Net Cost (\$ in Millions)
 Additional Capacity Resource
 Purchase Price
 Carrying cost of transmission until resource is online
 Total



Details and Discussion

Pricing Strategy

The alternatives analysis above established a price range approximately between \$ [REDACTED] based on the interest cost related to acquiring new BPA transmission, and \$ [REDACTED] based on the cost difference between Washington and Montana wind of equivalent capacity and energy. The team recommends considering the lower range for establishing the bid amount. If PSE were unsuccessful in the bid, it could submit a request to BPA’s queue. However, the result would be a delay in having transmission granted in 2029 at the earliest, and possibly additional costs. In addition, PSE would not have the short-term use of the transmission for an earlier build of Montana wind, seasonal PPA, or for redirects, all of which provide potential value to PSE’s energy portfolio.

The team recommends adding a small premium to the \$ [REDACTED] at the lowest end of the price range. If other bidders are considering similar bids, it could separate us from that lowest range.

Conclusion

The team recommended submitting a bid for \$ [REDACTED]

ⁱ If PSE used the 50 MW contract to Mid-C for a Montana wind project, we would also need 50 MW of Mid-C to PSE system transmission to deliver to PSE’s load. This would effectively reduce PSE’s current winter peak capacity (peak capacity credit of Montana wind is only 45% - see Table 3).

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