

2024 POWER COST UPDATE

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

SEPTEMBER 29, 2023

Background

Pursuant to Appendix A paragraph 28b 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") submits this compliance filing to update the rate recovering Power Cost Adjustment ("PCA") variable baseline costs. This filing includes work papers demonstrating the inputs, methods, and calculations used to establish the 2024 PCA variable baseline rate. The Settlement Agreement specifically requires PSE to file a 90-day compliance filing to change rates effective January 1, 2024, for power costs to be recovered in 2024. The agreement further specifies:

In this compliance filing, PSE will update the rate recovering the PCA baseline by updating the power cost model from this filing with the cost and inputs listed below:

- *Costs associated with Mid-C hydro contracts;*
- *Costs associated with upstream pipeline capacity;*
- *Outage schedules;*
- *BPA rates;*
- *Load forecast (for the 2024 update);*
- *Variable O&M costs;*
- *Impacts to dispatch logic related to Climate Commitment Act ("CCA") compliance;*
- *Hedges and physical supply contracts;*
- *Natural gas prices;*
- *Changes to terms of current resources;*
- *Any new and updated resources (including transmission contracts)*

Updates to PSE's 2024 power cost forecast model are limited to those costs and inputs identified in the Settlement Agreement.

Further, the Settlement Agreement required PSE to provide by August 1, 2023 details regarding any complex changes to its 2024 power cost forecast and PCA baseline rate, including work papers demonstrating the method and effect of the changes. On August 1, 2023 PSE filed in this docket a narrative description and work papers describing anticipated new power resources, new contracts and modifications to existing contracts, and changes to the methodology used to determine inputs associated with certain current resources. All of the changes identified and discussed in PSE's August 1, 2023 filing are reflected in the 2024 power cost forecast presented herein.

Summary of updated forecast

Forecasted 2024 power costs in this filing are \$207 million, or 22% higher than the 2023 power cost forecast currently included in rates. At a high level, the forecasted 2024 power cost increase is primarily caused by a significant reduction in forecasted secondary market sales revenue combined with an increase in the forecasted cost of wholesale market purchases. In 2023 PSE's wholesale power market activity was forecasted to provide a net reduction of \$398 million to rate year power costs. The equivalent reduction in 2024 is only \$24 million. This change in the net cost (benefit) of wholesale market transactions is partially offset by lower forecasted fuel costs and various other updates to PSE's power cost forecast.

Table 1. Forecasted 2024 power costs vs 2023 forecast (\$ in thousands)

FERC acct category	(\$ in thousands)	2024 compliance filing	2023 compliance filing	Increase / (decrease)
501	Coal fuel	\$55,532	\$65,691	(\$10,159)
547	Natural gas fuel	\$279,876	\$500,342	(\$220,466)
555WS	Wind and solar purchases	\$76,718	\$76,315	\$403
555H	Hydro purchases	\$275,779	\$218,066	\$57,714
555	Other contract purchases	\$421,046	\$449,218	(\$28,171)
555MP	Market purchases	\$158,029	\$84,005	\$74,025
447	Secondary sales	(\$182,173)	(\$482,090)	\$299,917
565	Transmission	\$153,227	\$135,052	\$18,175
456	Other revenues	(\$126,901)	(\$130,267)	\$3,365
557DR	Demand Response	\$11,391	\$0	\$11,391
557	Other power supply expense	\$17,154	\$16,712	\$442
Total Rate Year Power Costs		\$1,139,679	\$933,044	\$206,635

The overall change in PSE’s 2024 power cost forecast relative to the 2023 forecast is driven by updates to forecasted demand (load); changes to PSE’s electric supply portfolio including new resources and updates to existing resources; updated market prices and resulting changes to modeled output from coal and natural gas fueled resources; updates to PSE’s input assumptions and calculations for existing hydroelectric and wind resources; the impact of Climate Commitment Act (“CCA”) compliance on resource dispatch and wholesale sales revenue; and various other updates such as forecasted transmission expense and gas pipeline and storage costs. Table 2 summarizes the estimated contribution of each of these changes to the total 2024 forecast increase. Additional details and discussion follow.

Table 2. Summary of changes driving 2024 power cost forecast increase (\$ in thousands)

2023 power cost forecast	\$933,044
Higher forecasted load	\$40,671
Electric supply portfolio updates	\$58,781
Market prices and thermal resource dispatch	\$31,587
Existing hydro and wind resource assumptions	\$36,074
CCA impact on dispatch and wholesale sales	\$22,683
Other	\$16,839
Total increase	\$206,635
2024 power cost forecast	\$1,139,679

Load forecast update

Forecasted PSE load for 2024 is approximately 4 percent higher than the 2023 load forecast. Higher loads increase power costs both by increasing the amount of energy PSE must purchase from the wholesale market and reducing the amount of surplus energy available for wholesale market sales. PSE estimates changes to forecasted load increase 2024 power costs approximately \$41 million relative to the 2023 forecast.

Electric supply portfolio updates

The 2024 power cost forecast reflects several updates to PSE's electric supply portfolio relative to the 2023 forecast. These updates include the addition of new resources, removal of an expiring PPA, and changes to the costs of some existing PPAs. The estimated impacts of each of these updates are discussed below and summarized in Table 3.

Forecasted 2024 power costs incorporate the costs and benefits of seven new power supply agreements that were not included in the 2023 forecast. In its August 1, 2023 filing describing anticipated changes in the power cost update PSE provided information about two of these – a new PPA for 5 percent of the output from Chelan County Public Utility District's ("PUD") Rocky Reach and Rock Island hydroelectric projects ("Chelan Slice #38") and a new PPA for output from a Qualifying Facility cogeneration project ("HF Sinclair PPA"). Subsequent to that filing PSE executed five new agreements that provide physical energy supply and capacity beginning in October 2024. These resources were identified and selected through a request for proposals ("RFP") issued by PSE¹. This 2024 power cost update also includes the cost of demand response contracts that have not previously been included in power costs². As provided in paragraph 30 of the Settlement Agreement, these new resources will undergo a prudence review in the 2024 annual PCA compliance filing or PSE's next general rate case filing, whichever comes first.

Relative to the supply portfolio included in PSE's 2023 power cost forecast, this 2024 update also reflects the expiration of a contract for winter peak capacity on March 31, 2024, which results in a decrease to forecasted 2024 power costs.

Updates to the costs and volumes from several existing power purchase agreements increase forecasted 2024 power costs relative to 2023. The most significant of these updates are to PSE's Mid-C hydroelectric contracts. PSE's 2024 share of output from Douglas County PUD's Wells hydroelectric project is approximately 30 percent below its 2023 share. This lower volume comes with reduced contract costs, but those benefits are more than offset by higher cost to replace the energy at market prices. The net 2024 forecast impact of changes to PSE's share of Wells hydro project cost and output is an increase of approximately \$9.2 million. Costs associated with PSE's contracts for output from Grant County PUD's Priest Rapids hydroelectric project and Chelan County PUD's Rocky Reach and Rock Island hydroelectric projects also increased relative to the 2023 forecast (\$10.5 million and \$3.0 million, respectively). Finally, price escalation in other power supply contracts contributes approximately \$5.9 million to the 2024 power cost increase relative to 2023. The primary driver here is PSE's PPA for output from the Centralia coal plant. The annual price increase in that contract increases 2024 power costs \$5.3 million.

¹ PSE executed six individual contracts as a result of the 2023 RFP but deliveries under one of them do not begin until 2025. The costs and benefits of that contract are therefore not reflected in this 2024 power cost update.

² Pursuant to the Settlement Agreement paragraph 32

Table 3. Contribution of various portfolio updates to 2024 power cost increase (\$ in thousands)

New Chelan Slice #38	\$25,209
New HF Sinclair PPA	\$9,534
New winter capacity RFP agreements	\$7,195
Demand response contracts	\$11,391
Expiration of winter peak capacity PPA	(\$23,119)
Mid-C hydro contract updates	\$22,655
Other contract updates	\$5,915
Net increase from portfolio updates	\$58,781

Market prices updates

Natural gas prices used in this 2024 power cost update are the average of forward market gas prices over the 90 days ending September 5, 2023. PSE’s 2023 power cost forecast included average prices over the 90 days ending November 29, 2022. Average annual gas prices at the Sumas trading hub in this 2024 update are approximately 11 percent lower than prices in the 2023 forecast, but that number masks big differences at the monthly level. Relative to the 2023 forecast gas prices are higher during winter months and significantly lower during the rest of the year – for example January and December gas prices are up approximately 9 percent while prices in May and June are down more than 30 percent. These gas price updates drive changes to power prices (determined by PSE’s power cost model software, Aurora) which are also on average lower in this 2024 update than in 2023. Updates to gas and power prices in this filing cause changes in the dispatch and volume of output from PSE’s natural gas and coal generation resources and the volume and cost of wholesale market purchases and sales. PSE estimates that the net impact of updated market prices in the 2024 power cost forecast relative to 2023 is an increase of \$31.6 million.

Changes in market heat rates, the relative price of power versus natural gas, in this 2024 power cost update cause a decrease in forecasted production from PSE’s gas-fueled generation resources. Forecasted output from these resources is approximately 20 percent lower than in the 2023 power cost forecast. This reduction in output means PSE must either purchase more power from the market or sell less power to the secondary market, or some combination of the two. This volumetric change in part drives forecasted increases in wholesale market purchase costs and decreases in forecasted secondary sales revenue. Lower power prices similarly cause lower output from the Colstrip coal-fueled power plant and further increase the volume of PSE’s market purchases and/or reduce the volume of energy available for secondary market sales.

In addition to driving volumetric changes that decrease the net benefit of wholesale market transactions, market price changes in this update also change the price at which forecasted market transactions are executed. Lower power prices in the 2024 forecast provide a benefit in the form of less expensive purchases, but that benefit is more offset by the impact of lower revenue per unit of

secondary sales. Relative to the 2023 forecast, the average price of forecasted 2024 market purchases is down approximately \$2 per MWh (4 percent) whereas the average price of secondary sales is down more than \$15 per MWh (23 percent).

Updated assumptions and inputs for existing resources

As discussed in PSE's August 1, 2023 filing in this docket, the 2024 power cost update includes an update to assumptions for "normal" hydroelectric volumes and an update to PSE's calculation of the costs of integrating wind generation. The hydroelectric volumes used in this 2024 forecast are based on median stream flows from the 30 years 1992 through 2021 instead of median volumes from the 80 years 1929 through 2008 that were used in PSE's 2023 power cost forecast. In its August 1 filing PSE estimated the impact of this change would be an \$11.2 million increase to power costs. The estimated impact reflected in the final 2024 forecast is \$9.9 million. The wind integration cost calculation in this 2024 forecast incorporates the impacts of wind variability on an annual, monthly, and daily basis and accounts for the correlation of wind variability with projected market power prices. The calculation used in PSE's 2023 forecast accounted only for daily wind variability and impacts based on historical actual price levels. The estimated impact of this update in PSE's 2024 power cost forecast is an increase of \$26.2 million (in its August 1 filing PSE estimated the impact would be \$25.5 million).

Climate Commitment Act impacts on resource dispatch

PSE's 2024 power cost forecast includes changes in PSE's resource dispatch resulting from CCA compliance, which result in an increase of approximately \$22.7 million to forecasted power costs. This increase is the net result of (a) a projected decrease in secondary market sales revenue (\$66.9 million power cost increase) offset by (b) a decrease in projected natural gas fuel costs (\$44.2 million power cost decrease). The 2024 power cost forecast does not include any costs of allowance purchases that may be required by PSE's electric utility to comply with the CCA. PSE will defer any such costs in accordance with the accounting petition approved in Docket UE-220974.

PSE's methodology for estimating the impact of the CCA on resource dispatch and power costs is consistent with PSE's current understanding of the process used by the Washington Department of Ecology to allocate no-cost emissions allowances and the resulting impact on PSE's dispatch of its resources in 2024. PSE expects to receive no-cost allowances for emissions from generation used to serve retail electric load only. Accordingly, PSE must purchase allowances for emissions associated with any secondary market sales. This means that PSE cannot economically dispatch generation for secondary sales unless the revenue from such sales is sufficient to cover the sum of traditional variable costs (primarily fuel) plus the cost of emissions allowances under the CCA. The fuel cost and secondary sales revenue that would have been generated by any such uneconomic sales have been removed from PSE's 2024 power cost forecast. costs. The CCA dispatch adjustment in PSE's 2024 power cost forecast reduces emissions approximately 600,000 metric tons which in turn reduces estimated allowance purchase costs that will be deferred as discussed above by more than \$40 million.

Other updates

A number of other updates in PSE's 2024 power cost forecast account for the remainder of the net increase relative to the 2023 power cost forecast. Collectively, these other items contribute \$16.8 million to the total increase. Each is discussed below and the estimated impacts are summarized in Table 4.

Purchased transmission expense in PSE’s 2024 power cost forecast is approximately \$18.4 million higher than in the 2023 forecast. \$18.0 million of this is due to inclusion of the cost of transmission system losses associated with PSE’s Bonneville Power Administration (“BPA”) transmission contracts. The remaining amount is due to higher cost under PSE’s transmission agreement with Chelan County PUD. Beginning in 2022 PSE began compensating BPA for transmission losses via financial settlements as opposed to returning physical energy. There is no actual cost increase associated with this change as the financial settlement payments are exactly equal to the value of the energy that otherwise would have been returned via physical schedules. However, the costs associated with physical returns are not explicit and were difficult to isolate from the costs and benefits of other energy transfers. In reviewing its actual 2022 power cost results PSE discovered that its forecast model had not been accounting for any cost associated with physical BPA loss returns. The cost of financial loss returns included in this 2024 forecast should have been exactly offset by a reduction in the cost of physical loss returns but, since the 2023 forecast did not include any loss return costs in the first place, correcting this previous error results in an increase to the 2024 power cost forecast.

PSE’s 2023 power cost forecast included the full value of a one-time refund from Northwest Pipeline as a reduction to power costs. Removal of this credit in 2024 increases the power cost forecast about \$4.4 million.

Changes to the costs and benefits of natural gas pipeline and storage assets held by PSE’s electric portfolio reduce forecasted 2024 power costs approximately \$2.2 million relative to the 2023 forecast. This is the result of changes in the relative price of gas between locations from which PSE has pipeline capacity, updates to pipeline tariff rates, and changes to the transportation and storage contracts held by the electric portfolio. As discussed in PSE’s August 1, 2023 filing in this docket, in May 2023 PSE transferred various gas pipeline contracts between its electric and natural gas utilities to better align with the current needs of each utility. In that August 1 filing PSE estimated a net power cost increase of approximately \$4.5 million due to these transfers. The net power cost impact in this final 2024 power cost forecast is instead a \$650 thousand decrease due to the effect of updated prices on the value of transferred assets.

PSE procures short term physical power supply contracts to secure delivery to meet forecasted peak loads. Many of these contracts are priced according to an index that is based on actual prices at the time of delivery but include a premium relative to that index due to the physical delivery requirement. The cost of these premiums is \$2.2 million lower in this 2024 power cost update than in the 2023 forecast due primarily to a reduction in volumes as some of the need was displaced by contracts executed as a result of PSE’s 2023 RFP process discussed earlier.

PSE’s PPA for output from the Golden Hills wind facility includes a provision for sharing of tax credits or incentives received by the project owner with PSE. In 2024 PSE anticipates receiving a credit of approximately \$1.5 million that will reduce power costs relative to the 2023 forecast.

PSE reduces its power cost forecast to account for the net benefit of payments for avoided greenhouse gas emissions associated with its participation in the energy imbalance market. These benefits are estimated as the simple average of historical actual benefits. Including 2022 actual benefits in this average increased the projected 2024 benefit (reduction to power costs) by \$416 thousand.

Table 4. Other updates contributing to 2024 power cost increase (\$ in thousands)

Purchased transmission	\$18,356
Northwest Pipeline refund	\$4,353
Natural gas pipeline, storage, and optimization	(\$2,164)
Physical index-priced power supply	(\$2,187)
Golden Hills wind credit	(\$1,545)
EIM GHG benefits	(\$416)
FERC 557 other power supply expense ³	\$442
Net increase from other updates	\$16,839

³ FERC 557 expenses are included in PSE's power cost forecast but are not part of the variable baseline rate being updated in this filing. The increase here was already included in rates established in PSE's 2022 general rate case compliance filing.