EXH. PKW-1CT
DOCKET UE-21____
2020 PCA COMPLIANCE FILING
WITNESS: PAUL K. WETHERBEE

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Petition of **PUGET SOUND ENERGY** **For Approval of its 2020 Power Cost Adjustment Mechanism Report**	**DOCKET UE-21____**

PREFILED DIRECT TESTIMONY (CONFIDENTIAL) OF

PAUL K. WETHERBEE

ON BEHALF OF PUGET SOUND ENERGY

REDACTED VERSION

APRIL 30, 2021

PUGET SOUND ENERGY

PREFILED DIRECT TESTIMONY (CONFIDENTIAL) OF PAUL K. WETHERBEE

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PUGET SOUND ENERGY

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I. INTRODUCTION

Q. Please state your name, business address, and position with Puget Sound Energy.

A. My name is Paul K. Wetherbee. My business address is 2380 116th Ave NE, Bellevue, Washington, 98004. I am the Director, Energy Supply Merchant for Puget Sound Energy ("PSE").

Q. Have you prepared an exhibit describing your education, relevant employment experience, and other professional qualifications?

A. Yes, I have. It is Exhibit PKW-2.

Q. What are your duties as Director, Energy Supply Merchant?

A. I am responsible for oversight of all Front Office activities including power and gas trading, the hedging program, and the dispatch of PSE's generating assets and related transmission.

Q. Please summarize the contents of your testimony.

A. First, I provide background information regarding the Power Cost Adjustment ("PCA") mechanism. I then describe PSE's management of power costs during the period that began on January 1, 2020 and ended on December 31, 2020.

Finally, I compare PSE's actual allowable variable power costs for the 2020 PCA Period to the baseline variable power costs included in rates during the 2020 PCA Period. The baseline power cost rate established in PSE's 2017 general rate case ("2017 GRC"), which accounts for the transition of Microsoft to retail wheeling service and was approved in Docket UE-190223, went into effect May 1, 2019 and remained the effective rate through October 14, 2020. The baseline power cost rate approved in PSE's 2019 general rate case, Docket UE-190529 ("2019 GRC"), went into effect October 15, 2020 and remained the effective rate for the remainder of the 2020 PCA Period. The Prefiled Direct Testimony of Susan E. Free, Exh. SEF-1T, contains further information regarding the baseline rate for the 2020 PCA Period.

II. BACKGROUND REGARDING THE PCA MECHANISM

Q. Why does PSE have a PCA mechanism?

A. Volatility in wholesale energy markets coupled with variations in power supply and load volumes can lead to significant differences between the actual cost of PSE's power supply portfolio and the costs currently included in customer rates. The PCA mechanism seeks to balance the risk of such power cost differences between customers and PSE by providing a method to share costs and benefits if power costs deviate significantly from those embedded in rates.

The PCA mechanism originally took effect on July 1, 2002 following a settlement agreement that originated in PSE's 2001 general rate case. As part of PSE's 2013 power cost only rate case, Docket UE-130617, PSE and parties to that proceeding

initiated a collaborative process to address issues relevant to the PCA mechanism. That process resulted in a multiparty settlement that changed certain elements of the PCA. The multiparty settlement was approved by the Commission and changes became effective on January 1, 2017.

Q. How does the PCA mechanism work?

A. The PCA mechanism accounts for differences in PSE's actual power costs relative to the power cost baseline recovered in rates. The costs or benefits of such variances are shared between PSE and customers according to three graduated levels of power cost variance, or bands. The dead band includes the first $17 million of power cost variance (positive or negative). Within the dead band, 100 percent of costs or benefits are retained by PSE. The first sharing band includes power cost variances between $17 and $40 million (positive or negative). Within this band, costs (under-recovered) are shared 50 percent to PSE and 50 percent to customers while benefits (over-recovered) are shared 35 percent to PSE and 65 percent to customers. The second sharing band includes power cost variances over $40 million (positive or negative). All variances in this band are shared 10 percent to PSE and 90 percent to customers, regardless of whether they are costs or benefits.

The customers' share of power cost variances is accounted for each year and deferred until the cumulative balance in the deferral account triggers a refund or allows a surcharge. The Prefiled Direct Testimony of Susan E. Free, Exh. SEF-1T, contains further information regarding accounting for the cumulative balance.

III. 2020 PCA PERIOD POWER COSTS

A. PSE's Management of its Power Portfolio and Fuel Supply for the 2020 PCA Period

Q. What governance does PSE have over wholesale market transactions and power cost management activities?

A. PSE's Energy Supply Merchant ("ESM") department is composed of energy market analysts, energy traders, and other professionals. The ESM department develops and implements portfolio management strategies and transacts in wholesale markets for power and gas. The ESM department was under my direction for all of the 2020 PCA Period.

PSE's Energy Risk Control ("ERC") department is responsible for independently monitoring, measuring, quantifying, and reporting official risk positions and performing credit analysis. The ERC department is directed by the Director of Enterprise Risk Management.

PSE's Energy Management Committee ("EMC") is composed of five PSE officers and oversees the activities performed by both the ESM and ERC departments. The EMC is responsible for providing oversight and direction on all portfolio risk issues in addition to approving long-term resource contracts and acquisitions. The EMC provides policy-level and strategic direction on a regular basis, reviews position reports, sets risk exposure limits, reviews proposed risk management strategies, and approves policy, procedures, and strategies for implementation by PSE staff. PSE's Procedures Manual and Energy Risk Policy lay out the policies that govern energy portfolio management activities and define

roles and responsibilities of various departments. In addition, PSE's Board of Directors provides executive oversight of these areas through the Audit Committee.

Q. What actions does ESM take to manage its power costs within its governance structure?

A. PSE's ESM uses a combination of least cost dispatch, optimization, and portfolio hedging to manage power costs.

Q. Please explain least cost dispatch.

A. The ESM department plans for sufficient generation capacity to meet the forecasted day-ahead demand for electricity plus a reserve margin. PSE uses a least-cost dispatch approach for all resources, considering transmission and generation constraints. This strategy minimizes portfolio costs by seeking the most economic supply, whether generated or purchased in the wholesale market.

Q. Please explain optimization.

A. Given PSE's resource adequacy planning standard to meet peak loads, there is often excess capacity. To optimize the portfolio, ESM staff maximizes asset value by selling excess transmission, generation, and natural gas pipeline capacity (not utilized for load) into the regional markets. Portfolio optimization activities align with PSE's Energy Risk Policy and Procedures Manual.

Q. What are the current hedging strategies approved by the EMC?

A. The purpose of hedging is to reduce the effects of price volatility in power costs prior to delivery. PSE's hedging program is managed in accordance with the EMC-approved Procedures Manual. The Procedures Manual provides guidance and risk management strategies for hedging exposure in two different time periods, 1) the Programmatically Managed Hedge period and 2) the Actively Managed Hedge period. The Programmatically Managed Hedge period begins [redacted] in advance of delivery. The ESM department uses the Programmatically Managed Hedge program to systematically reduce PSE's net power portfolio exposure (including to natural gas for power generation) so that, as a month rolls into the Actively Managed Hedge period, the exposure for that month will be within the monthly EMC-approved exposure limit.

The Actively-Managed Hedge program begins [redacted] in advance of delivery. During this period, ESM staff monitors positions on a daily basis, and authorized traders execute transactions to manage exposure within monthly and [redacted] authority limits established by the EMC.

Q. How is electric portfolio exposure measured?

A. Exposure is calculated individually for on-peak, off-peak, and gas for power positions. EMC-approved exposure limits apply to the net spot exposure of all three positions. Spot market exposure is measured by multiplying the net open position, in megawatt hours ("MWh") or million British Thermal Units ("MMBtu"), by the power or gas market price, respectively. It represents the net

dollar amount that PSE has not hedged during a specific period, given forecasted load and generation volumes, hedged volumes, and simulated market prices. PSE performs this calculation using 250 simulations of forward power and gas prices to generate a probabilistic measurement of portfolio exposure.

Q. How does PSE use the electric portfolio exposure limits to help make hedging decisions?

A. Once PSE's aggregated energy position and net exposure are defined for a particular period, the ESM department executes transactions for the purchase or sale of gas or power to stay within EMC-determined exposure limits. Execution entails entering into specific transactions with approved counterparties under approved master agreements subject to credit limits.

Q. Does the ESM department rely only on net exposure to implement the hedge programs?

A. No. The ESM department also analyzes market prices and fundamentals that impact the wholesale electric and gas markets. The ESM department also determines when and with whom to execute transactions to manage net exposure.

Q. What information does the ESM department rely on to inform portfolio management decisions?

A. In addition to the net energy position and power portfolio exposure, the ESM department utilizes a wide set of tools and sources of information to make informed decisions about dispatching plants, purchasing fuel, and executing

hedges within EMC-approved limits. The ESM department collects and analyzes regional supply and demand data such as weather trends and hydro generation conditions. Additionally, ESM reviews forecasted wholesale market prices and industry publications. ESM receives real-time information from Intercontinental Exchange Data and Analytics and energy brokers.

The ESM department reviews operational events, discusses market trends, and reviews supply and demand information. The team works together to understand exposures in the portfolio and determine hedging priorities.

The ESM department may also use such information to develop recommendations to the EMC regarding potential changes to PSE's overarching hedging strategies or to recommend transactions that do not fall within current strategies.

Q. Does PSE use any other information to manage its energy portfolio?

A. Yes. The ERC department is responsible for establishing and monitoring counterparty credit limits in accordance with the EMC-approved Credit Risk Management Policy. Counterparty-specific exposure is calculated and monitored frequently, and ESM staff are permitted to transact only within established credit limits.

B. PSE's 2020 PCA Period Power Supply Resources

Q. Were there any changes to PSE's electric supply resources during the 2020 PCA Period relative to those included in the baseline rate?

A. As noted above, the baseline rate in effect during the 2020 PCA Period reflected the power portfolio from PSE's 2017 GRC[1] during the first 9.5 months of the year and the portfolio from PSE's 2019 GRC during the last 2.5 months of the year. PSE's actual 2020 PCA Period power supply portfolio included:

1. Actual power contracts and resources that reflect current operations and contract rates;
2. Short-term purchases and sales made in response to changes in load, resource availability, or market heat rates, which guide PSE's decisions of whether to dispatch gas-fired generation or to buy power in the market;
3. A new power purchase agreement ("PPA") with Energy Keepers, Inc. for 40 MW of output from a hydroelectric project in western Montana, and
4. A new agreement with Bonneville Power Administration ("BPA") for 50 MW of transmission capacity from western Montana to PSE's system.

Q. What are the terms of PSE's new PPA with Energy Keepers, Inc?

A. PSE's power purchase agreement with Energy Keepers, Inc. provides for the purchase of 40 average MW of hydroelectric energy for a term beginning March 1, 2020 and ending July 31, 2035. PSE pays a fixed price of [redacted] per MWh for all energy received under this agreement.

[1] As noted above, the power portfolio and rate were established in PSE's 2017 GRC and approved for implementation in Docket UE-190233.

Q. Please describe PSE's new transmission contract with BPA.

A. The new 50 MW contract for long-term point-to-point transmission service with BPA has a point of receipt in Garrison, Montana and a point of delivery at PSE's system. Transmission rights under this contract began January 1, 2020 and continue through June 30, 2025 with the ability to renew upon expiration. PSE acquired this transmission contract from Talen Energy through a competitive bidding process. PSE paid Talen Energy a one-time payment to secure the transmission rights and will pay BPA's effective rates for firm point to point service during the term of the contract.

Q. Did PSE's power supply portfolio include any other new resources during the 2020 PCA Period?

A. In November 2020 PSE began receiving energy under a PPA with the Skookumchuck Wind Project. Energy from this PPA is reserved for customers receiving service under PSE's Schedule 139 Green Direct tariff. The costs of this PPA, and the cost of serving Green Direct customers in general, are excluded from the 2020 PCA actual allowable power costs presented in this filing. PSE also removed associated Green Direct customer loads from baseline power costs by removing their load from the total actual delivered load used to calculate baseline power costs. Please see the Prefiled Direct Testimony of Susan E. Free, Exh. SEF-1T for details regarding PSE's accounting for the Green Direct program in this filing.

Q. Please summarize PSE's actual power supply resources during the 2020 PCA Period compared to the amounts included in rates.

A. Table 1 below provides a comparison of the resources used to serve load relative to the resources included in rates.

Table 1: 2020 PCA Period Generation and Load Relative to Rates

Generation above / (below) rates	MWh	%
Hydro	467,383	10.8%
Wind	197,566	9.8%
Colstrip	(1,433,978)	-40.6%
Gas-fired	808,946	14.5%
Contracts	248,253	6.4%
Market Purchases and Sales	(1,076,824)	-31.3%
Load (generated, purchased, and interchanged)	(788,654)	-4.1%
Delivered Load	(1,054,960)	-5.0%

C. PSE's 2020 PCA Period Power Costs Variance to Power Costs Included in Rates

Q. How did PSE's actual power costs for the 2020 PCA Period compare to power costs recovered through rates?

A. During the 2020 PCA Period, PSE recovered $671.4 million of power costs through the variable baseline rate and incurred actual allowable power costs of $747.6 million. This $76.1 million under-recovery is outside of the $17 million dead band, so PSE will share a portion of these costs with customers according to the PCA sharing bands. The customer share of 2020 PCA Period under-recoveries before interest is $44.0 million. Exhibit PKW-3 includes power cost under- and over- recoveries by month during 2020.

Q. Why did actual power costs differ from those set in rates?

A. The actual costs of power delivered to PSE's system always differ from those established in rates because actual power costs reflect the actual resources available to PSE and the realized outcome of multiple power cost variables. These variables include:

(i) weather and power usage which affects demand (load),

(ii) streamflows, which affect the supply of hydroelectric energy,

(iii) unplanned generation outages and the timing of planned outages,

(iv) contract rates,

(v) output from variable energy resources,

(vi) transmission and transportation constraints, and

(vii) market energy prices.

Further, while power costs included in rates are estimated "as closely as possible to costs that are reasonably expected to be actually incurred,"[2] estimates are limited by regulatory normalizing assumptions. Specifically, rates established in PSE's 2017 GRC and 2019 GRC normalized power cost variables by utilizing:

(i) a weather normalized load forecast,

(ii) hydro generation from 80 years of streamflow data,

[2] *WUTC v. Puget Sound Energy, Inc.,* Docket UE-040640, *et al.,* Order 06 at ¶ 108 (Feb. 18, 2005).

(iii) forecasts of long-term average wind generation,

(iv) gas prices equal to a historical three-month average of forward market prices,

(v) model-generated market power prices, and

(vi) historical average generator forced outage rates.

Q. What caused the difference between PSE's actual power costs and power costs recovered in rates during the 2020 PCA Period?

A. During the 2020 PCA Period, PSE's total actual allowable power costs were $76.1 million higher than power costs recovered in rates. This under-recovery was driven by a combination of lower baseline rate revenue due to delivered load that was lower than the delivered load volume assumed in rates, and actual allowable costs that were higher than those included in rates.

Q. Please summarize PSE's baseline rate revenue and power costs during the 2020 PCA Period compared to amounts included in rates.

A. Actual delivered load in 2020 was 1,054,960 MWh, or 5.0 percent below the level included in effective baseline rates from the 2017 GRC and 2019 GRC. Lower revenue from this lower load contributed $35.2 million to the total 2020 under-recovery. Exhibit PKW-4C presents 2020 PCA Period delivered load by month. Actual allowable power costs in 2020 were $41.0 million, or 5.8 percent above the amount included in rates.

Table 2 below provides a comparison of 2020 power costs relative to those included in rates by resource type, and the impact of load variance on baseline rate revenue. These variances sum to the $76.1 million total under-recovered costs and are discussed below.

Table 2: 2020 PCA Period Cost Recovery Summary	
Cost above / (below) rates	**$M**
Coal	(24.4)
Natural Gas Fuel and Transportation	7.1
Long Term Contracts	48.4
Market Purchases and Sales	(4.6)
Transmission	10.1
Other	4.4
Total Costs	**41.0**
Revenue (above) / below rates	
Load	35.2
Total Revenue	**35.2**
Total under / (over) - recovery	**76.1**

Q. How did load affect revenue and power costs in the 2020 PCA Period?

A. As mentioned above, delivered load during the 2020 PCA Period was 5.0 percent lower than the volume assumed in rates. This reduction in delivered load caused PSE's 2020 PCA revenue to be $35.2 million lower than revenue based on delivered load in rates. Lower load also reduced the amount of power that PSE had to purchase in the market. This reduction to market purchases reduced power costs by approximately $17.7 million during 2020, which is much less than the reduction to revenue.

Q. Why did 2020 PCA Period power costs not decrease in proportion to decreases in PCA revenue?

A. Reductions to load did not cause a proportional reduction to power costs because (i) a significant portion of total power costs are fixed costs – they are the same regardless of how much energy PSE delivers to customers – and (ii) the average cost of resources in PSE's portfolio is higher than the average price of short-term market purchases or sales used to balance variances in load.

Q. What fixed costs are included in PSE's PCA power costs?

A. Fixed costs included in the PCA baseline rate and PSE's 2020 PCA actual costs include items such as purchased transmission, demand charges for gas pipeline capacity, and payments for PSE's share of output from Mid-Columbia hydroelectric projects. These costs are a significant portion of PSE's total PCA power costs, accounting for 38.9 percent of total actual costs and 33.4 percent of costs included in the variable baseline rates that were in place during the 2020 PCA Period.

Q. How do fixed costs lead to under-recoveries when load is lower than the level assumed in rates?

A. Because fixed costs do not change when load decreases, lower load means there are fewer MWh over which to spread the same fixed costs. This increases actual unit costs (in dollars per MWh) and leads to PCA under-recoveries.

Q. How does the average variable cost of PSE's resources relative to the price of short-term market purchases impact power costs when load is below the level assumed in rates?

A. When its portfolio of long-term resources does not provide enough energy to meet customer load, PSE relies on short-term market purchases to make up the difference. The average price of actual market purchases and market purchases included in rates was lower than the variable cost of other resources in PSE's portfolio during the 2020 PCA Period, especially long-term contracts.

When the average price of market purchases is lower than the average variable cost of other resources in the portfolio, each MWh purchased from the market reduces the average cost of PSE's total power supply. If load decreases, so too does the volume of lower-priced market purchases, and power costs per MWh increase. These higher unit power costs cause PCA under-recoveries.

Q. Why do higher unit power costs cause PCA under-recoveries?

A. PSE recovers power costs through the variable baseline rate, which is expressed in dollars per kilowatt-hour. When the actual cost per kilowatt-hour of power supplied to customers is higher than the variable baseline rate, PCA revenue is not sufficient to cover PSE's PCA power costs.

Q. How did coal fuel costs impact power costs during the 2020 PCA Period?

A. Actual coal fuel costs during the 2020 PCA Period were $24.4 million lower than the amount included in rates. These lower costs were primarily the result of less

coal-fired generation than assumed in rates due to the closure of Colstrip Units 1 and 2 at the beginning of 2020. Rates established in PSE's 2017 GRC were in effect for the majority of the 2020 PCA period and these rates were based on a rate year that ended prior to closure of Colstrip Units 1 and 2.

Q. How did natural gas fuel and transportation costs impact power costs during the 2020 PCA Period?

A. Total actual natural gas fuel and transportation costs during the 2020 PCA Period were $7.1 million higher than the amount included in rates. Actual natural gas-fired generation was 808,946 MWh, or about 14.5 percent higher than the amount in rates due to higher market heat rates throughout most of the year, which make it more economic to run PSE's gas-fired generators. Lower natural gas prices caused net gas fuel costs to be $6.3 million lower than the amount in rates, but this reduction was more than offset by a $13.4 million increase to the cost of PSE's pipeline capacity contracts. These higher pipeline capacity costs are the result of contract rate increases since rates were established in PSE's 2017 GRC and 2019 GRC. See Exhibit PKW-5C for a comparison of actual monthly natural gas prices, power prices, and market heat rates to the assumptions included in rates.

Q. How did long term power contracts impact costs during the 2020 PCA Period?

A. Long term contract costs were $48.4 million higher than the amount included in rates during the 2020 PCA Period. A large portion of this increase, $32.2 million was due to increased costs for PSE's Mid-Columbia ("Mid-C") hydroelectric contracts. The actual cost of PSE's long term contracts excluding Mid-C contracts was $16.3 million higher than the amount included in rates. This cost increase was primarily due to the addition of the Energy Keepers PPA, which was not included in rates. Higher prices of other contracts due to escalation according to contract terms since rates were established also increased actual costs relative to amounts in rates. A $7.0 million increase in the cost of the Centralia coal PPA was partially offset by lower generation from other relatively high-price contracts including the Klondike III wind PPA, the Electron hydro PPA, and Schedule 91 contracts. The weighted average cost of energy from PSE's long-term contracts (excluding Mid-C contracts) was $54.47 per MWh during the 2020 PCA Period compared to a weighted average cost of $53.77 per MWh included in rates.

Q. Why were Mid-C hydroelectric contract costs higher than the amounts included in rates?

A. Higher Mid-C contract costs were primarily the result of new higher cost contracts that were in place during 2020 but not reflected in rates for most of the 2020 PCA Period. $26.1 million out of the total $32.2 million higher Mid-C contracts cost was due to higher costs for PSE's share of output from the Wells

hydroelectric project. On September 30, 2018, PSE's original contract for output from Wells expired and PSE began purchasing Wells output according to the terms of two new agreements. These new agreements, the Wells Project Power Sales Contract and the Wells Colville Slice agreement, were approved in PSE's 2017 GRC and 2019 GRC, respectively, and were in effect for all of the 2020 PCA Period. Rates established in PSE's 2017 GRC, however, still included the original Wells contract for the first eight months of the rate year and those rates were in effect for most of the 2020 PCA Period. PSE's cost under the original Wells contract was very low, approximately $12.30 per MWh, compared to an average cost under the new contracts of approximately $30.50 per MWh. Generation from PSE's Mid-C contracts in 2020 in total was 412,841 MWh, or 12.2 percent higher than the amount in rates. This higher generation reduced PSE's need to purchase power in the market, providing a reduction to power costs of approximately $7.6 million to partially offset the increased contract costs.

Q. How did market purchases and sales during the 2020 PCA Period compare to amounts in rates?

A. The net cost of market purchases and sales during the 2020 PCA Period was $4.6 million lower than the amount included in rates. Energy supplied from net market purchases and sales was 974,538 MWh below the amount included in rates.

Actual generation from PSE's hydro assets, including Mid-C contracts, was 467,383 MWh higher than the level in rates, while generation from PSE's wind assets was 197,566 MWh higher than the level in rates. These higher hydro and

wind volumes replaced market purchases and decreased the total cost of PSE's market purchases by approximately $12.6 million relative to the amount included in rates. See Exhibit PKW-6C for actual hydro volumes by month for 2020. See Exhibit PKW-7C for actual wind volumes by month for 2020. See Exhibit PKW-8C for an estimate of the impact of higher hydro and wind generation on power costs by month for the 2020 PCA Period.

Lower load combined with higher generation from long-term contracts and PSE's gas-fired generators also reduced the volume of net market purchases during the 2020 PCA Period compared to the amount included in rates. The impact to market purchases from lower generation associated with the closure of Colstrip Units 1 and 2 was more than offset by the impact of lower load and higher generation from other resources.

Q. How did transmission costs impact power costs during the 2020 PCA Period?

A. During the 2020 PCA Period, the total net cost of purchased transmission was $10.1 million higher than the costs included in rates. These higher costs were primarily the result of rate increases that occurred between the 2017 GRC and the 2020 PCA Period. The addition of a new 50 MW BPA transmission contract contributed $2.2 million to the higher transmission costs. In addition, offsetting revenues from transmission reassignments were $2.1 million lower than the amount assumed in rates.[3]

[3] Reassignments refer to PSE's sale of uncommitted transmission capacity.

IV. CONCLUSION

Q. Were PSE's power costs during the 2020 PCA Period prudently incurred?

A. Yes, PSE's power costs for the 2020 PCA Period were prudently incurred. PSE's management of its power costs during the 2020 PCA Period was reasonable. PSE has structures and processes in place to formulate strategies for managing power costs and executed those strategies, taking into account information and variables associated with managing a complex resource portfolio within a dynamic market environment. The deferral balance set forth in PSE's 2020 PCA Period report is calculated in accordance with the amended PCA settlement and the Commission's orders in UE-011570.

Q. Does that conclude your testimony?

A. Yes, it does.