PACIFIC POWER
A DIVISION OF PACIFICORP

825 NE Multnomah, Suite 2000
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May 18, 2020

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
201 High Street SE, Suite 100
Salem, OR 97301-3398

RE: UM 1729(3)—Standard Avoided Cost Purchases from Eligible Qualifying Facilities

In compliance with ORS 758.525 and Order No. 14-058 in Docket No. UM 1610, on May 1, 2020, PacifiCorp d/b/a Pacific Power (PacifiCorp or Company) submitted an update to its standard avoided cost schedule (formerly known as Schedule 37) to the Public Utility Commission of Oregon (Commission).

After consultation with Public Utility Commission of Oregon Staff (Staff), PacifiCorp submits a revised Appendix 2 Pacific Power Avoid Cost Calculation. On Page 4 of 6, PacifiCorp has made the following change:

> For informational purposes, **Tables 7 and 8** show a comparison between current avoided costs currently in effect in Oregon and the avoided costs <u>after incorporating the required updates.</u> ~~proposed by Staff in this filing. An alternate version of Tables 7 and 8 compares Staff's proposal to the Company's proposed avoided costs.~~

The Company is also revising the requested effective date from June 1, 2020 to June 17, 2020, the day following the Commission's June 16, 2020, Public Meeting.

Sincerely,

Mike Wilding
Director of Net Power Costs and Regulation

Enclosure

Revised Tariff Sheets

PACIFIC POWER
PROPOSED TARIFF CHANGES TO STANDARD RATES

STANDARD RATES FOR AVOIDED COST PURCHASES FROM ELIGIBLE QUALIFYING FACILITIES

OREGON – May 2020

Monthly Payments (Continued)

Firm Market Indexed and Non-Firm Market Index Avoided Cost Prices
In accordance with the terms of a contract with a Qualifying Facility, the Company shall pay for all separately metered kilowatt-hours of On-Peak and Off-Peak generation at the market prices calculated at the time of delivery. On-Peak and Off-Peak are defined in the definitions section of this schedule.

Avoided Cost Prices

Standard Fixed Avoided Cost Prices for Base Load and Wind QF (¢/kWh)

Fixed Prices ¢/kWh

Deliveries During Calendar Year	Base Load QF (1,3)		Wind QF (2,3)	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price
	(a)	(b)	(c)	(d)
2020	2.58	1.92	2.52	1.86
2021	3.11	2.23	3.05	2.17
2022	3.15	2.26	3.09	2.20
2023	3.24	2.24	3.18	2.17
2024	3.33	2.11	3.26	2.04
2025	3.41	2.14	3.34	2.08
2026	3.71	2.54	3.64	2.47
2027	4.12	2.72	4.05	2.64
2028	4.32	2.85	4.25	2.78
2029	4.72	3.06	4.64	2.99
2030	6.25	3.33	4.13	3.25
2031	6.45	3.46	4.28	3.38
2032	6.65	3.60	4.43	3.52
2033	6.84	3.73	4.58	3.65
2034	7.08	3.90	4.77	3.82
2035	7.31	4.07	4.95	3.98
2036	7.51	4.20	5.10	4.11
2037	7.82	4.45	5.37	4.35
2038	8.08	4.64	5.57	4.54

(C)
(C)

(continued)

Avoided Cost Prices (Continued)

Standard Fixed Avoided Cost Prices for Fixed and Tracking Solar QF (¢/kWh)

(C)

Deliveries During Calendar Year	Fixed Solar QF (2,3)		Tracking Solar QF (2,3)	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price
	(e)	(f)	(g)	(h)
2020	2.51	1.86	2.51	1.86
2021	3.05	2.16	3.05	2.16
2022	3.08	2.19	3.08	2.19
2023	3.17	2.17	3.17	2.17
2024	3.25	2.03	3.25	2.03
2025	3.34	2.07	3.34	2.07
2026	3.63	2.46	3.63	2.46
2027	4.04	2.64	4.04	2.64
2028	4.24	2.77	4.24	2.77
2029	4.63	2.98	4.63	2.98
2030	7.46	3.24	7.67	3.24
2031	7.68	3.37	7.90	3.37
2032	7.91	3.51	8.12	3.51
2033	8.13	3.64	8.35	3.64
2034	8.39	3.81	8.62	3.81
2035	8.65	3.97	8.88	3.97
2036	8.88	4.10	9.11	4.10
2037	9.22	4.35	9.46	4.35
2038	9.50	4.54	9.75	4.54

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(1) Capacity Contribution to Peak for Avoided Proxy Resource and Base Load QF resource are assumed 100%.

(2) The standard avoided cost price for wind and solar QFs located in PacifiCorp's balancing authority area (BAA) are reduced by an integration charge of $0.57/MWh ($2016) and solar integration charge of $0.60/MWh ($2016), respectively.

For Solar and Wind QFs not located in PacifiCorp's BAA, the renewable avoided cost price will be increased by wind integration charge of $0.57/MWh ($2016) and solar integration charge of $0.60/MWh ($2016), respectively.

(3) Standard Resource Sufficiency Period ends December 31, 2029 and Standard Resource Deficiency Period begins January 1, 2030.

(continued)

Avoided Cost Prices (continued)

Renewable Fixed Avoided Cost Prices for Base Load and Wind QF (¢/kWh)

Deliveries During Calendar Year	Renewable Base Load QF (1,4)		Wind QF (1,2,3)	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price
	(a)	(b)	(c)	(d)
2020	2.58	1.92	2.52	1.86
2021	4.05	1.44	1.74	1.38
2022	4.11	1.53	1.74	1.47
2023	4.25	1.52	1.82	1.46
2024	4.38	1.51	1.89	1.45
2025	4.49	1.54	1.94	1.48
2026	4.60	1.56	2.00	1.49
2027	4.72	1.57	2.07	1.50
2028	4.81	1.63	2.09	1.56
2029	4.92	1.65	2.15	1.58
2030	5.04	1.67	2.20	1.59
2031	5.15	1.71	2.25	1.63
2032	5.22	1.79	2.26	1.71
2033	5.31	1.86	2.29	1.78
2034	5.40	1.93	2.32	1.84
2035	5.50	1.98	2.35	1.89
2036	5.61	2.02	2.40	1.93
2037	5.85	2.07	2.44	1.98
2038	5.96	2.12	2.48	2.03

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(C)

(continued)

Avoided Cost Prices (continued)

Renewable Fixed Avoided Cost Prices for Fixed and Tracking Solar QF (¢/kWh)

(C)

Deliveries During Calendar Year	Fixed Solar QF (1,2,3)		Tracking Solar QF (1,2,3)	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price
	(e)	(f)	(g)	(h)
2020	2.51	1.86	2.51	1.86
2021	4.41	1.38	4.71	1.38
2022	4.48	1.46	4.78	1.46
2023	4.62	1.45	4.94	1.45
2024	4.76	1.44	5.08	1.44
2025	4.88	1.47	5.21	1.47
2026	5.00	1.48	5.34	1.48
2027	5.13	1.49	5.48	1.49
2028	5.23	1.55	5.58	1.55
2029	5.35	1.57	5.71	1.57
2030	5.47	1.58	5.84	1.58
2031	5.59	1.63	5.97	1.63
2032	5.68	1.70	6.06	1.70
2033	5.77	1.77	6.16	1.77
2034	5.87	1.83	6.27	1.83
2035	5.98	1.88	6.38	1.88
2036	6.10	1.92	6.51	1.92
2037	6.22	1.97	6.64	1.97
2038	6.33	2.02	6.76	2.02

(C)

(1) For the purpose of determining: (i) when the Renewable Qualifying Facility is entitled to renewable avoided cost prices; and (ii) the ownership of environmental attributes and the transfer of Green Tags to PacifiCorp, Renewable Sufficiency Period ends December 31, 2020 and Renewable Deficiency Period begins January 1, 2021.

(2) During the Renewable Resource Sufficiency Period, the renewable avoided cost price for a wind and solar Qualifying Facility located in PacifiCorp's BAA is reduced by wind integration charge of $0.57/MWh ($2016) and solar integration charge of $0.60/MWh ($2016), respectively.

For Solar and Wind QFs not located in PacifiCorp's BAA, the renewable avoided cost price will be increased by the avoided wind integration charge of $0.57/MWh ($2016) and solar integration charge of $0.60/MWh ($2016), respectively.

(3) During the Renewable Resource Deficiency Period, the renewable avoided cost price for a solar Qualifying Facility located in PacifiCorp's BAA is reduced by the difference between the solar integration charge of $0.60/MWh ($2016) and wind integration charge of $0.57/MWh ($2016). For a wind Qualifying Facility located in PacifiCorp's (BAA), the adjustment is zero. For a solar Qualifying Facility not located in PacifiCorp's BAA, the renewable avoided cost price for solar QF will be increased by the difference between the solar integration and wind integration charges.

(4) During the Renewable Resource Deficiency Period, the renewable avoided cost price for Base Load is increased by the avoided wind integration charge of $0.57/MWh ($2016).

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PACIFIC POWER
AVOIDED COST CALCULATION

STANDARD RATES FOR AVOIDED COST PURCHASES FROM ELIGIBLE QUALIFYING FACILITIES

OREGON – MAY 2020

PACIFIC POWER
AVOIDED COST CALCULATION

STANDARD RATES FOR AVOIDED COST PURCHASES FROM ELIGIBLE QUALIFYING FACILITIES

OREGON – MAY 2020

Standard avoided cost rates are paid to eligible small qualifying facilities (QFs). Oregon avoided cost filing requirements as listed in OAR 860-029-0040 and 860-029-0080 require the Company to file updated avoided costs at least every two years. The Commission Order No. 14-058, requires the Oregon investor owned utilities to update avoided cost prices annually on May 1 of each year and within 30-days of Integrated Resource Plan (IRP) acknowledgment. Annual updates, filed on May 1 of each year, are required to update the following data inputs: (1) natural gas prices; (2) on-peak and off-peak forward looking electricity market prices; (3) production tax credit status; and (4) any other action or change in an acknowledged IRP relevant to the calculation of avoided costs.

The last Oregon avoided costs were approved on April 24, 2019.

Sufficiency and Deficiency Periods

In Docket UM-1396 Order 10-488, the Commission directed that the start date of the first "major resource acquisition" in the action plan of the IRP determines the resource "sufficiency" and "deficiency" periods to be used in calculations of standard avoided cost prices. The sufficiency and deficiency periods used in this filing are based on the 2017 IRP which was acknowledged by the Commission on March 27, 2018.

Table 1 presents 2017 IRP Preferred Portfolio and shows that the earliest acquisition of a Combine Cycle Combustion Turbine (CCCT) is planned to be in 2030. Therefore, the resource sufficiency period for the standard avoided cost rates is from 2020-2029 and the non-renewable resource deficiency period starts in 2030. Table 1 also shows that earliest acquisition of the utility scale renewable resource is in 2021, and therefore the start of the renewable resource deficiency period is 2021.

Avoided Cost Calculation

Based on the 2017 IRP preferred portfolio shown in **Table 1**, the standard avoided cost calculation is separated into two distinct periods: (1) Standard non-renewable resource sufficiency (2020 through 2029) period; and (2) Standard non-renewable resource deficiency (2030 and beyond) period. During the non-renewable resource sufficiency period (2020 through 2029), standard avoided energy costs are based on blended market prices. Market prices from the Company's Official Forward Price Curve are weighted by market transactions required to support the addition of an assumed 50 MW Oregon

Qualified Facility. To calculate the weighting, two production cost studies are prepared. The only difference between the two studies is an assumed 50 aMW, zero running cost resource. System balancing sales and purchase volumes are extracted from both studies and the change between the two studies is calculated for each market hub. This volume impact is used to weight the Company's Official Market Price Forecast on-peak and off-peak market prices for COB, Mid-Columbia, and Palo Verde for each month. **Table 2** shows the result of this calculation.

The sufficiency period for standard renewable rates is 2020 and the standard renewable resource deficiency period starts in 2021. During the renewable resource sufficiency period (2020), the renewable avoided energy costs are based on blended market prices.

During the non-renewable resource deficiency period, the avoided costs are based on the fixed and variable costs of a CCCT proxy resource that could be avoided or deferred. The capacity and fixed costs of CCCT proxy resource used to set standard avoided cost rates beginning in 2030 is a west side CCCT from the 2019 IRP Supply Side Table.[1]

Since CCCTs are built as base load units that provide both capacity and energy, it is appropriate to split the fixed costs of this unit into capacity and energy components. The fixed cost of a simple cycle combustion turbine (SCCT), which is usually acquired as a capacity resource, defines the portion of the fixed cost of the CCCT that is assigned to capacity.[2] Fixed costs associated with the construction of a CCCT which are in excess of SCCT costs are assigned to energy and are added to the variable production (fuel) cost of the CCCT to determine the total avoided energy costs. **Table 3** shows the capitalized energy costs, which are calculated based on the difference between fixed costs of CCCT and SCCT. The fuel cost of the CCCT defines the avoided variable energy costs. The gas price forecast used as the basis for the CCCT fuel cost is discussed later in this document.

During standard renewable resource deficiency period, the standard renewable avoided cost prices are based on resource costs of renewable proxy wind resource from the 2019 IRP Supply Side Table. The standard renewable on-peak price also includes a capacity adder calculated based on the fixed costs of the SCCT adjusted by the incremental capacity contribution of the QF resource relative to the avoided renewable proxy resource. The capacity adder is allocated to on peak hours by using the on peak capacity factor of the QF resource.

Table 4 shows the CCCT fuel cost, the addition of capitalized energy costs at an assumed 72.1% capacity factor, and the total avoided energy costs.

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[1] 396 MW CCCT (Dry "G/H" 1x1) - West Side Resource (1500') –as listed in Tables 6.1 and 6.2 of the 2019 IRP. Fuel costs are from the Company's March 2020 Official Forward Price Curve (2003 OFPC).
[2] SCCT Frame ("F"x1) – East Side Resource (5,050'), as listed in Tables 6.1 and 6.2 of the 2019 IRP.

Because energy generated by a QF may vary, total standard avoided costs are calculated at 75%, 85% and 90% capacity factor to illustrate the impact of differing generation levels. This calculation is shown in **Table 5**.

Standard avoided costs are differentiated between on-peak and off-peak periods, with capacity costs allocated to on-peak periods. On an annual basis, approximately 56% of all hours are on-peak and 44% are off-peak. **Table 6** shows the calculation of on-peak and off-peak avoided energy prices.

For informational purposes, **Tables 7 and 8** show a comparison between current avoided costs currently in effect in Oregon and the avoided costs after incorporating the required updates.

Table 9 shows the calculation of the total fixed costs and fuel costs of the CCCT and SCCT that are used in **Table 3** and **Table 4**. In this filing, the Company's thermal proxy resource is a CCCT located on the west side of the Company's system. Current Commission approved standard non-renewable avoided costs are also based upon a CCCT located on the west side of the Company's system. The costs of SCCT and CCCT resources are updated based on 2019 Supply Side Table. Inflation forecast is not updated and still based on values from March 2018 Official Forward Price Curve.

Gas Price Forecast

Gas prices used in this filing utilize the Company's March 2020 Official Forward Price Curve (2003 OFPC). **Table 10** shows the natural gas price used in this avoided cost calculation.

Table 11 shows wind and solar integration costs used in 2017 IRP.

Table 12 shows the calculation of total resource cost of the renewable proxy wind plant in Wyoming. The capacity costs, fixed O&M plus on-going capital costs, variable O&M, PTC tax credit and capacity factor values of the Wyoming Wind resource are updated based on 2019 IRP Supply Side Table. The total cost of the proxy wind resource is used in the calculation of standard renewable avoided cost rates as shown in "**Exhibits 5 through 8"**.

Table 13 shows the calculation of on-peak and off-peak standard renewable avoided cost prices by applying on-peak and off-peak factors. On-peak and off-peak factors are calculated as a ratio of the average annual on-peak Mid-C market price to the flat Mid-C market price.

Exhibit 1- Std Base Load QF tab shows the calculation of proposed standard avoided cost rates for a base load QF. On and off-peak avoided cost rates are based on blended market rates for 2020-2029. For 2030 and beyond, the off-peak price is based on the fuel and capitalized energy cost of the CCCT proxy. The on-peak price also includes a

capacity adder based on the fixed costs of the SCCT proxy (in $/kW-yr). The adjusted capacity adder in $/kW-yr is allocated to on peak hours by using the on peak capacity factor of the base load QF resource, which is assumed to be equal to on peak capacity factor of CCCT proxy resource.

Exhibit 2- Std Wind QF tab shows the calculation of proposed standard avoided cost rates for a wind QF. On and off-peak avoided cost rates are based on blended market rates for 2020-2029. For 2030 and beyond, the off-peak price is based on the fuel and capitalized energy cost of the CCCT proxy. The on-peak price also includes a capacity adder calculated based on fixed costs of SCCT (in $/kW-yr) adjusted by the expected capacity contribution of a wind QF as identified in the 2017 IRP (West side Wind: 11.8%). The fixed costs of SCCT was updated based on 2019 Supply Side Table. The adjusted capacity adder (in $/kW-yr) is allocated to on peak hours by using the on peak capacity factor of a west side wind QF resource. Standard avoided cost rates for a wind QF are reduced by a wind integration charge of $0.57/MWh ($2016).

Exhibits 3 & 4- Std Solar QF tab shows the calculation of proposed standard avoided cost rates for a solar QF. On and off-peak avoided cost rates are based on blended market rates for 2020-2029. For 2030 and beyond, the off-peak price is based on the fuel and capitalized energy cost of the CCCT proxy. The on-peak price also includes a capacity adder calculated based on the fixed costs of SCCT (in $/kW-yr) adjusted by expected capacity contribution of a solar QF as identified in the 2017 IRP (West side fixed solar: 53.9%, tracking solar: 64.8%). The fixed costs of SCCT was updated based on 2019 Supply Side Table. The adjusted capacity adder (in $/kW-yr) is allocated to on peak hours by using the on peak capacity factor of a solar QF resource. Standard avoided cost rates for a solar QF are reduced by a solar integration charge of $0.60/MWh ($2016).

Exhibit 5- Renewable Base Load tab shows the calculation of proposed standard renewable avoided cost rates for renewable base load QF. For 2020, on- and off-peak renewable avoided cost rates are based on blended market rates. For 2021 and beyond, on- and off-peak prices are based on on-peak and off-peak prices of the renewable wind proxy resource as calculated in Table 12 and Table 13 with resource costs updated based on 2019 IRP Supply Side Table. Starting in 2021, the standard renewable on-peak price also includes a capacity adder calculated based on the fixed costs of the SCCT (in $/kW-yr), adjusted by the incremental capacity contribution of a renewable Base Load QF relative to the avoided renewable east side wind proxy resource. The fixed costs of SCCT was updated based on 2019 Supply Side Table. The adjusted capacity adder in $/kW-yr is allocated to on peak hours by using the on peak capacity factor of a base load QF resource, which is assumed to be equal to on peak capacity factor of CCCT proxy resource. During resource deficiency period rates are increased by avoided wind integration charge.

Exhibit 6- Renewable Wind tab shows the calculation of proposed standard renewable avoided cost rates for a wind QF. On- and off-peak renewable avoided cost rates are based on blended market rates for 2020. For 2021 and beyond, on- and off-peak prices are based on on-peak and off-peak prices of the renewable wind proxy resource as calculated in Table 13 reflecting resource costs from 2019 IRP Supply Side Table. Starting in 2021, the standard renewable on-peak price also includes a capacity adder calculated based on the fixed costs of the SCCT (in $/kW-yr), adjusted by the incremental capacity contribution of a renewable west side Wind QF relative to the capacity contribution of the avoided east side renewable proxy wind resource. The fixed costs of SCCT was updated based on 2019 Supply Side Table. The adjusted capacity adder in $/kW-yr is allocated to on peak hours by using the on peak capacity factor of a west side wind QF resource. During renewable resource sufficiency period of 2020, the standard renewable avoided cost rates for a wind QF are reduced by wind integration charge.

Exhibits 7 & 8- Renewable Solar tab shows the calculation of proposed standard renewable avoided cost rates for a Renewable Solar QF. On- and off-peak renewable avoided cost rates are based on blended market rates for 2020. For 2021 and beyond, on- and off-peak prices are based on on-peak and off-peak prices of the renewable wind proxy resource as calculated in Table 12 and Table 13 with resource costs updated based on 2019 IRP Supply Side Table.. Starting in 2021, the standard renewable on-peak price also includes a capacity adder calculated based on the fixed costs of SCCT (in $/kW-yr), adjusted by the incremental capacity contribution of a renewable Fixed and Tracking Solar QF relative to the avoided renewable east side wind proxy resource. The fixed costs of SCCT was updated based on 2019 Supply Side Table. The adjusted capacity adder in $/kW-yr is allocated to on peak hours by using the on peak capacity factors of a solar QF resource. During renewable resource sufficiency period, the standard renewable avoided costs rates for fixed and tracking solar QF resources are reduced by solar integration charge. During renewable resource deficiency period, the rates are adjusted by the difference in avoided wind and solar integration charges.

Exhibit 9– Blending tab shows the market blending used to weight the Company's Official Forward Price Curve on-peak and off-peak market prices at COB, Palo Verde and Mid-Columbia by month, which are used in the calculation of rates shown in **Table 2.**