

2024 POWER COST UPDATE REGARDING COMPLEX CHANGES TO THE PCA BASELINE RATE

PUGET SOUND ENERGY
DOCKETS UE-220066, UG-220067 & UG-210918
(CONSOLIDATED)

**SHADED INFORMATION IS DESIGNATED AS CONFIDENTIAL PER PROTECTIVE ORDER
IN DOCKETS UE-220066 AND UG-220067**

**REDACTED
VERSION**

AUGUST 1, 2023

LIST OF ATTACHMENTS

Attachment A – New Mid-C Chelan hydro slice PPA

Attachment B – New HF Sinclair co-generation PPA

Attachment C – New and modified gas transportation and storage contracts

Attachment D – Updated normal hydro inputs methodology and cost impact

Attachment E – Updated wind integration cost methodology

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BACKGROUND

Pursuant to Appendix A paragraph 29 of the Settlement Stipulation and Agreement on Revenue Requirement and all other Issues Except Tacoma LNG and PSE’s Green Direct Program in consolidated Dockets UE-220066, UG-220067 & UE-210918 (“Settlement Agreement”), Puget Sound Energy (“PSE”) hereby submits this filing, which includes work papers demonstrating the method and effect of complex changes to PSE’s power cost forecast which will be used to establish the 2024 PCA variable baseline rate.

Forecast changes described in this filing include two new power purchase agreements (“PPAs”) that will be effective during calendar year 2024, changes to natural gas pipeline and storage contracts, and two updates to PSE’s power cost forecast methodology. PSE will provide all other changes to the forecast and the resulting 2024 PCA variable baseline rate in its October 1, 2023 compliance filing in accordance with the Settlement Agreement.

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I. NEW POWER RESOURCES

PSE’s 2024 variable power cost forecast will include the costs and benefits of two new PPAs, the Mid-C Chelan 5% hydro slice contract and the HF Sinclair co-generation PPA.

PSE executed the Mid-C Chelan 5% hydro slice contract in April 2023 for deliveries beginning January 1, 2024. The contract provides PSE with 5% of the energy, capacity, and environmental attributes of Chelan County PUD’s Rocky Reach and Rock Island hydroelectric projects for a term of five years. PSE will pay [REDACTED] according to the contract. The benefits of energy supplied under the contract will be reflected in PSE’s Aurora power cost model for 2024 in the same way as existing contracts with Chelan PUD. The cost of the contract will be added to PSE’s power cost forecast outside of the Aurora model. Based on forecasted power prices as of June 30, 2023 PSE estimates inclusion of the new Chelan hydro contract will [REDACTED] 2024 power costs approximately \$ [REDACTED]. **Attachment A** to this filing includes additional details and the calculation of this estimate.

PSE executed the HF Sinclair co-generation PPA on June 1, 2023 and deliveries began July 1, 2023. The contract provides PSE with energy and capacity that is surplus to the requirements of the HF Sinclair refinery in Anacortes, WA. According to the contract PSE pays a fixed charge for capacity and a variable charge for each MWh of energy delivered. The fixed charge is approximately \$ [REDACTED] per year and the energy charge is equal to the [REDACTED]. Energy volumes and resulting costs and benefits will be included in PSE’s Aurora power cost model for 2024. The capacity charge will be added to PSE’s power cost forecast outside of the Aurora model. Based on forecasted power prices as of June 30, 2023, PSE estimates inclusion

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of the new HF Sinclair co-generation PPA will [REDACTED] 2024 power costs approximately \$ [REDACTED]. **Attachment B** to this filing includes additional details and the calculation of this estimate.

As provided in paragraph 30 of the Settlement Agreement, these new resources included in the 2024 baseline update will undergo a prudency review in the 2024 annual PCA Compliance Filing.

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II. NEW CONTRACTS AND MODIFICATIONS TO EXISTING CONTRACTS

In May 2023 PSE transferred various natural gas transportation and storage contracts between its electric utility and natural gas utility to better align existing assets with the current needs of each utility. The transfers are effective for approximately three years through March 31, 2026. The following changes will be reflected in PSE's 2024 power cost forecast and variable baseline rate:

- A. Jackson Prairie storage transfer from gas portfolio to electric portfolio of additional 1,275,000 MMBtu with firm withdrawal rights of 50,000 MMBtu/day and associated pipeline capacity. PSE's electric portfolio will pay \$ [REDACTED] per year for the additional storage capacity and approximately \$ [REDACTED] per year for the pipeline capacity. The transfer price is based on the estimated market value of the storage capacity at the time the transfer was executed. PSE will add the cost of this additional storage and transport to its 2024 power cost forecast outside of the Aurora model in the same manner as the electric portfolio's existing Jackson Prairie storage. The benefits of this additional storage are enhanced reliability and financial risk mitigation during periods of high price volatility or supply disruptions and will not be directly reflected in PSE's power cost forecast which is based on expected outcomes under normal conditions.

- B. Clay Basin storage transfer from gas portfolio to electric portfolio of 1,200,000 MMBtu with firm withdrawal rights of 10,000 MMBtu/day and 22,000 MMBtu/day of pipeline capacity. PSE's electric portfolio will pay \$ [REDACTED] per year for the new storage capacity and \$ [REDACTED] per year for the new transportation capacity. The transfer price is based on the estimated market value of the storage capacity at the time the transfer was executed. PSE will add the cost of this new storage to its 2024 power cost forecast outside of the Aurora model in the same manner as Jackson Prairie storage. In addition to reliability and financial risk mitigation benefits, PSE's electric portfolio will use Clay Basin storage to inject gas during relatively low-price spring and summer months and withdraw gas to fuel its natural gas-fired generators during higher price winter months. The benefits of this seasonal storage will be reflected as a reduction to PSE's 2024 power cost forecast and calculated outside of

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the Aurora model. At the time of the storage capacity transfer PSE estimated these benefits to be approximately \$[REDACTED] per year. This calculation will be updated with current gas prices when PSE prepares its October 1, 2023 compliance filing.

- C. Plymouth LNG Storage transfer from electric portfolio to gas portfolio of 60,000 MMBtu with firm withdrawal rights of 15,000 MMBtu/day and associated pipeline capacity. PSE's electric portfolio will be credited approximately \$[REDACTED] per year. This payment will be included as a reduction to PSE's 2024 power cost forecast.

Attachment C to this filing includes additional details regarding the transferred storage and pipeline contracts and the calculations of estimated costs.

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III. METHODOLOGICAL CHANGES TO POWER COST FORECAST

PSE's 2024 power cost forecast will include updates to its methodology for determining normal hydroelectric volumes for input to the Aurora power cost model and an update to its methodology for calculating wind resource integration costs. These updates seek to better align PSE's power cost model with more recent weather and market conditions driven at least in part by impacts from climate change and the increase in variable renewable resources – both in the region and in PSE's portfolio.

PSE's 2024 power cost update will use monthly median hydroelectric energy volumes for each hydro project based on stream flows from the 30 years 1992 through 2021 as normal hydro volume inputs to the Aurora power cost model. PSE's prior methodology used monthly median volumes from the 80 years 1929 through 2008. The update to a 30-year historical period reflects more recent hydrological conditions, providing a better representation of expected future conditions. The National Weather Service's Northwest River Forecast Center defines normal hydrological conditions based on 30 years of historical data. Relative to PSE's prior 80-year method, the update to 30-year hydro is expected to reduce PSE's 2024 hydro energy supply by approximately 3.6%. Based on market power prices as of the end of June 2023 PSE expects this update will increase its 2024 power cost forecast approximately \$11.2 million. **Attachment D** to this filing includes a comparison of 30-year median hydro volumes for each project to 80-year median volumes and PSE's calculation of the estimated 2024 power cost impact.

PSE's 2024 power cost forecast will also include an update to the methodology for calculating wind integration costs. PSE's prior methodology used historical wind data and historical index prices to calculate wind integration cost as a product of price variance and generation forecast variance between the day-ahead and hour-ahead market timeframes. This method only recognizes the impact of variability between day-ahead and real-time markets but fails to capture costs associated with variability in wind output on daily, monthly, and annual timeframes. The need for this update to PSE's wind integration cost methodology is driven by increasing amounts of wind energy in

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PSE's portfolio combined with more wind generation in the region's resource supply stack. Market power prices are becoming increasingly influenced by and inversely correlated with wind generation as more resources are added in the region.

PSE's updated wind integration cost methodology relies on historical power prices and actual wind generation from 2013 to 2022 to calculate correlations between these two model inputs and to determine the standard deviation of generation for each wind resource on daily, monthly, and annual intervals. These values are then used as inputs in the Aurora model's risk sampling tool to generate 100 simulations of power price and wind output risk factors for each wind project. These risk factors are aggregated on a monthly basis to determine the adjustment to the modeled value of wind energy needed to account for variability. Based on forecasted power prices as of June 29, 2023, this update is expected to increase forecasted 2024 power costs approximately \$25.5 million relative to the prior wind integration methodology. The calculations that support this new method along with its results are included in **Attachment E** to this filing.