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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION OF ROCKY MOUNTAIN POWER FOR AUTHORIZATION TO UPDATE THE WIND AND SOLAR INTEGRATION RATE FOR SMALL POWER GENERATION QUALIFYING FACILITIES	**CASE NO. PAC-E-20-14** **COMMENTS OF THE COMMISSION STAFF**

COMES NOW the Staff of the Idaho Public Utilities Commission ("Staff"), by and through its attorney of record, John R. Hammond, Jr., Deputy Attorney General, and in response to the Notice of Modified Procedure issued in Order No. 34888 on January 12, 2021, submits the following comments.

BACKGROUND

On October 8, 2020, Rocky Mountain Power, a division of PacifiCorp (the "Company") requested authority to increase the wind and solar integration rate applicable to new power purchase agreements ("PPAs") between the Company and wind and solar qualifying facilities ("QFs").

The Company asks the Commission to authorize an increase in the wind integration rate for PPAs with wind-powered QFs from $0.57 to $1.11 per megawatt-hour ("MWh"), and the solar integration rate from $0.60 to $0.85 per MWh. *Application* at 1.

The Company's wind integration rate offsets the published avoided cost rates the Company pays for power under the Public Utility Regulatory Policies Act ("PURPA"). The rate reduces published avoided cost rates to account for the costs of integrating wind QFs into the Company's system. Order No. 30497 at 6. When a utility has agreed to buy power from a QF under PURPA, the rates for such power must not exceed the utility's "avoided cost"---what the utility would have incurred had it generated or acquired the power elsewhere. If the costs of integrating wind into the Company's system are not calculated and properly allocated to the PURPA project developers, those costs will be impermissibly passed on to utility customers in the avoided costs. This Commission first approved the Company's wind integration rate in 2008. *See* Order No. 30497. The rate was set forth in a stipulation between parties in Case No. PAC-E-07-07, which the Commission approved. *Id.* at 6, 12-13. The parties to that case agreed that: the Company's:

> [the Company's] published avoided-cost rates for Wind QFs will be adjusted to recognize an assumed cost of integrating the energy generated by Wind QFs as a part of the Company's generating resource portfolio. The integration charge will be equivalent to the calculated cost of wind integration on a per MWh [basis] provided in the Company's most recent Commission-acknowledged Integrated Resource Plan.

Id. at 6. The stipulation also required the Company to notify "the Commission of any changes to its wind integration rate as reflected in subsequent changes to its IRP." *Id.*

The Company's wind integration and solar integration rates were last updated in Case No. PAC-E-17-11 to $0.57 per MWh for wind QFs and $0.60 per MWh for solar QFs. Order No. 33937 at 4. The Commission also ordered the Company to update its studies with actual solar data as such data becomes available and to file any future updates to its integration rate after the Commission has acknowledged the IRP supporting the updates. *Id.* at 5.

The Company's proposed, updated wind and solar integration rates are calculated using information regarding regulation reserve from the Company's 2019 Integrated Resource Plan ("IRP"). The Company filed its 2019 IRP on October 18, 2019, in Case No. PAC-E-19-16. The Company attached the 2019 IRP Appendix F, the 2019 Flexible Reserve Study ("2019 FRS"), as Exhibit A to the Application. The 2019 FRS estimates the regulation reserve required to maintain system reliability and comply with North American Electric Corporation ("NERC") reliability standards as well as the incremental cost of this regulation. *Application* at 3.

STAFF ANALYSIS

Staff reviewed the Company's Application and information provided through discovery. From its review, Staff concludes the following:

1. The Company's method for calculating wind and solar integration rates is reasonable.
2. An error in the calculation of the wind integration rate should be corrected.
3. The integration rate results from the 2019 FRS are reasonable.
4. The integration rates should be applied outside of the Surrogate Avoided Resource ("SAR") model in a format proposed in Attachment A and applied after Monthly Weighting Factors and Heavy Load Hour and Light Load Hour Adjustments are used.
5. The avoided costs derived from the Company's IRP Method do not require an integration cost adjustment since integration costs are embedded in the Company's IRP Method models.
6. When integration rates warrant a waiver, the Company should still include other provisions such as Mechanical Availability Guarantee ("MAG") and forecasting fees to fully replace 90/110 requirements.

Each of these conclusions and Staff's recommendations is discussed in more detail below.

Integration Rate Method and Results

The Company's method for calculating integration rates in the 2019 FRS is reasonable and the results of the method are reasonable to apply in future QF PPAs. Staff evaluated the 2019 FRS by reviewing the method, input assumptions, and the results of the study.

Integration Rate Method and Assumptions

Staff believes the method and input assumptions are reasonable because it relies on up-to-date information and evaluates the rates over an appropriate timeframe. The 2019 FRS first estimates regulation reserve requirements based on 2017 actual operational data that is used to produce an hourly forecast of regulation reserve requirements that ensures reliability with NERC standards. Next, the 2019 FRS calculates the cost of holding these reserves for incremental wind and solar resources. Finally, the 2019 FRS compares the Company's overall operating reserve requirements over the 20-year study period to its flexible resource supply to determine the proposed integration rates. *Application* at 3-5.

Staff's review of the 2019 FRS identified the following changes from the 2017 FRS:

- Regulation reserve requirements are co-optimized in quantile regression. *Id.* at 4.
- Actual hourly load schedules are used instead of proxy schedules. *Id.*
- Actual solar schedules are used instead of proxy schedules. *Id.*
- Energy Imbalance Market ("EIM") information is based on actual operational experience. *Id.*
- Integration costs are based on a future 2030 study period and escalated relative to 2030 values instead of using a 2017 study period and escalating cost at inflation into the future. Response to Staff's Production Request No. 1b.
- Inter-hour balancing integration costs were excluded due to minimal impact in the 2017 FRS. Application at 5.
- Incremental impact of changes in forecasted load on reserve requirement were accounted for in the 2019 FRS. 2019 FRS at 107.

Staff considers most of the identified changes to be minor, but in total help improve the accuracy of the 2019 FRS. The two most important changes are the use of actual solar schedules and the change to a future 2030 study period. The use of actual solar schedules is important because Order No. 33937 directed the Company to use actual solar data as it became available. The Company's use of actual solar data in the 2019 FRS satisfies Order No. 33937 requirements and should improve the accuracy of the integration rates.

The change to use a future 2030 study period is important and appropriate given the planned changes that will be occurring to the Company's system over the next ten years. The Company states in its response to Staff's Production Request No. 3:

> Because of retirements and resource additions, regulation reserve requirements and capability are expected to change significantly in the next few years. [sic] 2030 represents a reasonable snapshot of the conditions that are likely to be prevalent in the future. 2030 was also used to determine planning reserve margins ("PRM") and capacity contribution for the same reasons. Details on the portfolio used to determine PRM are provided in Appendix I - Planning Reserve Margin Study, of Volume II of the 2019 Integrated Resource Plan.

To ensure that integration rates are commensurate with the need for reserves as the Company's system undergoes significant change, moving to a method that can incorporate a 2030 study period is much more likely to produce more accurate integration rates in the future.

Staff reviewed the input assumptions and calculations used to develop the integration rates including a review of the base case portfolios, the proxy resources used, the use of a 2030 study period, and adjustments and corrections the Company made to its data. Besides three concerns discussed below, Staff believes the input assumptions are reasonable and that the calculations produce reasonable results. The input assumptions were previously vetted in the 2019 IRP and were further reviewed in this case. Staff also reviewed the calculations to ensure they aligned with the method.

First, Staff identified an error in the number of hours in a year used in the calculations and recommends that the error in the wind integration rate should be corrected. Staff verified the error through Staff's Production Request No. 17. Correcting the error will increase the wind integration rate by approximately 1%.

Second, Staff is concerned with using the same escalators for wind and solar. The Company developed and applied escalators to wind and solar rates based on 50 MW of reserves, which matches the 50 aMW[1] on an hourly basis determined for 500 MW incremental wind in 2030.[2] However, the escalator for solar is 24.4 aMW per hour of reserves based on the reserves needed for solar in 2030. According to the response to Staff's Production Request No. 18, the Company believed that the relative year-to-year change calculated for the flat reserve requirement was reasonable for both wind and solar. Staff is not certain of the effect of applying the flat rate quantity to solar since this would need to be modeled to determine the effect, but Staff believes the Company should consider evaluating the use of separate escalator values for wind and solar in future studies.

Finally, Staff was concerned with using different levels of granularity of time between the different base cases. These base cases were compared to the cost of portfolios that included incremental wind or solar to calculate the integration cost of each. The base case for the 50 MW Reserve Case is calculated on a monthly basis; whereas the base case for the Wind Reserve Case

[1] The 500 MW incremental wind causes 438,000 MW additional regulation reserves in 8760 hours in 2030. *See* file "App F - Flex Study PaR results.xlsx" in Response to Staff's Production Request No. 2.

[2] The regulation reserve for wind in the 2030 Portfolio is 10.1% of wind nameplate. *See* Table F.11 of Flexible Reserve Study.

and the Solar Reserve Case is calculated on an hourly basis. Ideally all base case portfolios would use the same level of granularity so that the total system cost would be the same. However, the difference is only about $600,000 in total system cost between the different base cases, or a .0028% difference when compared to the total system cost. More importantly, the Company used the same level of granularity for the wind and solar portfolios that were compared to the corresponding base cases preserving accuracy on a relative basis. Because of these reasons, Staff does not believe this is a major concern.

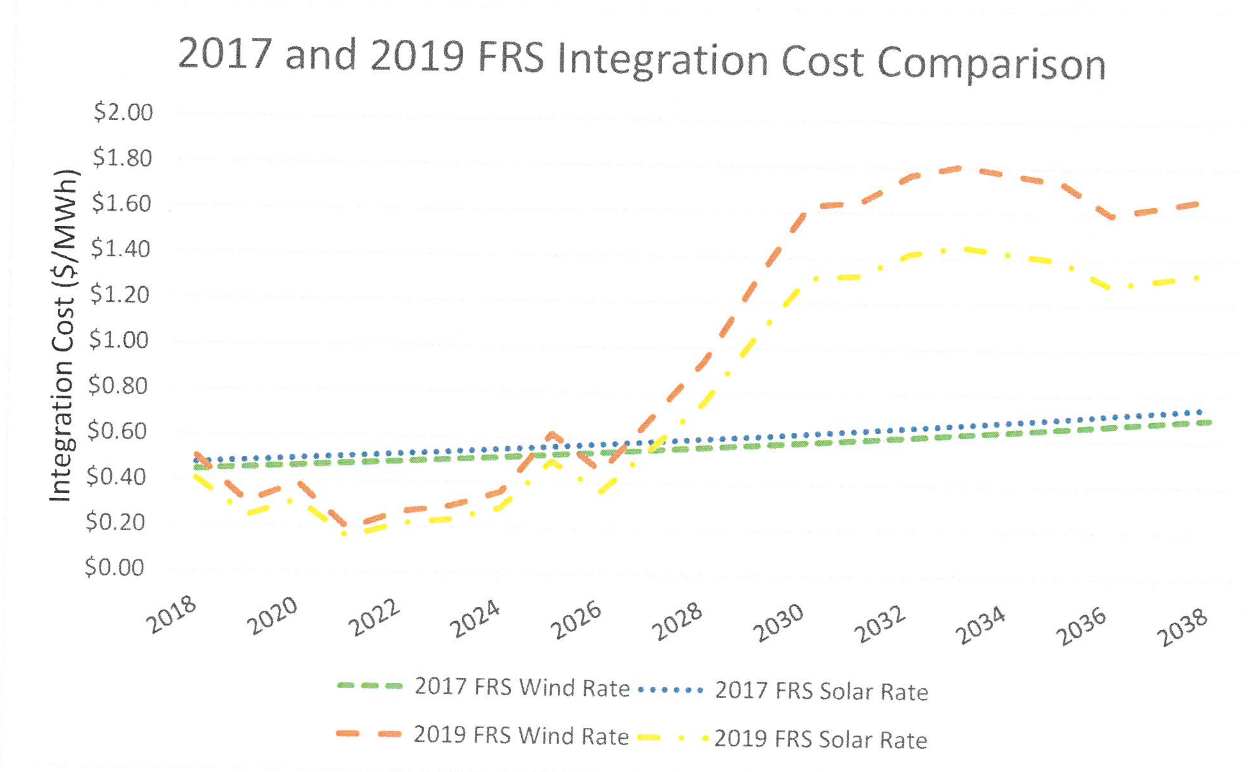
Integration Rate Results

Staff believes the integration rate results determined in the 2019 FRS are reasonable because the results are based on refinements to a method used to determine previously approved integration rates. In addition, the Company has used technical review committees and the IRP process to vet the methods and final results.

Although the Company has submitted increases in wind and solar integration rates in this year's filing, the Company's wind integration rates have historically trended down. Solar does not have a trend, since this is only the second time a solar integration rate has been submitted for approval.[3] Staff believes the major reasons for the Company's historical reductions in wind integration rates are related to changes in the regional and Company resource mix, refinements in the FRS method over the past several years, but most importantly, the Company's participation in the EIM. However, the incremental benefit of the EIM is diminishing because the gains from the Company's participation have already been realized and are reflected in the actual data used in determining prior and the proposed integration rates. The increases proposed in this year's filing are primarily a result of how the Company's system will change in the future facilitated by the change in method using a 2030 study period.

Comparing the single levelized wind and solar rates proposed in this case to historical rates does not provide a clear picture of the effect of the Company's method change using a 2030 study period. The graph below illustrates this effect by comparing the yearly 2017 FRS rates to the yearly 2019 FRS rates. By changing the method, the Company can reflect a truer picture of how integration rates will change as the amount of wind and solar are added to the system and as the amount of regulating reserve resources are added or retired from the system.

[3] The first-time solar integration rates were submitted to the Commission was in Case No. PAC-E-17-11.



From the graph, the 2019 rates decrease below the 2017 rates for the first several years and increase well above the 2017 rates starting around 2027. The integration rates are lower in the first several years due to a generation surplus (such as the addition of capacity from the EV2020 project prior to the system being capacity deficient), but the surplus becomes smaller over time as a result of coal unit retirements and load growth, which drive up the cost of providing additional operating reserves. *See* Company Response to Staff's Production Request No. 1.

Format of Integration Rates for Published Rates

The Company proposes a wind integration rate of $1.11/MWh and a solar integration rate of $0.85/MWh to be used in the SAR model for both levelized and non-levelized published avoided cost rates throughout a QF's entire contract term. Staff proposes to deactivate the integration rate calculations for the Company in the SAR model, change the format of wind and solar integration rates that currently appear as constant values, and modify the rates so they reflect rates tied to the cost of integrating wind and solar in the Company's system over time. This would require providing the rates outside of the SAR model.[4]

Currently, the SAR model allows one constant number for both wind and solar integration rates, even though the Company's 2019 FRS produces different integration rates for different years. Staff proposes non-levelized integration rates based directly on the Company's study results and calculating levelized integration rates for different online years for different contract lengths as illustrated in Attachment A.[5] Staff believes this will result in more accurate integration rates corresponding to the cost of integrating wind and solar over the life of a contract and will provide the correct levelization timeframe based on the online date of the QF. Staff also recommends that the Company use this format for future integration rate filings.

Staff calculated the levelized integration rates for different online years and different contract terms, using the Company's Overall Weighted Cost of Capital Percentage of 7.98%[6] in the SAR model. Because the Company proposes to apply integration rates as an adjustment to published rates only, Staff believes the rates should be calculated using the same Overall Weighted Cost of Capital Percentage authorized in the SAR model.

Integration Rates under IRP Method

The Company proposes to only apply the proposed integration rates to published avoided cost rates, because IRP avoided cost rates automatically reflect integration rates under the Company's IRP Method. Staff agrees. In the Company's IRP Method, avoided cost rates for a specific QF are determined by comparing a scenario with the QF and a scenario without the QF. Both scenarios have their respective regulation reserve requirements; therefore, integration rates are automatically embedded in the final avoided cost rates. *See* Response to Staff's Production Request No. 22.

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[4] Idaho Power Company's wind and solar integration rates are provided in Schedule 87 outside of the SAR model.
[5] The integration rates in Attachment A should be applied after Monthly Weighting Factors and Heavy Load Hour and Light Load Hour Adjustments are applied to be consistent with how integration rates are currently applied in the SAR model.
[6] 7.98% was approved in Order No. 32196 in PAC-E-10-07, the Company's latest General Rate Case.

Firm Energy Delivery

The Company proposes to apply integration rates to wind and solar QFs unless the QF developer agrees in a PPA to schedule and deliver, via a transmission provider, the output to the Company on a firm hourly basis. However, the Commission already approved this treatment in Case No. PAC-E-17-11, Order No. 33937, which states, "[t]hese rates apply against published avoided cost rates under PURPA, unless the QF developer agrees in the power purchase agreement to schedule and deliver, via a transmission provider, the QF output to the Company on a firm hourly basis." Order No. 33937 at 4.

Although Staff does not disagree the findings in Order No. 33937; there is a question how these findings affect the special case when the Commission allowed QF wind contracts to replace 90/110 firmness requirements with a MAG, forecasting fees, and integration rates. *See* Order Nos. 30488, 30497, 30500, 30924, and 30925.

The purpose of an integration rate is to discount the avoided cost by the cost the Company incurs to regulate wind and solar into the Company's system. However, in the case when a QF is in an external balancing authority area ("BAA"), the QF is responsible for all integration rates in those BAAs associated with the transmission service up until the point where output is delivered to the Company, without incurring any integration rates in the Company's BAA. To provide a fixed hourly schedule, the source BAA would need to make up any intra-hour imbalance and would charge the QF for that service in accordance with its transmission tariff. As a result, the Company would not incur an integration cost in that instance. *See* Response to Staff's Production Request No. 21. Because the integration cost will have already been paid by the QF, it only replaces the Company's integration rate. Therefore, Staff believes that when situations that warrant a waiver of integration rates occur, the Company should still include other provisions such as MAG and forecasting fees to fully replace 90/110 requirements.

STAFF RECOMMENDATION

Staff recommends the Commission:

1. Approve wind and solar integration rates as shown in Attachment A that:

   a) corrects for the error identified above, and

   b) reflects non-levelized rates and levelized rates by first operation date.

2. Approve the format and the method used to derive the rates as illustrated in Attachment A and require the Company to submit the rates in this format in future filings.

Respectfully submitted this 12th day of February 2021.

John R. Hammond, Jr.
Deputy Attorney General

Technical Staff: Michael Eldred
Johan Kalala-Kasanda
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Wind and Solar Integration Charges

Table 1. Wind Integration Charges

Year	Non-Levelized Rates $/MWh	Levelized Rates Contract Length	Online Year 2021	2022	2023	2024	2025	2026
2021	0.19	1	$0.19	$0.27	$0.29	$0.36	$0.62	$0.45
2022	0.27	2	$0.23	$0.28	$0.32	$0.48	$0.54	$0.57
2023	0.29	3	$0.25	$0.30	$0.41	$0.47	$0.59	$0.69
2024	0.36	4	$0.27	$0.37	$0.42	$0.52	$0.67	$0.82
2025	0.62	5	$0.33	$0.39	$0.47	$0.60	$0.78	$0.96
2026	0.45	6	$0.35	$0.43	$0.54	$0.69	$0.89	$1.05
2027	0.70	7	$0.39	$0.49	$0.62	$0.80	$0.98	$1.13
2028	0.94	8	$0.44	$0.56	$0.72	$0.88	$1.05	$1.20
2029	1.31	9	$0.51	$0.65	$0.79	$0.95	$1.11	$1.24
2030	1.63	10	$0.59	$0.72	$0.86	$1.01	$1.16	$1.28
2031	1.65	11	$0.65	$0.78	$0.92	$1.05	$1.19	$1.30
2032	1.77	12	$0.71	$0.84	$0.96	$1.09	$1.21	$1.32
2033	1.81	13	$0.76	$0.88	$1.00	$1.11	$1.23	$1.33
2034	1.77	14	$0.80	$0.92	$1.02	$1.14	$1.25	$1.35
2035	1.74	15	$0.84	$0.94	$1.04	$1.15	$1.27	$1.36
2036	1.60	16	$0.86	$0.96	$1.06	$1.17	$1.28	$1.38
2037	1.63	17	$0.89	$0.98	$1.08	$1.19	$1.30	$1.39
2038	1.67	18	$0.91	$1.00	$1.10	$1.21	$1.31	$1.40
2039	1.71	19	$0.93	$1.02	$1.12	$1.22	$1.33	$1.41
2040	1.75	20	$0.94	$1.04	$1.13	$1.24	$1.34	$1.43
2041	1.79	21						
2042	1.83	22						
2043	1.87	23						
2044	1.91	24						
2045	1.96	25						

Wind and Solar Integration Charges

Table 2. Solar Integration Charges

Year	Non-Levelized Rates $/MWh	Levelized Rates Contract Length	Online Year 2021	2022	2023	2024	2025	2026
2021	0.15	1	$0.15	$0.22	$0.24	$0.29	$0.50	$0.37
2022	0.22	2	$0.18	$0.23	$0.26	$0.39	$0.43	$0.46
2023	0.24	3	$0.20	$0.24	$0.33	$0.38	$0.47	$0.55
2024	0.29	4	$0.22	$0.30	$0.34	$0.42	$0.54	$0.66
2025	0.50	5	$0.27	$0.31	$0.38	$0.48	$0.62	$0.77
2026	0.37	6	$0.28	$0.35	$0.43	$0.56	$0.72	$0.85
2027	0.56	7	$0.31	$0.39	$0.50	$0.64	$0.79	$0.91
2028	0.76	8	$0.35	$0.45	$0.58	$0.71	$0.85	$0.96
2029	1.05	9	$0.41	$0.52	$0.64	$0.76	$0.89	$1.00
2030	1.31	10	$0.47	$0.58	$0.69	$0.81	$0.93	$1.03
2031	1.32	11	$0.52	$0.63	$0.74	$0.85	$0.96	$1.04
2032	1.42	12	$0.57	$0.67	$0.77	$0.88	$0.98	$1.06
2033	1.45	13	$0.61	$0.71	$0.80	$0.90	$0.99	$1.07
2034	1.42	14	$0.65	$0.74	$0.82	$0.91	$1.01	$1.08
2035	1.40	15	$0.67	$0.76	$0.84	$0.93	$1.02	$1.10
2036	1.28	16	$0.69	$0.77	$0.86	$0.94	$1.03	$1.11
2037	1.31	17	$0.71	$0.79	$0.87	$0.96	$1.04	$1.12
2038	1.34	18	$0.73	$0.81	$0.89	$0.97	$1.06	$1.13
2039	1.37	19	$0.74	$0.82	$0.90	$0.98	$1.07	$1.14
2040	1.41	20	$0.76	$0.83	$0.91	$0.99	$1.08	$1.15
2041	1.44	21						
2042	1.47	22						
2043	1.50	23						
2044	1.54	24						
2045	1.57	25						

CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT I HAVE THIS 12th DAY OF FEBRUARY 2021, SERVED THE FOREGOING **COMMENTS OF THE COMMISSION STAFF,** IN CASE NO. PAC-E-20-14, BY E-MAILING A COPY THEREOF, TO THE FOLLOWING:

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