ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

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February 13, 2018

VIA OVERNIGHT DELIVERY

Idaho Public Utilities Commission
472 West Washington
Boise, ID 83702

Attention: Diane Hanian
Commission Secretary

RE: PAC-E-17-03 – PACIFICORP'S APPLICATION FOR ACKNOWLEDGEMENT OF THE 2017 INTEGRATED RESOURCE PLAN

Dear Ms. Hanian:

Please find enclosed an original and nine (9) copies, of PacifiCorp's Reply Comments in the above referenced matter.

Informal inquiries may be directed to Ted Weston, Idaho Regulatory Manager, at (801) 220-2963.

Sincerely,

Joelle Steward
Vice President, Regulation

Enclosures

cc: Jim Yost, Idaho Governor's Office (without enclosures)
Benjamin Otto, Idaho Conservation League (without enclosures)
Mark Stokes, Idaho Power Company (without enclosures)
Teri Carlock, Idaho Public Utilities Commission staff (without enclosures)
Randall Budge, Monsanto (without enclosures)
Nancy Kelly, Western Resource Advocates (without enclosures)

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Attorney for Rocky Mountain Power

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF PACIFICORP DBA ROCKY MOUNTAIN POWER'S 2017 INTEGRATED RESOURCE PLAN	**) CASE NO. PAC-E-17-03** **)** **) REPLY COMMENTS OF** **) ROCKY MOUNTAIN POWER** **)**

COMES NOW PacifiCorp, d/b/a Rocky Mountain Power ("RMP" or the "Company") and, pursuant to Rules 56 and 256 of the rules of Procedure of the Idaho Public Utilities Commission (the "Commission"), hereby submits reply comments in the above referenced case.

INTRODUCTION

The Company filed its 2017 Integrated Resource Plan ("IRP") with the Commission on April 4, 2017, in accordance with the Commission's rules and in compliance with Commission Order No. 22299 requiring utilities to file a Resource Management Report on a biennial basis.

In response to the Commission's Notice of Filing and Modified Procedure Order in this docket, written comments were filed with the Commission by January 12, 2018 by Commission Staff and Monsanto, collectively, the "Parties".

The Company appreciates the time and effort undertaken by the Parties to review and provide comments on the 2017 IRP. The Company respectfully submits the following reply comments for the Commission's consideration.

SUMMARY AND RECOMMENDATIONS

The Company supports Staff's recommendation that the Commission acknowledge the 2017 IRP. Staff's comments also include a detailed summary of the Company's 2017 IRP and makes three recommendations for future IRPs. Staff further expresses support for the Company's continued approach to modeling demand-side management resources as resources that simultaneously compete against other supply-side resources to meet the Company's capacity and energy deficits.

Staff and Monsanto express some concern with the 2017 IRP public input process and the Company's analysis of the new wind, transmission and wind repowering projects selected in the 2017 IRP preferred portfolio and action plan. Staff raises additional concerns regarding the Company's modeling of coal plants and natural gas price forecast. The Company hopes to alleviate these concerns through the following clarifications in support of its modeling assumptions and resource strategy conclusions. The Company also attempts to correct certain misconceptions with some of the information presented in the 2017 IRP.

REPLY TO COMMENTS

Energy Vision 2020 Projects

The 2017 IRP and action plan comply with the Commission's Standards and Guidelines for resource planning and identifies how the Company plans to provide reliable electricity supply at a reasonable cost. The economic benefits of the near-term, time-limited Energy Vision 2020 projects included in the 2017 IRP preferred portfolio are bolstered by federal wind

production tax credits ("PTCs"). These heavily discounted resources will be used to partially meet both near-term and long-term resource needs, are lower cost than near-term and long-term resource alternatives, and will provide significant savings to customers. As supported by extensive cost and risk analysis, the Energy Vision 2020 projects are a critical element of the Company's least-cost, least-risk plan and are in the public interest.

The Company developed the 2017 IRP using the same approach to establish its least-cost, least-risk resource plan as has been used in prior IRPs. The Company disagrees with Monsanto's claim that the Company abandoned or deviated from that focus.[1] In fact, selection of the 2017 IRP preferred portfolio was supported by more than 200 Planning and Risk ("PaR") studies. Each PaR study includes 50 iterations of system performance, which equates to over 10,000 simulations of potential 20-year system dispatch outcomes.[2] The 2017 IRP preferred portfolio was selected after evaluating 39 different cases.[3] The portfolios were developed from 88 different supply-side resource options, including thermal generation resources, a broad spectrum of renewables, including wind, solar, and geothermal resources; and several different types of storage resources. The Company also analyzed its ability to meet system load with firm market transactions, and included robust transmission analysis when producing and evaluating resource portfolios that can reliably and cost-effectively meet customer demand with manageable risk.

Although the 2017 IRP uses a 20-year planning horizon, the action plan identifies the specific resource actions the Company intends to undertake in the next two years and its anticipated actions in the last two years of the four-year action plan horizon. The key resource

[1] See Comments of Monsanto Company, p. 3 (January 12, 2018).
[2] 2017 IRP, Vol. I, p. 179 (April 4, 2017).
[3] *Id.*, at 203.

actions in the 2017 IRP action plan include the following items that are the cornerstones of the Company's proposed Energy Vision 2020 projects:

- **Action Item 1a**: PacifiCorp's plan to upgrade, or "repower," existing wind resources because it provides net benefits to customers by increasing energy production, reducing operating costs, and requalifying PacifiCorp's existing wind resources for PTCs, which expire 10 years after a facility's original commercial operation date. To achieve the full PTC benefits, PacifiCorp must complete the wind repowering project by the end of 2020.
- **Action Items 1c and 2a**: The acquisition of at least 1,100 MW of new Wyoming wind resources that will capture a time-limited resource opportunity arising from the expiration of PTCs. The proposed wind resources will be acquired in conjunction with a new 140-mile, 500 kV transmission line and associated infrastructure running from the new Aeolus substation near Medicine Bow, Wyoming, to a new annex substation, Bridger/Anticline, which will be located near the existing Jim Bridger substation (Aeolus-to-Bridger/Anticline line). The transmission project is necessary to relieve existing congestion and will enable interconnection of the proposed wind resources into PacifiCorp's transmission system. The proposed wind resources net of PTC benefits, when combined with the transmission resource, are expected to meet near- and long-term resource needs and provide economic benefits for PacifiCorp's customers, if both resources are operational by the end of 2020. The Company will undergo a competitive solicitation process for the engineer, procure and construct contract for the transmission project which

should address Monsanto's concern that the company should have the opportunity to compare to the market and ensure it is least-cost.[4]

Contrary to Monsanto's claim that the Energy Vision 2020 projects are not driven by any need for a new resource, upon being placed in service, these resources will be used to meet system load requirements and will continue to meet system load requirements through their respective lives. While these resources, as system resources, will contribute to the Company's ability to meet state renewable energy targets in Oregon, Washington, California, and Utah, as well as meet the growing desire for renewable energy resources in local jurisdictions the Company serves,[5] they are not required to comply with renewable energy policies as Monsanto asserts.[6] The Company's 2017 IRP preferred portfolio was developed without imposing any requirements to meet state renewable energy targets.

Monsanto is correct however, that the economics of these projects benefit from federal PTCs such that completion of these projects by the end of 2020 will ensure the repowered and new wind resources will qualify for the full value PTCs that in turn displace higher-cost market transactions in the near term and defer the need for other, higher-cost resource alternatives in the long term. The Company's modeling indicates these resources represent the least-cost, least-risk approach to serving customers as part of the 2017 IRP preferred portfolio.

Planning Timeframe

Parties' comments discuss the Company's application of extended benefits through 2050 for the wind repowering project in the 2017 IRP preferred portfolio selection process.

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[4] See Comments of Monsanto Company, p.9.

[5] Salt Lake City, Utah; Park City, Utah; Moab, Utah; Summit County, Utah; Portland, Oregon; Multnomah County, Oregon; and Hood River, Oregon have local ordinances, resolutions, or climate plans calling for increases in the delivery of electricity from renewable energy resources.

[6] See Comments of Monsanto Company, p. 2. See also the 2017 IRP, Volume I, Chapter 8, page 240-242 which shows the Company's renewable portfolio standards compliance position over the 20-year study period.

Staff states that it agrees that the wind repowering project has benefits beyond the planning timeframe but that those benefits should be calculated in a separate analysis or by extending the planning timeframe and modeling of portfolios so that they are on a common timeframe. Staff suggests that the Commission recommend the Company only include costs and benefits from the same planning timeframe when comparing portfolios in future IRP planning. The Company clarifies that this is in fact precisely what the Company did in its 2017 IRP final portfolio screening and selection process.

In the final portfolio screening and selection process, four portfolios were selected for final screening and potential selection of the 2017 IRP preferred portfolio. Two of the portfolios, OP-REP and OP-GW4, included the wind repowering project and extended benefits. The Company incorporated feedback from stakeholders to also include the wind repowering project with extended benefits as part of the other two portfolios eligible for the final screening and selection process, specifically, the RE-1c and RE-2 cases.[7] By doing so the Company assessed the wind repowering project consistently when evaluating relative cost and risk differences among those portfolios considered during the final portfolio screening and selection process.

With this consistent treatment of the wind repowering project, the Company's economic analysis in the 2017 IRP demonstrates that wind repowering provides substantial customer benefits. Conservatively, none of the benefit estimates assign any value to the incremental renewable-energy credits ("RECs") that will be produced by the repowered wind facilities. In addition, the Company analyzed the wind repowering project under many different scenarios, each with varying natural gas and CO_2 policy assumptions. Importantly, in every

[7] 2017 IRP, Volume I, Chapter 8 – Modeling Results, p. 210.

scenario analyzed, wind repowering provides customer benefits relative to scenarios that exclude the wind repowering project. The economic benefits of wind repowering are bolstered by the fact that the repowered facilities are able to requalify for federal PTCs and were appropriately modeled through 2050 to capture the full 30-year life of the new equipment installed on the repowered wind facilities.

Public Input Process

Staff recommends that for future IRPs, projects similar to Energy Vision 2020 be introduced in the IRP public input process as soon as possible. The Company did so for the 2017 IRP, as explained below, and will continue to do so in future IRPs.

In December 2016, the Company concluded that repowering wind units could generate cost savings if implemented on at least a subset of wind facilities in the fleet. To preserve the repowering option for application at additional facilities and to preserve the option to qualify new wind facilities for the full value of PTCs, subject to further review and analysis, the Company made safe harbor wind equipment purchases at that time.

The Company completed its additional review and expanded economic analysis of wind repowering in early 2017, toward the end of the IRP's pre-filing process. In February 2017, the Company finalized its IRP analysis of wind repowering. It incorporated repowering into the IRP process as the portfolio option referred to as OP-REP. The Company rescheduled the February 2017 public input meeting to the first of March to enable the company to complete and share its wind repowering analysis. The Company completed its analysis of the wind repowering project for consideration in the 2017 IRP as soon as possible while simultaneously finalizing analysis of 24 sensitivity cases and eight core cases initially presented in the January 2017 public input meeting.

Also in late 2016 and early 2017, the Company continued to study and refine its resource portfolios, all of which contained new Wyoming wind resources. In reviewing these resource portfolios, it became clear that the amount of Wyoming wind included in these resource portfolios were limited by transmission constraints. The presence of the Wyoming wind resources in these initial portfolios led the Company to assess whether additional wind resources enabled by sub-segments of Energy Gateway West would further lower system costs. Consequently, after the January public input meeting, the Company incorporated the Aeolus-to-Bridger/Anticline line as a specific sensitivity case in its broader Energy Gateway sensitivity analysis. In late February, the Company's modeling of four Energy Gateway transmission sensitivities indicated there were potential benefits to including the Aeolus-to-Bridger/Anticline line in the portfolio. At the March 2017 public input meeting, the Company presented this analysis to stakeholders, along with next steps that communicated its intention to further refine key assumptions for this sensitivity. Accordingly, Monsanto's claim that the wind repowering project specifically, was not discussed as a resource until the Energy Vision 2020 Update filed by the Company on August 2, 2017, is simply not accurate. The Company also refutes Monsanto's claim that there are two separate processes—a public and a private one. The fact is, the Company shared with 2017 IRP stakeholders its analysis of Energy Vision 2020 opportunities as that analysis was being developed. In addition, the Company has not executed any agreements committing it to move forward with development of the Energy Vision 2020 projects other than the December 2016 purchases of wind turbine safe harbor equipment to preserve the option of qualifying wind resources for the full value of federal PTCs.

While the pre-filing stakeholder review process of Energy Vision 2020 projects was necessarily limited by the timing of the Company's analysis, it was in customers' interest to consider these resources in the 2017 IRP. Recognizing the need to be open and transparent, the Company explicitly chose to share the results of its analysis with stakeholders as they were being produced. Given the time-sensitivity of these resource opportunities, delaying the IRP to allow additional pre-filing review was not a viable option. Instead, the Company expeditiously completed the necessary analysis and shared it with IRP stakeholders in real time.

Modeling of Coal Plants

Staff acknowledges the Company's effort to study coal plant retirement in the 2017 IRP and specifically an endogenous regional haze case (RH-6) that evaluated early retirement versus installation of selective catalytic reduction equipment on the coal plants facing regional haze compliance obligations. This regional haze case was analyzed among the same market price and greenhouse gas policy assumptions applied to the Company's analysis of the other six regional haze cases studied. Nonetheless, Staff expresses concern that the analysis was too limited and should have been broadened across a larger set of cases and across all existing coal plants. Staff further comments that by allowing certain plants to remain operational until a defined date, the Company could limit introduction of new resources that may be more economically competitive in the long run referencing the new wind, transmission and wind repowering projects in the 2017 IRP preferred portfolio as examples.

While the Company disagrees with Staff regarding the limitations of the extensive coal analysis conducted in the 2017 IRP and discussed above, the Company has agreed to conduct additional unit-by-unit analysis that will inform the 2019 IRP and be responsive to Staff's

recommendation that the Company identify least-cost coal plant retirement dates. These studies will not give a complete, portfolio-level view of the economics of the Company's coal portfolio nor capture system cost impacts that would result with early retirements at more than one facility. However, this analysis, which will be completed by the end of June 2018 to align with the beginning of the stakeholder process for the 2019 IRP, will inform subsequent analysis in the 2019 IRP by providing coal-unit screening studies early in the public-input process.

Natural Gas Forecast

Staff suggests that the Company is underestimating natural gas prices over the 20-year planning period and recommends that the Company provide additional justification for what it believes to be the use of historically low natural gas prices in the baseline or "medium" forecast in its 2019 IRP. Conversely, Monsanto claims that the Company has consistently overestimated future natural gas and power prices and also load growth. The Company has reasonably developed its estimates of load growth and future natural gas and power prices with continued updates in every IRP cycle. Regarding natural gas prices, Staff states that the 2015 IRP cautioned that long-term natural gas price volatility may pose a long-term risk but that the Company did not address that concern in the 2017 IRP. The Company disagrees. The Company included extensive discussion of natural gas price uncertainty in the 2017 IRP.[8] Staff's concern that the "medium" gas forecast, or the Company's official forward price curve in the 2017 IRP, is excessively low relative to the U.S. Department of Energy's Energy Information Administration low natural gas price forecast for 11 years out of the 19-year planning period.

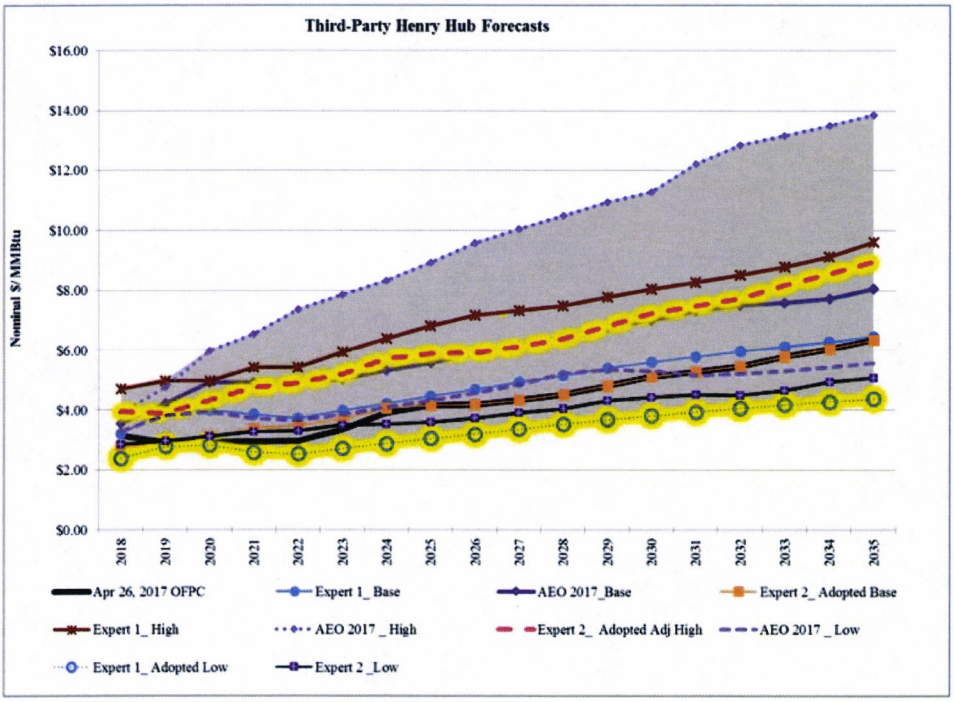
[8] 2017 IRP, Volume I, Chapter 3 – The Planning Environment, pp. 28-32.

Short-term price volatility is always a consideration due to asynchronous or intermittent supply and demand cycles caused by short-term shocks such as weather or pipeline outages. However extended asynchronous supply and demand cycles are not likely due to massive, low-cost, and flexible domestic supply of natural gas. While there is upside price risk, which the Company assessed in the 2017 IRP, the Company's base natural gas price assumptions are reasonable and align with current market fundamentals driven by projections of supply and demand.

Staff correctly notes[9] that the Company uses market forwards for the first 72 months, followed by a 12-month blend of forwards and fundamentals that segues into an expert third-party fundamentals forecast, starting month 85. For the fundamentals-based component, the Company subscribes to two expert third-party forecasting services to receive multi-client "off-the-shelf" base and scenario forecasts, with supporting market fundamental data and analysis, on a regular basis. Both forecasting services employ natural gas experts, have strong reputations for energy market research and analytics, and service hundreds of clients. The Company is merely one of many subscribers to these forecast services and has no influence on the development of these forecasts.

For the 2017 IRP, the EIA's natural gas price forecasts, as published in its 2016 Annual Energy Outlook ("AEO"), were reviewed but not adopted because the AEO's reference and scenario outlooks were outliers relative to other available forecasts. As seen in the figure below, both "Expert 1_Base" and "Expert _Adopted Base" sit well below the 2017AEO base case and relatively close to each other.

[9] Comments of the Commission Staff (January 12, 2018).



Thus, the fundamentals component of the Company's OFPC is validated by two expert third-party forecasters. In contrast, the 2017 AEO reference case hovers an average of 30 percent above the averaged expert third-party forecasts from 2024 through 2036. As such, the adopted third-party forecast, represents a moderate long-term view since it reasonably comports with another credible forecast.

CONCLUSION

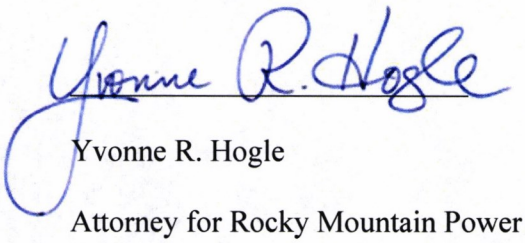
The Company agrees with Staff that the 2017 IRP complies with Commission Order No. 22299 and believes it reflects a balanced consideration of customer interests, that is well-supported by portfolio modeling and reasonable planning assumptions. The Company also agrees with Staff's comments in support of its continued approach to modeling demand-side management resources as resources that simultaneously compete against other supply-side resources to meet the Company's capacity and energy deficits. The Company appreciates the comments received, and continues to urge stakeholder participation throughout the IRP

development process to foster constructive debate throughout it. The Company, like Staff, recommends Commission acknowledgment of the Company's 2017 IRP.

DATED this February 13, 2018.

RESPECTFULLY SUMITTED,

ROCKY MOUNTAIN POWER



Yvonne R. Hogle

Attorney for Rocky Mountain Power