



Puget Sound Energy  
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October 27, 2022

***Filed Via Web Portal***

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

Received  
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State Of WASH.  
UTIL. AND TRANSP.  
COMMISSION

**Re: Advice No. 2022-19  
PSE's Electric Tariff Filing – Filed Electronically**

Dear Ms. Maxwell:

Pursuant to RCW 80.28.060 and WAC 480-80-101 and WAC 480-80-105(1)(c), please find enclosed for filing the following proposed revisions to the WN U-60, Tariff G for electric service of Puget Sound Energy (“PSE”):

8<sup>th</sup> Revision of Sheet No. 91-B, Schedule 91 Purchases from Qualifying Facilities of Five Megawatts or Less (Continued)  
 6<sup>th</sup> Revision of Sheet No. 91-C, Schedule 91 Purchases from Qualifying Facilities of Five Megawatts or Less (Continued)  
 4<sup>th</sup> Revision of Sheet No. 91-D, Schedule 91 Purchases from Qualifying Facilities of Five Megawatts or Less (Continued)  
 3<sup>rd</sup> Revision Sheet No. 91-H, Schedule 91 Purchases from Qualifying Facilities of Five Megawatts or Less (Continued)  
 3<sup>rd</sup> Revision Sheet No. 91-I, Schedule 91 Purchases from Qualifying Facilities of Five Megawatts or Less (Continued)

These revisions include the proposed standard rates for purchases from Qualifying Facilities (“QF”) of five megawatts or less and an updated schedule of PSE’s Estimated Avoided Costs of Energy and Capacity.

The filing is submitted on October 27, 2022, in compliance with WAC 480-106-040(1) that a utility must file by November 1<sup>st</sup> of each year. The proposed revisions to Schedule 91 are consistent with Chapter WAC 480-106, Electric Companies—Purchases of Electricity from Qualifying Facilities, and with WAC 480-80-102, Tariff Content. Specifically, these proposed changes meet the requirements outlined in WAC 480-106-030, Tariff for purchases from qualifying facilities.

In this filing, PSE is also seeking an exemption from WAC 480-106-040(1)(b) which requires a utility to identify its estimated avoided cost of capacity based on the projected fixed cost of the next planned capacity addition identified in the utility's most recent integrated resource plan acknowledged by the Washington Utilities and Transportation Commission (“Commission”). Pursuant to WAC 480-100-620 and WAC 480-100-625, on April 4, 2021, under Dockets UE-200304 and UG-200305, PSE filed its final 2021 Integrated Resource Plan (“2021 IRP”) with the Commission, but the Commission has not acknowledged PSE’s 2021 IRP as of the filing date of this Schedule 91 tariff update. PSE respectfully requests a waiver of WAC 480-106-040(1)(b) so

that PSE is allowed to use the most current estimated avoided cost of capacity information from its 2021 IRP in this tariff update.

PSE's IRP process and results have been made available for review by all interested parties at this website: <https://pse-irp.participate.online/> prior to PSE filings of its 2021 IRP.

### **Schedule of Estimated Avoided Costs per WAC 480-106-040**

Consistent also with RCW 19.280.070(2), this Schedule of Estimated Avoided Costs contains an estimated capacity value for combined heat and power systems that are dispatchable by PSE. The Schedule of Estimated Avoided Costs shows the levelized Avoided Costs differentiated by characteristics of qualifying facilities under the following assumptions:

1. Identification of Avoided Energy: As provided for in WAC 480-106-040(1)(a), the estimated Avoided Energy Costs on the proposed Sheet No. 91-H is based upon PSE's most current forecast of market prices for electricity in its two-year progress report on the 2021 IRP ("2023 Electric Progress Report") in accordance with WAC 480-100-625(4). Table No. 1 of the Schedule of Estimated Avoided Costs shows these estimated Avoided Energy Costs ("Table No. 1"). In addition to hosting a webinar on September 13, 2022, to discuss the updates to its 2023 Electric Progress Report. PSE also provided documents regarding electric price forecast to the stakeholder group prior to the webinar.<sup>1</sup> The 2023 Electric Progress Report will be filed with the Commission by April 1, 2023. The proposed Schedule of Estimated Avoided Energy Costs reflects much higher avoided energy costs due to updated modeling methodologies and assumptions to the electric price forecast model. The levelized nominal power price for the 2023 Electric Progress Report is \$42.90/MWh whereas the 20-year levelized nominal power price used in the prior filing in the Mid-C scenario for the 2021 IRP was \$23.37/MWh. Discussions about these changes can be found at the "Significant Increase in Proposed Schedule 91 Standard Fixed Rates" section of this letter.
2. Identification of Avoided Capacity and associated Capacity Costs: The estimated Avoided Capacity Costs on the proposed Sheet No. 91-I (i.e., Table No. 2 of the Schedule of Estimated Avoided Costs) ("Table No. 2") is estimated based on PSE's 2021 IRP with the assumptions pursuant to WAC 480-106-040(1)(b)(ii) that the frame peaker be the capacity resource addition for 2023-2043 at the Avoided Capacity Costs of \$95.27/kW per year. This Avoided Capacity Cost is consistent with the corresponding cost used in PSE's prior-year Schedule 91 filing under Docket [UE-210816](#).<sup>2</sup>

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<sup>1</sup> Meeting materials for the September 13<sup>th</sup> webinar can be found under the section "September 13, 2022: Conservation Potential Assessment (CPA) and assumptions for the 2023 Electric Progress Report" at: <https://www.pse.com/IRP/Get-involved>

<sup>2</sup> Link to the 2021 Schedule 91 filing: <https://www.utc.wa.gov/casedocket/2021/210816/docsets>

**Standard Rates for Purchases from Qualifying Facilities of Five Megawatts or Less Per WAC 480-106-050 (4)**

The current proposed Table Nos. 1 and 2 of the Schedule of Estimated Avoided Costs, are the base inputs to PSE’s Schedule 91 Price Models (“Models”), attached to this filing as Model A-Standard Schedule 91 Rates for Delivery to PSE’s Distribution System and Model B-Standard Schedule 91 Rates for Delivery to PSE’s Transmission System. These two Models apply standard adjustments to the costs in the Schedule 91 Schedules of Estimated Avoided Costs to determine the standard rates that PSE will pay for power purchased from a small QF. It calculates the various standard fixed rates for power purchase from small QFs of baseload, solar, wind, or other PURPA resources. As shown in the Models and summarized below, these explicit standardized adjustments are included to reflect different supply characteristics and different technologies of qualifying facilities. Except the update to the Avoided Energy Costs, to reflect the most current electric price forecast per WAC 480-106-040(1)(a), the rest of the inputs and assumptions are consistent with the corresponding costs used in PSE’s prior-year Schedule 91 filing.

Inputs	Avoided Energy Cost Avoided Capacity Cost PSE Authorized Cost of Capital Deferred Transmission and Distribution (“T&D”) Cost Credit Effective Load Carrying Capacity (“ELCC”) Capacity Factor
Input: Avoided Energy Cost	Source: Pursuant to WAC 480-106-040(1)(a), the 2023-2043 Avoided Energy Costs are based on PSE’s most current forecast of market prices for the Mid-C Market forecast in its 2023 Electric Progress Report that is currently under development. The levelized nominal power price for the 2023 Electric Progress Report is \$42.90/MWh whereas the 20-year levelized nominal power price used in the prior filing in the Mid-C scenario for the 2021 IRP was \$23.37/MWh.
Input: Avoided Capacity Cost	Source: 2021 IRP with assumption that the capacity resource addition is a frame peaker at Avoided Capacity Costs of \$95.27/ kW per year for 2023-2043.
Input: PSE’s Authorized Cost of Capital	Source: PSE’s 2019 General Rate Case Filing (Docket No. UE-190529). The cost of capital is before the federal income tax cost of capital of 7.39%.
Input: Deferred T&D Cost Credit (Applicable only to the PPAs that delivery to PSE’s distribution system)	Source: The \$13.58/kW per year for 2023 (i.e., \$12.93/kW per year inflation adjusted for 2021 or \$12.61/kW per year levelized 2020 dollar). The \$12.61/kW per year value is PSE’s own backward looking estimate of its T&D system costs based upon PSE’s T&D upgrade projects from 2010 to 2020.

Inputs	Avoided Energy Cost Avoided Capacity Cost PSE Authorized Cost of Capital Deferred Transmission and Distribution (“T&D”) Cost Credit Effective Load Carrying Capacity (“ELCC”) Capacity Factor
Input: Effective Load Carrying Capacity	Source: 2021 IRP. Generic resource values are used as proxy for Baseload (100%), Generic Washington Wind (17.8%), and Solar (4%).
Input: Capacity Factor	Source: 2021 IRP using generic resource values as a proxy for Baseload (100%), Generic Washington Wind (36.7%), and Solar (24.2%).
Input: Inflation Rate	Source: Derived by PSE and assumed to be 2.5%.
Input: Line Loss Reduction	Source: Derived by PSE and posted to its Open Access Same-Time Information System under Real Power Losses. Currently assumed to be 2.7%.
Input: Contingency Reserves	Source: Based on a WECC <sup>3</sup> -wide contingency reserve margin. Currently assumed to be 3%.

Calculations	Avoided Energy Benefit Avoided Capacity Benefit Avoided T&D Benefit Schedule 91 Standard Fixed Rates
Avoided Energy Benefit	The Avoided Energy Benefit is based on the Avoided Energy Cost (\$/MWh), which is adjusted up to account for assumed Line Loss Reductions that would otherwise be incurred with the purchase of market energy.
Avoided Capacity Benefit	The Avoided Capacity Benefit is based on the Avoided Capacity Cost (\$/kW-year) which is adjusted for the generic resource ELCC, and then converted into \$/MWh based on the resources available hours as derived by the resources Capacity Factor (e.g., 8,760 total hours in a year * 36.7% Capacity Factor = 3,215 available hours in a year for the Wind Resource).
Avoided T&D Benefit (Applicable only to the PPAs that delivery to PSE’s distribution system)	The Avoided T&D Benefit is based on an assumed Deferred T&D Cost Credit (\$/kW-year) escalated to a given year using an assumed inflation rate, which is converted into \$/MWh based on the total number of hours in a year (8,760 in a non-leap year). If a project is not located on PSE’s system, there is no Avoided T&D Benefit because PSE’s T&D system will be used to deliver energy to load.

<sup>3</sup> WECC- Western Electricity Coordinating Council, which is the regional entity responsible for compliance monitoring and enforcement and oversees reliability planning and assessments. In addition, WECC provides an environment for the development of reliability standards and the coordination of the operating and planning activities of its members as set forth in the WECC bylaws. PSE is a member of the WECC.

Calculations	Avoided Energy Benefit Avoided Capacity Benefit Avoided T&D Benefit Schedule 91 Standard Fixed Rates
Schedule 91 Standard Fixed Rates	To calculate the Schedule 91 Standard Fixed Rates for a given contract length (5-years, 10-years, or 15-years) the corresponding Net Present Value (“NPV”) (using PSE’s approved Authorized Cost of Capital) of the Avoided Energy Benefit, Avoided Capacity Benefit and Avoided T&D Benefit are aggregated in \$/MWh, and then decremented to account for the assumed contingency reserve required. In order to smooth out the year-to-year rate variability inherent in the inputs, the NPV value is levelized over the appropriate contract length, and then the levelized rate is indexed and adjusted using the assumed inflation rate, ensuring an offered contract rate that predictably increases year-over-year at the assumed inflation rate.

To facilitate the Commission’s review of the two Models, PSE added, within each model, a read-me tab that provides descriptions of the model input and a summary tab that shows the comparison of the results from the current Schedule 91 filing and the prior approved Schedule 91 filing.

**Significant Increase in Proposed Schedule 91 Standard Fixed Rates**

The proposed Schedule 91 Standard Fixed Rates for PSE’s purchases of electricity from QFs of five megawatts or less are much higher than the existing rates. This significant increase is mostly due to the change in the forecasted market electricity prices. The levelized nominal power price for the 2023 Electric Progress Report is \$42.90/MWh whereas the 20-year levelized nominal power price used in the prior filing in the Mid-C scenario for the 2021 IRP was \$23.37/MWh. In the prior Schedule 91 filing, PSE use the forecasted prices from its 2021 IRP, which incorporated inputs and assumptions from the Energy Exemplar 2018 database for AURORA price forecast modeling and then added updates such as regional demand, natural gas prices, resource assumptions, renewable portfolio standard needs, and resource retirements and builds. For its 2023 Electric Progress Report, PSE retains the fundamentals-based approach of forecasting wholesale electric prices while incorporating significant changes to some methodologies and input assumptions from the 2021 IRP.<sup>4</sup>

These methodology changes include:

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The electric price forecast for the 2023 Electric Progress Report details the changes and assumptions about the updated electric energy prices can be found at: [https://www.pse.com/-/media/PDFs/IRP/2022/09132022/2022-0913-ElectricPriceForecast.pdf?sc\\_lang=en&modified=20220906180240&hash=C69F085635A90B5DF6BF9D94D1B5D7CA](https://www.pse.com/-/media/PDFs/IRP/2022/09132022/2022-0913-ElectricPriceForecast.pdf?sc_lang=en&modified=20220906180240&hash=C69F085635A90B5DF6BF9D94D1B5D7CA)

The excel file with hourly forecasted electric energy prices used in the development of the 2023 Electric Progress Report: [https://www.pse.com/-/media/PDFs/IRP/2022/09132022/2022-0913-GenericResourcesCostAdjustments.xlsx?sc\\_lang=en&modified=20220906182622&hash=19A798C1290BD3404E523AE625661F9E](https://www.pse.com/-/media/PDFs/IRP/2022/09132022/2022-0913-GenericResourcesCostAdjustments.xlsx?sc_lang=en&modified=20220906182622&hash=19A798C1290BD3404E523AE625661F9E)

- Update the input database -- Migration of the electric price forecast model to the most recent Energy Exemplar 2020 WECC Zonal database.
- Assumptions for clean energy targets -- Clean energy targets in the 2023 Electric Progress Report include expansion of renewable portfolio and clean energy standards to include non-binding clean energy policies set by municipalities and utilities and application of these targets as a system-wide target. Whereas in the 2021 IRP market price model, only legislatively binding renewable portfolio standards were modeled and their targets were applied on a state-by-state basis.
- Incorporate the impacts of climate change -- For the first time, PSE's 2023 Electric Progress Report includes the influence of climate change on demand and hydro conditions in the Pacific Northwest. PSE adapted climate change inputs from the NPCC's 2021 Power Plan analysis and selected the three climate change scenarios that uniquely influence the Pacific Northwest load and hydro input assumptions. The base electric price forecast averaged the effects of each climate change scenario to develop a single climate change case, which retains trends present in all three climate change scenarios.
- Include Washington State carbon pricing to reflect the impact of the Climate Commitment Act -- The Washington State legislature passed the Climate Commitment Act ("CCA") in 2021, which goes into effect in 2023. The CCA is a cap and invest bill that places a declining limit on the quantity of greenhouse gas emissions generated within Washington State and establishes a marketplace to trade allowances of permitted emissions. To accurately reflect all costs imposed by the CCA, PSE's 2023 Electric Progress Report includes a hurdle rate on market purchases to the PSE portfolio model to account for unspecified market purchases using the CCA price forecast at the unspecified market emission rate of 0.437 metric tons of carbon dioxide per megawatt-hour of electricity per RCW 19.405.070(2). The emission prices considered in the electric price forecast is a hybrid scheme that begins with pricing at the rate specified by the Washington Department of Ecology California Linkage 2030<sup>5</sup> case, and then transitions to the California Energy Commission 2021 Integrated Energy Policy Report<sup>6</sup> allowance price forecast for the remainder of the modeling horizon.

Several factors contribute to the increase in electric prices from the 2021 IRP to the 2023 Electric Progress Report:

- Natural gas prices -- Natural gas prices increased between the 2021 IRP and the 2023 Electric Progress Report, particularly in the near term, increasing electric prices. The recent natural gas prices are elevated due to energy security concerns in Europe and

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<sup>5</sup> <https://apps.ecology.wa.gov/publications/documents/2202015.pdf>

<sup>6</sup> <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report>

- accelerating coal retirements domestically. Leading to additional gas demand to supply the power sector and demand driven by liquefied natural gas export expansion.
- Transmission constraints -- In the 2023 Electric Progress Report, PSE modeled the WECC as a 34-zone system instead of the 16-zone system modeled in the 2021 IRP. The increased number of zones increases transmission links within the model and increases wheeling costs as electricity is transported between zones, resulting in higher electricity prices.
  - Clean energy need modeling -- Clean energy requirements accounted for existing and new resources in the 2023 Electric Progress Report, whereas in the 2021 IRP, only new resources contributed to the clean energy targets. The method used in the 2021 IRP may have understated the contribution of existing resources and, therefore, overbuilt new solar resources, which resulted in excess hours with low-cost power, artificially driving prices lower. The method used in the 2023 Electric Progress Report resulted in fewer renewable energy additions to the WECC, which results in a tighter energy market and higher prices.
  - Storage -- Storage resources (e.g., batteries) were not available in the 2021 IRP electric price model, which resulted in overbuilding of wind and solar resources to provide non-emitting capacity. Overbuilt wind and solar resources lead to lower wholesale electricity prices as more hours can be filled with zero-cost power from these renewable resources. PSE added storage as an available resource in the 2023 Electric Progress Report, which allows for load/generation shifting and a dramatic reduction in the number of renewable resources required to meet the load. This scenario creates a tighter market driving up wholesale electric prices overall. Storage can help reduce very high prices through arbitrage and load/generation shifts, albeit resulting in higher average electric prices than previously forecasted in the 2021 IRP.

The tariff sheets described herein reflect an issue date of October 27, 2022, and an effective date of January 1, 2023. Notice and posting of proposed tariff changes, as required by law and the Commission's rules and regulations, is being completed in accordance with WAC 480-100-193(1). The tariff changes proposed in the filing do not increase recurring charges nor restrict access to the optional services under Schedule 91. No notice is required under the provisions of WAC 480-100-194 or -195.

In addition, per WAC 480-106-030(5), PSE has been posting at its web site at <https://www.pse.com/green-options/Renewable-Energy-Programs/distributed-renewables> the information on how to obtain draft and executable contracts and the nonbinding term sheets with limited contract provisions for qualifying facilities with capacities of greater than five megawatts.

Ms. Amanda Maxwell  
October 27, 2022  
Advice No. 2022-19  
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Please contact Mei Cass at (425) 462-3800 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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cc: Lisa Gafken, Public Counsel  
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Attachments:

Electric Tariff Sheets, listed above

Model A-Standard Schedule 91 Rates for Delivery to PSE's Distribution System

Model B-Standard Schedule 91 Rates for Delivery to PSE's Transmission System