

MICHAEL DUVAL
DEPUTY ATTORNEY GENERAL
IDAHO PUBLIC UTILITIES COMMISSION
PO BOX 83720
BOISE, IDAHO 83720-0074
(208) 334-0320
IDAHO BAR NO. 11714

Street Address for Express Mail:
11331 W CHINDEN BLVD, BLDG 8, SUITE 201-A
BOISE, ID 83714

Attorney for the Commission Staff

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF ROCKY MOUNTAIN)	
POWER’S APPLICATION REQUESTING)	CASE NO. PAC-E-23-24
AUTHORIZATION TO UPDATE THE WIND)	
AND SOLAR INTEGRATION RATE FOR)	
SMALL POWER GENERATION)	COMMENTS OF THE
QUALIFYING FACILITIES)	COMMISSION STAFF
_____)	

COMMISSION STAFF (“STAFF”) OF the Idaho Public Utilities Commission, by and through its Attorney of record, Michael Duval, Deputy Attorney General, submits the following comments.

BACKGROUND

On November 29, 2023, Rocky Mountain Power, a division of PacifiCorp (“Company”) applied to the Idaho Public Utilities Commission (“Commission”) for authority to adjust the wind and solar integration rate applicable to new power purchase agreements (“PPAs”) between the Company and wind and solar qualifying facilities (“QFs”) (“Application”).

The Company requests that the Commission issue an order approving the wind integration rate to be decreased from \$1.25 to \$1.18 per megawatt hour (“MWh”), in 2024 dollars, and the solar integration rate increased from \$0.96 to \$1.40 per MWh, in 2024 dollars, which will be applied against published avoided cost rates, except where the QF developer

agrees to schedule and deliver, via a transmission provider, energy output to the Company on a firm hourly basis. Application at 1.

STAFF ANALYSIS

Staff reviewed the Application and its supporting workpapers focusing its analysis on the proposal's compliance with Order Nos. 33937 and 34966. Specifically, Staff reviewed the overall methodology, the historical data in 2018 and 2019, the changes to the preferred portfolio, the treatment of hybrid wind and hybrid solar, the load assumption used in scaling portfolio diversity benefits, the time range of modeled results, the lack of inter-hour analysis, the format of integration charges, and the use of integration charges against published avoided cost rates versus Integrated Resource Plan-based ("IRP-based") avoided cost rates.

Staff recommends approval of the proposed wind and solar integration charges contained in Table No. 1 and Table No. 2. Staff also recommends application of the wind and solar integration charges against both published avoided cost rates and IRP-based avoided cost rates—unless QF developers agree in their PPAs to schedule and deliver, via a transmission provider, the output to the Company on a firm hourly schedule. Finally, Staff recommends the Company perform the following in the next Flexible Reserve Study ("FRS"):

1. Consistently file a case to update integration charges after the acknowledgement of each IRP to comply with Order Nos. 33937 and 34966;
2. Explain why capital and fixed operation and maintenance ("O&M") cost of regulation reserves should not be included in wind and solar integration costs supported by quantifiable evidence;
3. Use the most recent data that meet reasonably sufficient duration of operations;
4. Determine with quantifiable evidence whether hybrid wind or hybrid solar should be treated differently than wind or solar alone;
5. Quantify the effect of holding load constant in scaling portfolio diversity benefits;
6. Create at least 25 years of modeled results so that non-levelized rates are all generated under the same method; and
7. Determine with supporting quantifiable evidence whether integration costs should include inter-hour integration costs included in prior studies.

Order Nos. 33937 and 34966

The Commission requires the Company to update integration charges after the acknowledgement of each IRP. Order Nos. 33937 at 5 and 34966 at 5. The Company did not file a case to update integration charges after the acknowledgement of the 2021 IRP. Staff recommends the Company consistently comply with the Commission Orders.

Overall Methodology

Staff believes the overall methodology used to determine integration cost in the proposed FRS is reasonable; however, Staff questions whether the capital and fixed O&M cost of reserves should be included. The calculation of wind and solar integration charges is based on the amount of regulation reserve necessary to accommodate changes in load and generation to maintain Area Control Error within mandatory parameters established by the BAL-001-2 standard. The Company's overall methodology includes four steps described below and is illustrated in Attachment 1 of these comments.

1. The Company determined the amount of regulation reserves required for each class of variation (wind, solar, load, and non-variable energy resources¹) on a standalone basis for each hour during the historical period of 2018 and 2019. Because the variation of the different classes can cancel each other and because of the Company's participation in the Energy Imbalance Market ("EIM"), the total amount of reserves required for each class on a standalone basis was adjusted for the diversity benefits from the Company's resources and from the EIM.
2. The Company then developed a 20-year future baseline of regulation reserves based on the 2023 IRP preferred portfolio by scaling from the historical data in step 1.
3. After determining a future portfolio baseline, the Company constructed two separate cases: a Wind Reserve Case and a Solar Reserve Case by adding five Megawatts ("MW") of incremental wind to the future baseline and by adding five MW of incremental solar to the future baseline.
4. By calculating the difference in regulation reserve cost for each of the two cases relative to the future baseline established in step 2, the Company was able to calculate the

¹ Non-variable energy resources refer to all non-dispatchable resources that are not wind or solar, such as run-of-river hydro projects. *See* Response to Staff Production Request No. 2.

integration cost of wind and for solar associated with the increase of output from the incremental five MW of wind and solar capacity.

Although this method provides a reasonable method for determining the incremental energy cost to integrate wind and solar through the Company's production cost models, it does not capture any capital and fixed O&M costs of regulation reserves. *See* Response to Production Request No. 38.

The Company plans resources to meet its forecasted load plus a planning reserve margin ("PRM") in its integrated resource plans. The PRM includes an amount of regulation reserve resource capacity used to balance the different classes of variability considered in the integration charge. Thus, Staff believes an allocation of that capacity cost to integrate wind and solar should be included. When asked why the proposed integration charges did not include any cost of capacity, Staff believes the Company's response did not provide sufficient evidence why capacity cost was not included. *See* Response to Production Request No. 39. Staff recommends that the Company explain why capital and fixed O&M cost of regulation reserves should not be included in wind and solar integration costs supported by quantifiable evidence in the next FRS.

Historical Data in 2018 and 2019

Staff believes that it is acceptable to use historical data in 2018 and 2019 in the FRS, even though the Company increased its wind and solar capacity in 2021. However, Staff recommends that the Company use the most recent data that meets a reasonably sufficient duration of operations in future studies.

The reason why the Company used the historical data in 2018 and 2019 was because it did not have time to collect and assess more recent data—which included data associated with the new wind and solar capacity added in 2021. FRS at 125. In addition, even if the Company collected the data, that data would not have sufficient duration to be used for the FRS. *See* Response to Staff's Production Request No. 3.

Changes to Preferred Portfolio

Since the development of the preferred portfolio used in the FRS, there have been several contract changes such as three solar contracts. *See* Response to Staff's Production Request No. 26(a). However, given the modest level of changes, the Company does not expect regulation

reserve requirements to change significantly. *See* Response to Staff’s Production Request No. 26(b). Staff believes that it is acceptable to use the proposed preferred portfolio.

Hybrid Wind or Hybrid Solar

In the FRS, storage paired with either wind or solar resources are treated the same as wind or solar without storage. *See* Response to Staff’s Production Request No. 30. In addition, wind and solar can be paired with existing thermal resources, when there is “Surplus Interconnection.” *See* First Supplemental Response to Staff’s Production Request No. 17(1).

Staff recommends that the Company quantify and determine whether hybrid wind or hybrid solar should be treated differently than wind or solar alone in the next FRS because the former may require different levels of regulation reserve than the latter.

Load Assumption Used in Scaling Portfolio Diversity Benefits

Portfolio diversity benefits exist because forecast errors in each class tend not to occur simultaneously or will occur in offsetting directions. FRS at 145. When the FRS scaled portfolio diversity benefits from the historical data, the study scaled the benefits to a wide variety of wind and solar capacity combinations—while holding the load constant. The Company stated that not holding the load constant would result in a significant number of studies required. *See* Response to Staff’s Production Request No. 35(f). However, the FRS did not explain why load should be held constant, and the Company did not provide evidence to support why excluding it in the scaling process was reasonable. Staff recommends that the Company quantify and determine whether load should be held constant in the next study.

Time Range of Modeled Results

The time range of modeled results ended in 2042—beyond which integration charges were escalated at an inflation rate. *See* Response to Staff’s Production Request No. 37. Staff believes it is acceptable in this case to generate integration charges using an inflation rate after 2042. However, Staff recommends that the Company create at least 25 years of modeled results in the next FRS so that non-levelized rates, which are used to calculate levelized rates for six different online years, are all generated under the same method.

Lack of Inter-hour Analysis

Staff recommends the Company quantify inter-hour integration costs in the next integration cost study and then determine whether the costs are significant enough to be included.

The proposed FRS is focused on intra-hour integration costs without considering inter-hour integration costs. The 2017 FRS considered inter-hour integration costs using day-ahead system balancing costs associated with committing generation resources against a forecast of load and wind generation and dispatching resources against actual load and wind conditions as they occur in real-time. *See* Response to Staff's Production Request No. 25(a). When committed resources are not used in real-time, or when committed resources are used but are less optimized, additional inter-hour costs may incur. *See* Response to Staff's Production Request No. 25(a). Because the inter-hour integration costs were minimal in the 2017 FRS, the Company stopped the inter-hour analysis in the 2019 FRS. *See* Response to Staff's Production Request No. 25(b).

However, Staff compared the inter-hour system balancing cost of wind and solar to the total integration charges in the 2017 FRS which included both intra-hour and inter-hour integration costs. The inter-hour system balancing cost of wind and solar was \$0.14/MWh, which was 24.56% of the total wind integration charge (\$0.57/MWh) and 23.33% of the total solar integration charge (\$0.60/MWh). Staff does not believe this amount of inter-hour integration cost was insignificant enough to be excluded from integration studies. At a minimum, Staff believes the inter-hour costs should be quantified in the next FRS before deciding to exclude it.

Format of Integration Charges

The Company requested that the Commission issue an order approving the wind integration rate of \$1.18 per MWh (in 2024 dollars) for wind-powered QFs and the solar integration rate of \$1.40 per MWh (in 2024 dollars) for solar-powered QFs. Application at 6. Meanwhile, the Company also proposed 20-year levelized and non-levelized integration costs for wind and solar. *See* Table No. 1 and Table No. 2.

Staff believes the format of integration charges should be aligned with the format of avoided cost rates. Therefore, Staff recommends the integration charges in Table No. 1 and Table No. 2.

Table No. 1: Wind Integration Charges

Year	Non-Levelized Rates \$/MWh	Levelized Rates Contract Length	Online Year					
			2024	2025	2026	2027	2028	2029
2024	2.03	1	\$2.03	\$5.64	\$3.51	\$2.26	\$0.45	\$0.36
2025	5.64	2	\$3.76	\$4.61	\$2.91	\$1.39	\$0.41	\$0.31
2026	3.51	3	\$3.68	\$3.89	\$2.15	\$1.07	\$0.36	\$0.30
2027	2.26	4	\$3.37	\$3.13	\$1.76	\$0.89	\$0.34	\$0.28
2028	0.45	5	\$2.87	\$2.66	\$1.50	\$0.79	\$0.32	\$0.26
2029	0.36	6	\$2.53	\$2.33	\$1.33	\$0.71	\$0.30	\$0.24
2030	0.27	7	\$2.28	\$2.10	\$1.21	\$0.64	\$0.28	\$0.24
2031	0.27	8	\$2.09	\$1.92	\$1.11	\$0.60	\$0.28	\$0.26
2032	0.21	9	\$1.94	\$1.78	\$1.03	\$0.57	\$0.28	\$0.25
2033	0.14	10	\$1.81	\$1.66	\$0.98	\$0.56	\$0.28	\$0.26
2034	0.14	11	\$1.71	\$1.58	\$0.94	\$0.54	\$0.28	\$0.26
2035	0.26	12	\$1.63	\$1.52	\$0.90	\$0.53	\$0.29	\$0.27
2036	0.39	13	\$1.58	\$1.46	\$0.87	\$0.52	\$0.29	\$0.29
2037	0.24	14	\$1.52	\$1.41	\$0.85	\$0.51	\$0.30	\$0.31
2038	0.29	15	\$1.48	\$1.37	\$0.83	\$0.52	\$0.32	\$0.33
2039	0.34	16	\$1.44	\$1.34	\$0.83	\$0.53	\$0.34	\$0.34
2040	0.36	17	\$1.41	\$1.32	\$0.83	\$0.54	\$0.36	\$0.36
2041	0.67	18	\$1.39	\$1.30	\$0.83	\$0.54	\$0.37	\$0.37
2042	0.81	19	\$1.37	\$1.29	\$0.83	\$0.55	\$0.38	\$0.39
2043	0.83	20	\$1.36	\$1.28	\$0.83	\$0.56	\$0.39	\$0.40
2044	0.84	21						
2045	0.86	22						
2046	0.88	23						
2047	0.90	24						
2048	0.91	25						

Table No. 2: Solar Integraion Charges

Year	Non-Levelized Rates \$/MWh	Levelized Rates Contract Length	Online Year					
			2024	2025	2026	2027	2028	2029
2024	1.92	1	\$1.92	\$3.85	\$4.80	\$3.48	\$0.64	\$0.67
2025	3.85	2	\$2.85	\$4.30	\$4.17	\$2.12	\$0.65	\$0.72
2026	4.80	3	\$3.45	\$4.05	\$3.08	\$1.67	\$0.69	\$0.71
2027	3.48	4	\$3.46	\$3.29	\$2.54	\$1.47	\$0.69	\$0.71
2028	0.64	5	\$2.98	\$2.85	\$2.24	\$1.34	\$0.70	\$0.67
2029	0.67	6	\$2.66	\$2.56	\$2.03	\$1.26	\$0.67	\$0.64
2030	0.77	7	\$2.45	\$2.35	\$1.88	\$1.17	\$0.64	\$0.63
2031	0.70	8	\$2.28	\$2.20	\$1.75	\$1.10	\$0.63	\$0.65
2032	0.72	9	\$2.16	\$2.06	\$1.64	\$1.06	\$0.65	\$0.63
2033	0.46	10	\$2.04	\$1.95	\$1.57	\$1.04	\$0.63	\$0.62
2034	0.43	11	\$1.94	\$1.87	\$1.53	\$1.00	\$0.62	\$0.62
2035	0.58	12	\$1.87	\$1.81	\$1.47	\$0.98	\$0.62	\$0.62
2036	0.81	13	\$1.82	\$1.75	\$1.42	\$0.96	\$0.63	\$0.65
2037	0.45	14	\$1.77	\$1.70	\$1.39	\$0.95	\$0.65	\$0.68
2038	0.49	15	\$1.72	\$1.65	\$1.36	\$0.96	\$0.67	\$0.70
2039	0.59	16	\$1.68	\$1.62	\$1.36	\$0.97	\$0.69	\$0.72
2040	0.70	17	\$1.65	\$1.61	\$1.35	\$0.98	\$0.71	\$0.74
2041	1.16	18	\$1.64	\$1.60	\$1.35	\$0.99	\$0.73	\$0.76
2042	1.30	19	\$1.63	\$1.59	\$1.35	\$1.00	\$0.75	\$0.78
2043	1.32	20	\$1.62	\$1.59	\$1.35	\$1.01	\$0.76	\$0.79
2044	1.35	21						
2045	1.38	22						
2046	1.40	23						
2047	1.43	24						
2048	1.46	25						

Published Avoided Cost Rates Versus IRP-based Avoided Cost Rates

The Company proposed the use of integration charges against published avoided cost rates only. Application at 6. However, in practice, the Company uses the same integration charges in the IRP-based methodology. See Response to Staff’s Production Request No. 22. Therefore, Staff recommends that integration charges contained in Table No. 1 and Table No. 2 be used to discount both published avoided cost rates and IRP-based avoided cost rates.

STAFF RECOMMENDATION

Staff recommends approval of the proposed wind and solar integration charges contained in Table No. 1 and Table No. 2. Staff also recommends application of the wind and solar integration charges against both published avoided cost rates and IRP-based avoided cost rates—unless QFs developers agree in their PPAs to schedule and deliver (via a transmission provider) the output to the Company on a firm hourly schedule. Finally, Staff recommends the Company perform the following in the next FRS:

1. Consistently file a case to update integration charges after the acknowledgement of each IRP to comply with Order Nos. 33937 and 34966;
2. Explain why capital and fixed operation and maintenance cost of regulation reserves should not be included in wind and solar integration costs supported by quantifiable evidence;
3. Use the most recent data that meet reasonably sufficient duration of operations;
4. Determine with quantifiable evidence whether hybrid wind or hybrid solar should be treated differently than wind or solar alone;
5. Quantify the effect of holding load constant in scaling portfolio diversity benefits;
6. Create at least 25 years of modeled results so that non-levelized rates are all generated under the same method; and
7. Determine with supporting quantifiable evidence whether integration costs should include inter-hour integration costs included in prior studies.

Respectfully submitted this 28th day of March 2024.



Michael Duval
Deputy Attorney General

Technical Staff: Yao Yin

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Attachment 1



CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT I HAVE THIS 28TH DAY OF MARCH 2024, SERVED THE FOREGOING **COMMENTS OF THE COMMISSION STAFF**, IN CASE NO. PAC-E-23-24, BY E-MAILING A COPY THEREOF, TO THE FOLLOWING:

MARK ALDER
ROCKY MOUNTAIN POWER
1407 WEST NORTH TEMPLE STE 330
SALT LAKE CITY UT 84116
E-MAIL: mark.alder@pacificorp.com

JOE DALLAS
ROCKY MOUNTAIN POWER
825 NE MULTNOMAH ST
STE 2000
PORTLAND OR 97232
E-MAIL: joseph.dallas@pacificorp.com

DATA REQUEST RESPONSE CENTER
E-MAIL ONLY:
datarequest@pacificorp.com



PATRICIA JORDAN