

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

UM 1845

In the Matter of  
PACIFICORP d/b/a PACIFIC POWER  
Application for Approval of 2017R Request for  
Proposals.

**CORRECTED REQUEST FOR  
ACKNOWLEDGEMENT OF  
FINAL SHORTLIST OF  
BIDDERS IN 2017R REQUEST  
FOR PROPOSALS**

**I. INTRODUCTION**

In accordance with the competitive bidding guidelines (Guidelines) adopted by the Public Utility Commission of Oregon (Commission), PacifiCorp d/b/a Pacific Power requests the Commission's acknowledgement of the company's final shortlist of bidders in PacifiCorp's 2017R Request for Proposals (RFP).<sup>1</sup>

The 2017R RFP is designed to capture a time-limited resource opportunity arising from the expiration of federal production tax credits (PTCs) and to obtain for customers the least-cost, least-risk resources identified in PacifiCorp's 2017 Integrated Resource Plan (IRP).<sup>2</sup> The Commission approved the 2017R RFP<sup>3</sup> and PacifiCorp conducted the solicitation process in accordance with the Commission's approval and with the comprehensive oversight of two independent evaluators (IEs)—one retained by PacifiCorp and appointed by the Commission and one retained by the Public Service Commission of

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<sup>1</sup> *In the Matter of the Pub. Util. Comm'n of Or., Investigation Regarding Competitive Bidding*, Docket No. UM 1182, Order No. 14-149 at 14 (Apr. 30, 2014) (adopting mandatory acknowledgement of final shortlists to "promote transparency in the utility procurement process").

<sup>2</sup> The Commission voted to acknowledge 2017 IRP at its December 11, 2017, public meeting, and parties are expecting a formal order.

<sup>3</sup> *In the Matter of PacifiCorp dba Pacific Power, Request for Proposals of an Independent Evaluator to Oversee the Request for Proposal Process*, Docket No. UM 1845, Order No. 17-345 (Sept. 14, 2017); *In the Matter of PacifiCorp dba Pacific Power, Request for Proposals of an Independent Evaluator to Oversee the Request for Proposal Process*, Docket No. UM 1845, Order No. 17-367 (Sept. 27, 2017).

Utah (Utah Commission). The solicitation process complied with the Guidelines and was transparent and fair to all bidders.

The Commission-approved 2017R RFP produced a robust market response that resulted in a final shortlist consisting of four projects: (1) the TB Flats I & II project providing 500 MW of capacity in Carbon and Albany Counties, Wyoming; (2) the Cedar Springs project providing 400 MW of capacity in Converse County, Wyoming; (3) the Ekola Flats project providing 250 MW of capacity in Carbon County, Wyoming; and (4) the Uinta project providing 161 MW of capacity in Uinta County, Wyoming. Together, these least-cost, least-risk projects will provide 1,311 MW of zero-fuel cost, emission-free generation to serve PacifiCorp's customers. Approximately 1,150 MW of this capacity (TB Flats I & II, Cedar Springs, and Ekola Flats) is located within the transmission-constrained area of PacifiCorp's transmission system in eastern Wyoming and is enabled by the Aeolus-to-Bridger/Anticline transmission line. The remaining 161 MW of capacity (Uinta) is located in western Wyoming.

PacifiCorp selected the final-shortlist projects after performing detailed and comprehensive economic analysis of all bids received. Using the same models and methodology used in the 2017 IRP, PacifiCorp determined the optimum combination of bids to maximize customer benefits. Extensive modeling confirms that the final shortlist resources meet both near-term and long-term resource needs and are the least-cost, least-risk path available to serve PacifiCorp's customers. PacifiCorp's risk assessment further demonstrates that the final-shortlist resources provide substantial customer benefits across nearly every natural gas and carbon dioxide (CO<sub>2</sub>) price scenario (price-policy scenarios) studied. Indeed, the 2017R RFP results demonstrate increased customer benefits from the

new wind resources, in combination with construction of the Aeolus-to-Bridger/Anticline 500-kV transmission line and associated infrastructure (transmission project).<sup>4</sup>

Assuming nominal pass through of PTC benefits to customers, the present value of customer net benefits range from \$357 million to \$405 million through 2036, which aligns with the 20-year 2017 IRP planning horizon, under the medium natural gas, medium CO<sub>2</sub> price-policy scenario (up from \$85 million to \$111 million).<sup>5</sup> These results reflect the change in system costs between two simulations—one with and one without final-shortlist resources and the transmission project—where revenue requirement from all capital is leveled, consistent with the treatment of capital costs in the 2017 IRP.

Under the medium natural gas, medium CO<sub>2</sub> price-policy scenario, the present value of customer net benefits is \$167 million through 2050 (up from \$137 million).<sup>6</sup> These results are based on the same simulations used to calculate customer net benefits through 2036; however, capital costs for the final-shortlist resources and transmission project are converted to nominal costs and system benefits are extrapolated to 2050, aligning with the assumed life of the proposed new wind resources.

Despite a reduction in PTC benefits associated with changes in tax law, the costs of final-shortlist bids are significantly lower than what was assumed in PacifiCorp's original economic analysis contributing to increased net customer benefits.

PacifiCorp's sensitivity analysis shows that the substantial benefits of the new wind projects persist when paired with PacifiCorp's wind repowering project and are not displaced

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<sup>4</sup> The transmission project includes 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.

<sup>5</sup> *In the Matter of PacifiCorp d/b/a Pacific Power, 2017 Integrated Resource Plan*, Docket No. LC 67, 2017 Integrated Resource Plan Energy Vision 2020 Update at 23 (July 28, 2017)

<sup>6</sup> *Id.* at 4.

when considering the potential procurement of solar bids submitted into the on-going RFP for solar resources (2017S RFP).

PacifiCorp's economic analysis, described in more detail below, demonstrates that the final shortlist of resources is reasonable according to the information available today. Thus, the Commission should acknowledge the 2017R RFP final shortlist.<sup>7</sup>

In accordance with Guideline 11, PacifiCorp has concurrently filed Bates White, LLC's (the Oregon IE) Final Report on PacifiCorp's 2017R Request for Proposals (Final Report).<sup>8</sup> The IE recommends that the Commission acknowledge the final shortlist as presented, based on the following conclusions:

- The responses to the 2017R RFP were robust.
- The selected bids represent the top offers that are viable under current transmission planning assumptions and provide the greatest benefit to customers.
- The IE confirmed that the selected bids were reasonably priced based on its independent analysis, which included the creation of its own cost models for each bid option, a review of PacifiCorp's models, and a review of the terms and conditions of each bid.
- The IE took special care when reviewing PacifiCorp's benchmark bids by independently confirming the accuracy of costs and scoring, and noting that the benchmark bids were disciplined by the fact that a third-party bidder submitted a competing offer for each project.
- PacifiCorp was transparent in their discussions with the IE and provided all requested information within a reasonable timeframe.

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<sup>7</sup> *In the Matter of the Pub. Util. Comm'n of Or., Internal Operating Guidelines*, Docket No. UM 1709, Order No. 14-358, Appendix A at 16 (Oct. 17, 2014) (acknowledgement is a determination that a final shortlist "seems reasonable, based on the information provided to the Commission at that time.").

<sup>8</sup> The IE's Final Report includes highly confidential bid information. Concurrent with this filing, PacifiCorp is also filing a Motion for a Modified Protective Order that addresses the protection of the highly commercially sensitive bid information, and related analysis. Pending the issuance of a Modified Protective Order, the company has filed a redacted version of the Final Report that does not include the highly confidential information. The Final Report does, however, still include confidential information and is therefore provided subject to the provisions of the Protective Order issued in this docket.

## II. COMMISSION APPROVAL OF 2017R RFP

On June 1, 2017, PacifiCorp filed its Application requesting approval of the 2017R RFP, which was initially a solicitation process for up to approximately 1,270 MW of new wind resources capable of interconnecting to, and/or delivering energy and capacity across, PacifiCorp's transmission system in Wyoming. The 2017R RFP was designed to capture a time-limited resource opportunity arising from the expiration of federal PTCs. The proposed wind resources are being procured in conjunction with the transmission project, which is necessary to relieve existing congestion and will enable interconnection of the proposed wind resources into PacifiCorp's transmission system. The proposed wind projects, when combined with the transmission project, will meet a near-term and long-term resource need and are expected to provide economic benefits for PacifiCorp's customers. With aligned implementation schedules, the new wind resources and transmission project will achieve commercial operation by the end of 2020, to ensure the new wind resources can qualify for the full value of PTCs.

In its Application, PacifiCorp asked the Commission to: (1) open a docket for approval of the 2017R RFP; and (2) appoint an IE to oversee the RFP process. On July 20, 2017, the Commission adopted the recommendation to appoint Bates White, LLC as the IE to oversee the 2017R RFP.<sup>9</sup> On August 4, 2017, PacifiCorp filed its draft 2017R RFP and requested that the Commission solicit comments on and approve the final draft 2017R RFP.

Following submission of comments by the IE, the Staff of the Public Utility Commission of Oregon (Staff), and stakeholders, the Commission conditionally approved the 2017R RFP on September 14, 2017, in Order No. 17-345. The Commission conditioned its

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<sup>9</sup> *In the Matter of PacifiCorp dba Pacific Power, Request for Proposals of an Independent Evaluator to Oversee the Request for Proposal Process*, Docket No. UM 1845, Order No. 17-279 (Jul. 20, 2017).

approval of the 2017R RFP on PacifiCorp receiving acknowledgement of its 2017 IRP, which was undergoing review at the time the application for RFP approval was filed.<sup>10</sup> The Commission also directed the IE to monitor benchmark bid terms to ensure that all bids were fairly evaluated, and further required PacifiCorp to adopt the following changes to its draft 2017R RFP:

1. Expand the RFP project eligibility to include repowering projects;
2. Reduce the security requirements, in negotiation with bidders, as developers meet milestones in the RFP process;
3. Clarify that both benchmark and market bids are responsible for bidder fees, including success fees assigned to final shortlist bids;
4. Adjust several power-purchase agreement (PPA) terms including lowering the PPA availability guarantee, allowing for liquidated damages, and establishing an exemption from providing two years of wind data for bidders with less than the full two years;
5. Increase the materiality threshold for litigation-based exclusion from the RFP to \$5 million and providing for IE scrutiny of the fairness of any exclusions due to threatened versus active litigation.<sup>11</sup>

The Commission also directed PacifiCorp to report back following the Utah Commission's action on the 2017R RFP to allow the Commission to take further action, as necessary.

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<sup>10</sup> Order No. 17-345 at 2-3.

<sup>11</sup> *Id.* at 3-4.

The Utah Commission approved the 2017R RFP on September 22, 2017.<sup>12</sup> In response, on September 27, 2017, the Commission issued Order No. 17-367, which imposed one additional condition on the 2017R RFP and four additional modifications.<sup>13</sup> The additional condition related to PacifiCorp's initial proposal to limit the RFP to wind resources capable of interconnecting or delivering on a firm basis to PacifiCorp's transmission system in Wyoming. During the RFP approval process, stakeholders and Merrimack Energy Group, Inc. (the Utah IE) encouraged PacifiCorp to broaden the 2017R RFP to allow bids for projects outside Wyoming. In light of these suggestions, the 2017R RFP was expanded to non-Wyoming wind projects, where those projects are capable of interconnecting or delivering on a firm basis to anywhere on PacifiCorp's transmission system. In Order No. 17-367, the Commission conditioned its approval of the 2017R RFP on the requirement that PacifiCorp and the IE resolve how to fairly score bids with different transmission requirements (*i.e.*, Wyoming wind and non-Wyoming wind) before issuing the solicitation.<sup>14</sup>

The Commission's additional modifications set forth in Order No. 17-367 were intended to align its approval with the Utah Commission's. Thus, the Commission also required that the 2017R RFP allow bids from non-Wyoming resources (discussed above), add an additional PPA option, clarify that bidders may provide comments on the pro-forma agreements (rather than just providing redlines), and clarify that the litigation clause excludes state commission complaints.<sup>15</sup>

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<sup>12</sup> *Application of Rocky Mountain Power for Approval of Solicitation Process for Wind Resources*, Utah PSC Docket No. 17-035-23, Order Approving RFP with Suggested Modification (Sept. 22, 2017) (hereinafter "Utah Commission RFP Approval Order").

<sup>13</sup> Order No. 17-367 at 1.

<sup>14</sup> *Id.*

<sup>15</sup> *Id.*

PacifiCorp agreed to the modifications required by the Commission in Orders Nos. 17-345 and 17-367 and issued the 2017R RFP on September 27, 2017. Before issuing the 2017R RFP, PacifiCorp also met the Commission's condition related to transmission scoring when the company and the IE established uniform scoring for non-Wyoming wind capable of interconnecting to or delivering on a firm basis anywhere in PacifiCorp's transmission system. After issuing the 2017R RFP, PacifiCorp satisfied the Commission's second condition when the Commission voted to acknowledge the 2017 IRP on December 11, 2017.<sup>16</sup>

### **III. 2017R RFP SELECTION PROCESS AND RESULTS**

The 2017R RFP was well received by the market, prompting Wyoming wind proposals from nine bidders offering 49 bid alternatives for 13 wind projects. PacifiCorp also received non-Wyoming wind proposals from five bidders offering 15 bid alternatives for six wind projects. In aggregate, 5,219 MW of new wind resource capacity was bid into the 2017R RFP (4,624 MW of Wyoming wind and 595 MW of non-Wyoming wind).

#### **A. Exclusion of Non-Conforming Bids from Consideration**

As an initial step, PacifiCorp reviewed all bids and excluded from consideration those that failed to conform to the 2017R RFP's eligibility requirements. Four bids totaling 570 MW were deemed non-conforming. The IE then reviewed those bids that were disqualified as non-conforming and agreed that they did not meet the minimum eligibility criteria.

#### **B. Initial Shortlist Selection Process and Tax Reform Update**

On November 12, 2017, PacifiCorp completed its initial shortlist evaluation and scoring of the bids and began a capacity factor evaluation process (performed by Sapere

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<sup>16</sup> Public Utility Commission of Oregon, Open Public Meeting of Dec. 11, 2017 (formal order forthcoming).



Consulting). The IE and the Utah IE completed their review of the initial shortlist on November 17, 2017. Both IEs were in agreement on PacifiCorp's selection of the initial shortlist of projects. Due to the competitive nature of the proposals and the small differences in the nominal levelized net benefits between proposals, a majority of the bids and bid variants submitted were selected to the initial shortlist. The initial shortlist also contained a mix of PPAs, build-transfer agreements (BTAs) and combined PPA/BTA proposals. The Wyoming initial shortlist contained 11 projects including the four benchmark bids totaling 3,346 MWs. The non-Wyoming initial shortlist contained three projects totaling 406 MW.<sup>17</sup> Once the IEs had completed their review, PacifiCorp notified bidders whether their proposed projects had been selected and provided an opportunity for these bidders to update pricing.

On November 22, 2017, PacifiCorp received best-and-final pricing for bids selected to the initial shortlist. On November 16, 2017, shortly before best-and-final pricing was received, the U.S. House of Representatives passed H.R. 1, which included changes in federal tax law. On December 2, 2017, the U.S. Senate passed its own version of a tax-reform bill, setting the stage for a conference committee to reconcile differences between the two bills. Because the proposed law could reasonably be expected to affect bid pricing, on December 7, 2017, PacifiCorp notified bidders that it would request updated pricing to reflect potential federal tax law changes once the reconciliation process initiated by Congress was completed.

On December 15, 2017, the congressional conference committee approved its report on H.R. 1. On December 18, 2017, PacifiCorp notified bidders that they must submit updated best-and-final pricing reflecting federal tax provisions outlined in the conference

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<sup>17</sup> One Wyoming bid totaling 161 MW was included as a non-Wyoming bid because its location in southwest Wyoming is not affected by the Wyoming transmission constraint.

committee's report on H.R. 1 by December 21, 2017.<sup>18</sup> The updated best-and-final pricing received on December 21, 2017, was then used to establish the 2017R RFP final shortlist.

### **C. Final Shortlist Selection Process**

Consistent with the bid evaluation and selection process outlined in the 2017R RFP, the final shortlist selection process was implemented in two basic phases—the portfolio-development phase and the scenario-risk phase.

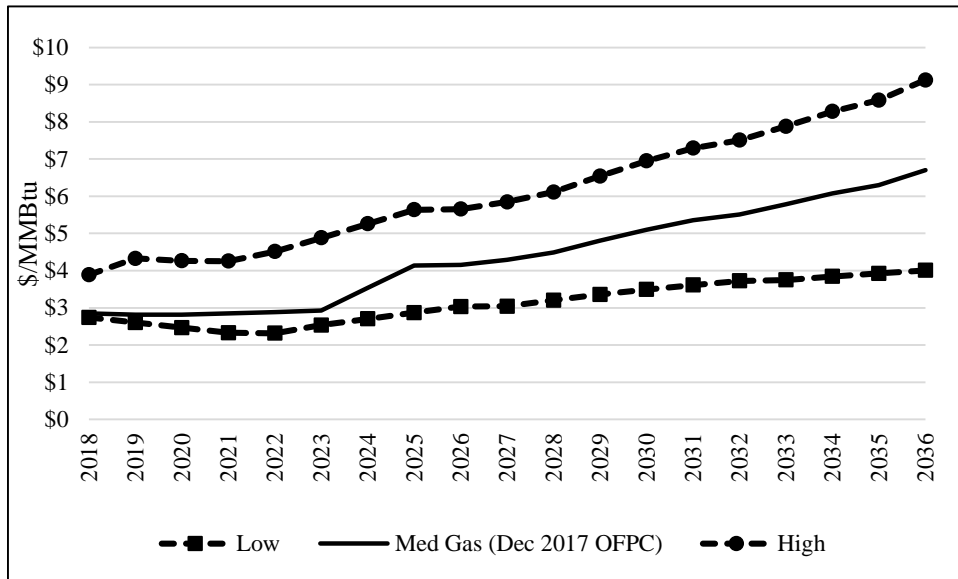
#### **1. Price-Policy Scenario Assumptions**

Before initiating the final shortlist selection process, PacifiCorp established nine price-policy scenarios that pair three natural gas price forecasts (low, medium, and high) with three CO<sub>2</sub> price forecasts (zero, medium, and high). The medium natural gas prices were derived from PacifiCorp's December 2017 official forward price curve. The low and high natural gas price assumptions and the medium and high CO<sub>2</sub> price assumptions are based on assumptions adopted by third-party experts. Figure 1 shows the natural gas price assumptions used in the final shortlist selection process and Figure 2 shows the CO<sub>2</sub> price assumptions used in the final shortlist selection process.

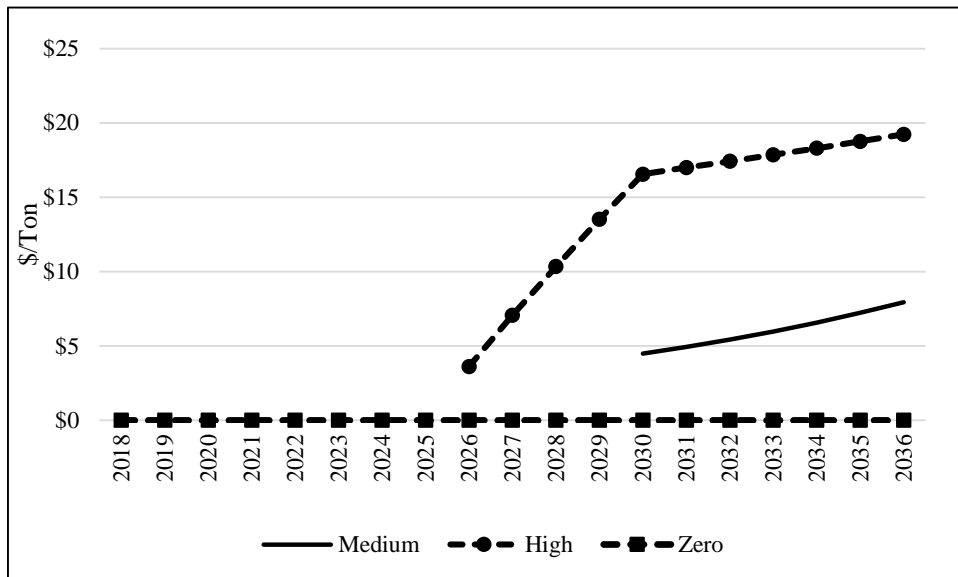
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<sup>18</sup> Congress passed H.R. 1 on December 20, 2017. The bill became law on December 22, 2017 when it was signed by President Trump.

**Figure 1: Henry Hub Natural Gas Prices (\$/MMBtu)**



**Figure 2: CO<sub>2</sub> Prices (\$/Ton)**



**2. Portfolio-Development Phase**

The portfolio-development phase identified the least-cost combination of bids using a methodology consistent with the approach used to produce resource portfolios in PacifiCorp’s 2017 IRP. First, the best-and-final pricing for each bid was processed to develop inputs to the System Optimizer (SO) model and Planning and Risk model (PaR). Second, the SO model was used to develop bid portfolios containing the least-cost

combination of bids over a twenty-year planning horizon (2017 through 2036). The SO model pulled from all of the bids and bid alternatives included in the initial shortlist, as well as from all other proxy-resource alternatives used to develop resource portfolios in PacifiCorp's 2017 IRP (*e.g.*, front-office transactions or "FOTs," demand-side management resources, *etc.*). PacifiCorp did not force the SO model to select any bid or any combination of bids.

PacifiCorp developed bid portfolios for nine price-policy scenarios, developed by pairing three natural-gas price forecasts with three CO<sub>2</sub> price forecasts. For each of these price-policy scenarios, PacifiCorp calculated the present-value revenue-requirement differential (PVRR(d)) between two system simulations—one that included the 2017R RFP bids and associated transmission projects, and one without. The PVRR(d) thus yielded the relative cost or cost savings from the proposed new wind and transmission project among the nine price-policy scenarios, as compared to no action.

### **3. Scenario-Risk Phase**

The scenario-risk phase of the bid-evaluation process ensured that the two top-performing bid portfolios identified in the portfolio-development phase of the selection process were analyzed among all nine price-policy scenarios. For instance, one of the bid portfolios identified in the portfolio-development phase included a consistent set of bids selected by the SO model in five of the nine price-policy scenarios. The second bid portfolio, which included the same bids that were in the first bid portfolio plus an additional bid, was selected by the SO model in the other four price-policy scenarios. In the scenario-risk phase of the bid-selection process, the first bid portfolio was analyzed in the four price-policy scenarios where it was not selected as the least-cost bid portfolio. Similarly, the second bid

portfolio was analyzed in the five price-policy scenarios where it was not selected as the least-cost bid portfolio.

As in the portfolio-development phase, these studies were performed using the SO model and PaR. The outputs from these studies were used to calculate the PVRR(d) between two system simulations—one that included the 2017R RFP bids and associated transmission projects, and one without. PacifiCorp then used the PVRR(d) results to initially identify the least-cost, least-risk bid portfolio.

#### **4. Portfolio Updates and Corrections**

These initial results were then updated to reflect two issues identified during ongoing due-diligence review. First, PacifiCorp discovered that capacity factor adjustments applied to two bids proposed by [REDACTED] were only partially captured in the SO model and PaR simulations. Second, it was discovered that redline edits made by [REDACTED] to the 2017R pro-forma BTA had struck language specifying that the bidder would be responsible for applicable sales taxes. PacifiCorp's evaluation of these bids had not accounted for any incremental cost for sales tax. [REDACTED] subsequently confirmed that its price proposals did not include sales tax.

PacifiCorp therefore (1) corrected the net-capacity-factor inputs for the [REDACTED] projects and (2) included the estimated cost of sales tax for the [REDACTED] BTA bids. Once these corrections were made, PacifiCorp reran the SO model portfolio-development studies for two price-policy scenarios—one pairing low natural gas prices with zero CO<sub>2</sub> prices and one pairing medium natural gas prices with medium CO<sub>2</sub> prices. These corrections resulted in one of [REDACTED] BTA bids—originally included in the initial least-cost, least-risk bid portfolio—being replaced with another bid. Specifically, [REDACTED]

BTA bid for the [REDACTED] was replaced with [REDACTED] for the [REDACTED].

PacifiCorp then refreshed the economic analysis for all nine price-policy scenarios using the SO model and PaR simulations to reflect the updated bid portfolio, as well as the corrected cost and performance inputs.

### **5. IE Sensitivity Analysis**

In addition to the above analysis, PacifiCorp conducted an additional sensitivity analysis at the request of the IE, which analyzed the impact of levelizing federal PTC inputs (IE sensitivity). PacifiCorp's bid-selection modeling reflected nominal—rather than levelized—federal PTC inputs, consistent with how PTC benefits flow into customer rates. By levelizing the federal PTC benefits, the IE sensitivity resulted in two BTA bids and a benchmark bid being replaced with two PPA bids in the bid portfolio. This portfolio also produced higher nominal costs when compared to the economic analysis of the 2017R RFP final shortlist.

While the IE sensitivity showed a change in the bid portfolio, this result was based on federal PTC inputs that are inconsistent with how PTC benefits will be treated in customer rates. The bid portfolio in the IE sensitivity also yielded lower customer benefits than the bid portfolio reflected in the 2017R RFP final shortlist. As a result, PacifiCorp did not adjust its 2017R final shortlist in response to the IE sensitivity analysis.

### **6. Updated Portfolio-Development Studies**

PacifiCorp subsequently completed updated portfolio-development studies to account for the interconnection requirements of each project, some of which were recently updated in an interconnection-restudy process performed by PacifiCorp's transmission function.

PacifiCorp could not incorporate these interconnection requirements until this stage in the bid

evaluation process because it agreed to remove a requirement that bidders submit a completed interconnection system-impact study (SIS) in response to recommendations from the Utah IE, as supported by other parties in the 2017R RFP approval process in Utah Docket 17-035-23. While the removal of the interconnection SIS requirement meant that PacifiCorp could not fully evaluate the relative interconnection requirements of the bids early in the 2017R RFP process, it had the benefit of broadening market participation in the 2017R RFP because bidders could participate without regard to their interconnection queue position, which enhanced competition and provided an incentive for bidders to offer low-cost proposals. Had the requirement that bidders have an interconnection SIS been retained, the pool of eligible bidders would have been limited based on the then-current snapshot of the interconnection queue—a queue that can change over time as generator-interconnection customers change project details, request commercial operation date extensions or suspensions, or even withdraw from the queue altogether.

With regard to the recent interconnection-restudy process, after the Company announced its plan to construct the Aeolus-to-Bridger/Anticline D.2 segment to come online by 2020, PacifiCorp's transmission function initiated an interconnection restudy process to ensure its interconnection studies reflected the most current long-term transmission plan assumptions. In accordance with its open access transmission tariff (OATT), PacifiCorp's transmission function performed restudies of the interconnection requests in its interconnection queue in serial queue order, and without regard to whether a generation project participated in the 2017R RFP, to determine if the acceleration of Energy Gateway segment D.2 would impact the cost or timing of interconnection of projects that had not yet

executed interconnection agreements and that had previous studies depending on Energy Gateway West in its entirety.

With respect to projects located in the constrained area of PacifiCorp's transmission system in eastern Wyoming, PacifiCorp's transmission function performed restudies through the point in the interconnection queue where additional segments of the Energy Gateway project beyond just the Aeolus-to-Bridger/Anticline D.2 segment would be required to interconnect. PacifiCorp transmission posted the restudied SISs on PacifiCorp's open access same-time information system (OASIS) on January 29, 2018, as well as certain updated restudied SISs on February 9, 2018.

The interconnection-restudy process confirmed that 2017R RFP bids located in eastern Wyoming with an interconnection-queue position greater than Q0712 trigger the need for Energy Gateway South, which is not planned to be placed in service by the end of 2020. Consequently, any bid proposing a project in the constrained area of PacifiCorp's transmission system with an interconnection-queue position greater than Q0712 cannot receive interconnection service and achieve commercial operation by the end of 2020 as required in the 2017R RFP.

The interconnection-restudy process also showed that the Aeolus-to-Bridger/Anticline transmission line will enable interconnection of up to 1,510 MW of new wind capacity within the constrained area of PacifiCorp's transmission system in eastern Wyoming. This is up from the 1,270 MW assumed in the original portfolio-development studies described above. However, to honor an executed interconnection agreement with a 240 MW qualifying facility (QF) project in the area, PacifiCorp must reserve sufficient interconnection capacity for this QF's interconnection. After setting aside interconnection



capacity for this interconnection customer, the interconnection-restudy process shows that the Aeolus-to-Bridger/Anticline transmission line can enable interconnection of up to 1,270 MW. This is up from the 1,030 MW assumed in the original portfolio development studies described above.

To account for the interconnection-restudy results, PacifiCorp developed updated portfolio-development studies that eliminated bids located in the constrained area of PacifiCorp's transmission system in eastern Wyoming that have an interconnection-queue position greater than Q0712, which included elimination of the company's McFadden Ridge II benchmark bid. PacifiCorp also configured the SO model to select up to 1,270 MW of bids located in this area of PacifiCorp's transmission system. The updated portfolio-development studies were developed under two price-policy scenarios—low natural gas, zero CO<sub>2</sub> and medium natural gas, medium CO<sub>2</sub>. The company also updated bid-cost assumptions to align interconnection network upgrade costs with those identified in the SISs posted on PacifiCorp's OASIS. Finally, PacifiCorp updated sales-tax estimates for all bids submitted by [REDACTED]—replacing the company's sales-tax estimates assumed in the original portfolio-development studies with sales-tax costs supplied by the bidder.

With these changes, the SO model selected the same four bids in the least-cost bid portfolio in both price-policy scenarios. Because the same portfolio of bids was selected in both price-policy scenarios, additional scenario-risk analysis of alternative bid portfolios was not completed. However, PacifiCorp did perform an updated economic analysis of this bid portfolio among all nine price-policy scenarios using the SO model and PaR.

## **7. Updated IE Sensitivity Analysis**

Upon informing the IE of the updated portfolio-development analysis, the IE requested a sensitivity to assess how projected net benefits from the updated least-cost bid

portfolio would be affected if [REDACTED]  
[REDACTED]. The IE requested that this sensitivity be developed using the SO model with medium natural gas, medium CO<sub>2</sub> price-policy scenario assumptions.

The PVRR(d) based on SO model results through 2036 under the updated IE sensitivity showed a \$25 million reduction in net customer benefits if [REDACTED]  
[REDACTED]. The IE sensitivity also showed customer costs would increase over both the near term and long term if [REDACTED]  
[REDACTED]. PacifiCorp did not change its 2017R RFP final shortlist based on this updated IE sensitivity.

#### **D. Final-Shortlist Projects**

Based on the foregoing analysis, the 2017R RFP final shortlist includes four new wind projects located in Wyoming from three different bidders. The total capacity of the four projects is 1,311 MW. The projects included in the final shortlist are summarized in Table 1. Approximately 1,150 MW of this capacity (TB Flats I & II, Cedar Springs, and Ekola Flats) is located within the transmission-constrained area of PacifiCorp's transmission system in eastern Wyoming and is enabled by the Aeolus-to-Bridger/Anticline transmission line. The remaining 161 MW of capacity (Uinta) is located in western Wyoming.

**Table 1: 2017R RFP Final Shortlist Projects**

Project Name (Bidder)	Location	Capacity (MW)
TB Flats I & II (PacifiCorp)	Carbon & Albany Counties, WY	500
Cedar Springs (NextEra Energy Acquisitions)	Converse County, WY	400
Ekola Flats (PacifiCorp)	Carbon County, WY	250
Uinta (Invenergy Wind Development)	Uinta County, WY	161

The TB Flats I and II and Ekola Flats projects are PacifiCorp-benchmark resources that will be developed under engineer, procure, and construction (EPC) agreements. The Uinta project is being developed by Invenergy Wind Development under a BTA. The Cedar Springs project is being developed by NextEra Energy Acquisitions as a 50-percent BTA and a 50-percent PPA. In total, the final shortlist includes 361 MW that will be developed under BTAs, 750 MW of benchmark capacity that will be developed under EPC agreements, and 200 MW that will deliver energy and capacity under a PPA.

The total in-service capital cost for final-shortlist resources is \$1.46 billion. Considering that the total owned-wind capacity for the final-shortlist resources totals 1,111 MW, up from just over 860 MW as assumed in PacifiCorp’s Energy Vision 2020 2017 IRP Update filed with the Commission in July 2017 (2017 IRP Energy Vision 2020 Update), the per-unit capital cost for the final shortlist is down approximately 18 percent from \$1,590/kW to \$1,310/kW.

In addition to these capital costs, the PPA price that will be paid to NextEra Energy Acquisitions for 50 percent of the output from the Cedar Springs project is expected to add approximately [REDACTED] to total-system net-power cost (NPC) [REDACTED]. These costs are significantly lower than the proxy [REDACTED].

PPA costs that were based off of certain QF projects that were included in the 2017 IRP Energy Vision 2020 Update analysis, which were assumed to add [REDACTED] [REDACTED] to total-system NPC beginning 2022, rising to [REDACTED] by the end of 2041. This proxy QF project, whose interconnection agreement requires interconnection facilities beyond the Aeolus-to-Bridger/Anticline transmission line assumed to be built in 2024, is no longer included in PacifiCorp's economic analysis of the proposed new wind and transmission project.

In aggregate, the final shortlist bids are expected to operate at a capacity-weighted average annual capacity factor of 39.4 percent. This is down slightly from the 41.3 percent average annual capacity factor assumed in the 2017 IRP Energy Vision 2020 Update.

The in-service cost for network upgrades required to interconnect the final-shortlist resources total [REDACTED], and the cost to build the Aeolus-to-Bridger/Anticline transmission line remains at [REDACTED].

#### **E. Economic Analysis**

Table 2 summarizes the PVRR(d) results for each price-policy scenario alongside the same results summarized in the 2017 IRP Energy Vision 2020 Update. The PVRR(d) between cases with and without the final-shortlist resources and transmission project are shown for the SO model and PaR, which was used to calculate both the stochastic-mean PVRR(d) and the risk-adjusted PVRR(d).

**Table 2: Updated SO Model and PaR PVRR(d)  
(Benefit)/Cost of the Combined Projects (\$ million)**

Price-Policy Scenario	2017R RFP Final Shortlist			2017 IRP Energy Vision 2020 Update		
	SO Model PVRR(d)	PaR Stochastic Mean PVRR(d)	PaR Risk-Adjusted PVRR(d)	SO Model PVRR(d)	PaR Stochastic Mean PVRR(d)	PaR Risk-Adjusted PVRR(d)
Low Gas, Zero CO2	(\$185)	(\$150)	(\$156)	\$121	\$77	\$74
Low Gas, Medium CO2	(\$208)	(\$179)	(\$188)	\$73	\$32	\$26
Low Gas, High CO2	(\$370)	(\$337)	(\$355)	(\$84)	(\$133)	(\$147)
Medium Gas, Zero CO2	(\$377)	(\$319)	(\$334)	(\$19)	(\$57)	(\$66)
Medium Gas, Medium CO2	(\$405)	(\$357)	(\$386)	(\$85)	(\$111)	(\$124)
Medium Gas, High CO2	(\$489)	(\$448)	(\$469)	(\$156)	(\$224)	(\$242)
High Gas, Zero CO2	(\$699)	(\$568)	(\$596)	(\$304)	(\$260)	(\$280)
High Gas, Medium CO2	(\$716)	(\$603)	(\$633)	(\$318)	(\$272)	(\$293)
High Gas, High CO2	(\$781)	(\$694)	(\$728)	(\$396)	(\$409)	(\$437)

Over a 20-year period, the final-shortlist resources and transmission project reduce customer costs in all nine price-policy scenarios. This outcome is consistent in both the SO model and PaR results. Under the central price-policy scenario, when applying medium natural gas, medium CO<sub>2</sub> price-policy assumptions, the PVRR(d) net benefits range between \$357 million (up from \$111 million), when derived from PaR stochastic-mean results, and \$405 million (up from \$85 million), when derived from SO model results. The increase in net benefits relative to those reported in the 2017 IRP Energy Vision 2020 Update is driven by the increased level of lower-cost new wind resources. The PVRR(d) results presented in Table 2 do not reflect the potential value of renewable-energy credits (RECs) that will be

generated by the incremental energy output from the final-shortlist projects. Accounting for the performance estimates from the final-shortlist projects, customer benefits for all price-policy scenarios would improve by approximately \$34 million (up from \$26 million as reported in the 2017 IRP Energy Vision 2020 Update) for every dollar assigned to the incremental RECs that will be generated from the winning bids through 2036.

There is further upside to the PVRR(d) results reported in Table 2 associated with the potential for reduced operations and maintenance (O&M) costs. Projects with large wind turbines are expected to require less O&M costs because there are fewer turbines on a given site. The default O&M assumptions applied to BTA and benchmark-EPC bids in the economic analysis of final-shortlist resources were based on PacifiCorp's experience in operating and maintaining the existing fleet of owned-wind facilities, and do not reflect expected cost savings associated with operating and maintaining wind facilities proposing to use larger wind turbines. Three of the final-shortlist resources—Invenergy Wind Development's Uinta project, PacifiCorp's TB Flats I & II project, and PacifiCorp's Ekola Flats project—will use larger equipment for a portion of the wind turbines at each facility. If the O&M cost elements applicable to the larger-turbine equipment are reduced by 42 percent, which is equivalent to an approximately 18-percent reduction in total O&M costs, beyond the proposed O&M agreement period, customer benefits calculated through 2036 for all price-policy scenarios would improve by approximately \$19 million.

Beyond the REC revenue and O&M cost savings upside, there is additional upside to the results not captured in the PVRR(d) results reported in Table 2. The CO<sub>2</sub> price assumptions used in the economic analysis were inadvertently modeled in 2012 real dollars

instead of nominal dollars. Consequently, the PVRR(d) net benefits in the six price-policy scenarios that use medium and high CO<sub>2</sub> price assumptions are conservative.

Table 3 summarizes the updated PVRR(d) results for each price-policy scenario calculated off of the change in annual nominal revenue requirement through 2050 alongside the same results summarized in the 2017 IRP Energy Vision 2020 Update. These results are based on the same model simulations used to generate the PVRR(d) results summarized above; however, capital costs for the final-shortlist resources and transmission project are converted to nominal costs and system benefits are extrapolated to 2050, aligning with the assumed life of the proposed new wind resources.

**Table 3: Updated Nominal Revenue Requirement PVRR(d)  
(Benefit)/Cost of the Combined Projects (\$ million)**

<b>Price-Policy Scenario</b>	<b>2017R RFP Final Shortlist</b>	<b>2017 IRP Energy Vision 2020 Update</b>
Low Gas, Zero CO <sub>2</sub>	\$184	\$174
Low Gas, Medium CO <sub>2</sub>	\$127	\$93
Low Gas, High CO <sub>2</sub>	(\$147)	(\$194)
Medium Gas, Zero CO <sub>2</sub>	(\$92)	(\$53)
Medium Gas, Medium CO <sub>2</sub>	(\$167)	(\$137)
Medium Gas, High CO <sub>2</sub>	(\$304)	(\$317)
High Gas, Zero CO <sub>2</sub>	(\$448)	(\$341)
High Gas, Medium CO <sub>2</sub>	(\$499)	(\$351)
High Gas, High CO <sub>2</sub>	(\$635)	(\$595)

When system costs and benefits from the final-shortlist resources and transmission project are extended out through 2050, covering the full depreciable life of the owned-wind projects included in the 2017R RFP final shortlist, the proposed investments reduce customer costs in seven out of nine price-policy scenarios. Customer net benefits range from \$92 million in the medium natural-gas, zero CO<sub>2</sub> price-policy scenario (up from \$53 million) to \$635 million in the high natural gas, high CO<sub>2</sub> price-policy scenario (up from \$595 million). Under the central price-policy scenario, when applying medium natural gas, medium CO<sub>2</sub> price-policy assumptions, the PVRR(d) net benefits of the final-shortlist resources and transmission project are \$167 million (up from \$137 million). The final-shortlist resources and transmission project provide significant customer benefits in all price-policy scenarios, and the net benefits are unfavorable only when low natural-gas prices are paired with zero or medium CO<sub>2</sub> prices. These results continue to show that upside benefits far outweigh downside risks.

The PVRR(d) results presented in Table 3 do not reflect the potential value of RECs generated by the incremental energy output from the final-shortlist resources. Accounting for the performance estimates from the updated final-shortlist projects, customer benefits for all price-policy scenarios would improve by approximately \$43 million (up from \$34 million as reported in the 2017 IRP Energy Vision 2020 Update) for every dollar assigned to the incremental RECs that will be generated from the winning bids through 2050.

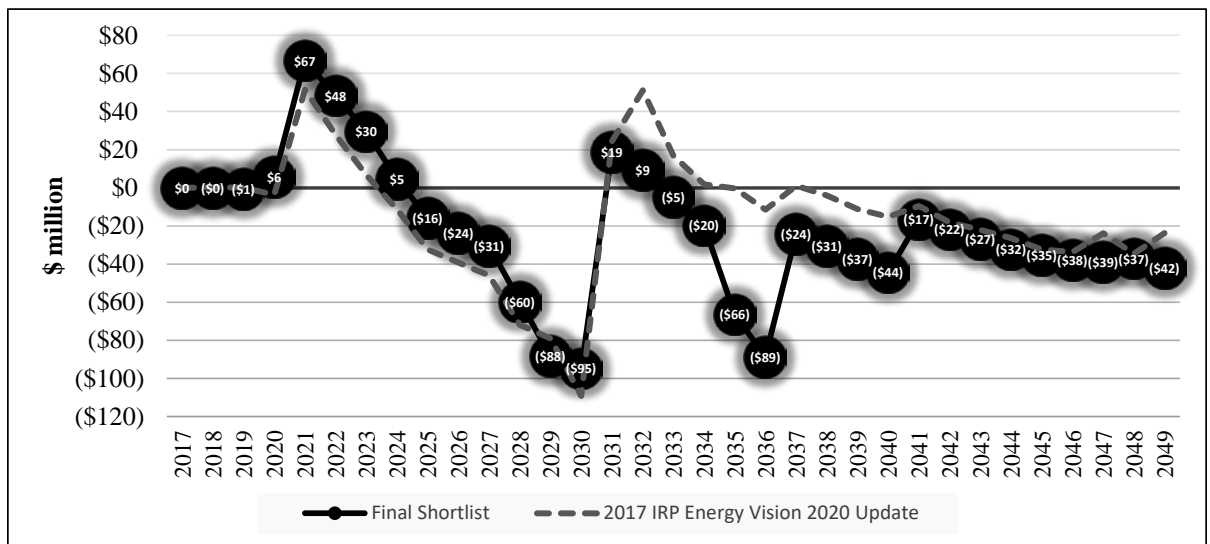
As noted earlier, PacifiCorp anticipates O&M costs for those projects that will install larger-turbine equipment to be lower than what has been reflected in the updated economic analysis. Accounting for these cost savings, customer benefits for all price-policy scenarios would improve by approximately \$31 million when calculated from projected operating costs



through 2050. Also noted earlier, CO<sub>2</sub> price assumptions used in the economic analysis were inadvertently modeled in 2012 real dollars instead of nominal dollars. Consequently, the PVRR(d) net benefits in the six price-policy scenarios that use medium and high CO<sub>2</sub> price assumptions are conservative.

Figure 3 shows the updated change in nominal revenue requirement due to the final-shortlist resources and transmission project for the medium natural gas, medium CO<sub>2</sub> price-policy scenario on a total-system basis. These results are shown alongside the same results from the 2017 IRP Energy Vision 2020 Update. The change in nominal revenue requirement shown in the figure reflects project costs, including capital revenue requirement (*i.e.*, depreciation, return, income taxes, and property taxes), O&M expenses, the Wyoming wind-production tax, and PTCs. The project costs are netted against system impacts from the final-shortlist resources and transmission project, reflecting the change in NPC, emissions, non-NPC variable costs, and system fixed costs that are affected by, but not directly associated with, the final-shortlist resources and transmission project.

**Figure 3: Total-System Change in Annual Revenue Requirement Due to Final-Shortlist Resources and the Transmission Project**



The data shown in this figure have the same basic profile as the data from the economic analysis summarized in the 2017 IRP Energy Vision 2020 Update. Despite a reduction in PTC benefits associated with changes in federal tax law, the reduced costs from winning bids from the 2017R RFP continue to generate substantial near-term customer benefits and continue to contribute to customer benefits over the long term. The Combined Projects produce net benefits in 23 years out of the 30 years that the proposed owned-wind resources selected to the 2017R RFP final shortlist are assumed to operate.

To ensure that the final shortlist projects will be in a position to provide these benefits to customers, PacifiCorp reviewed each project's place in the interconnection queue and how each project will qualify for federal PTCs. All of the final shortlist projects have demonstrated they have site control, have reasonable permitting timelines that will allow the projects to be placed in service by the end of 2020, and have initiated collection of avian data. All of the projects will qualify for the full value of PTCs by having secured safe-harbor equipment and by meeting continuity-of-construction requirements, and by coming online by the end of 2020.

#### **F. Solar RFP Sensitivity**

In conjunction with the 2017R RFP, PacifiCorp simultaneously conducted the 2017S RFP for solar resources. The 2017S RFP was prompted by the Utah Commission, which suggested, but did not require, a modification to expand the 2017R RFP to solicit solar resource bids.<sup>19</sup> In order to maintain the 2017R RFP schedule while addressing the Utah Commission's suggestion, PacifiCorp issued a separate solicitation process for solar resources on November 15, 2017. The 2017S RFP sought bids for solar resources up to

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<sup>19</sup> Utah Commission RFP Approval Order.

300 MW per individual project capable of delivering energy and capacity to PacifiCorp's transmission system. For the 2017S RFP, PacifiCorp retained London Economics International, LLC to serve as the IE (Solar RFP IE) to oversee the solicitation process.

The 2017S RFP schedule allowed PacifiCorp to: (1) evaluate how solar resource bids might impact the economic analysis of bids selected to the final shortlist in the 2017R RFP, without delaying the schedule for the 2017R RFP; and (2) explore whether new solar resource opportunities might provide all-in economic benefits for customers.

The initial shortlist for the 2017S RFP included PPA bids from 10 projects proposed by seven bidders totaling 1,629 MW. The majority of the projects (1,414 MW) are located in Utah, with the remaining initial-shortlist bids located in Oregon (114 MW) and Washington (100 MW). All of the bids on the 2017S RFP initial shortlist have proposed PPAs with commercial operation dates ranging between November 2020 and January 2021—approximately one year before the initial ramp down in investment-tax credits for solar resources.

The Solar RFP IE completed its review of the initial shortlist on January 29, 2018. Bidders submitted best-and-final pricing on February 1, 2018. PacifiCorp plans to identify a final shortlist by mid-March of 2018.

Using best-and-final pricing from initial-shortlist bids in the 2017S RFP, PacifiCorp has analyzed how the potential selection of these bids would impact the economic analysis of the final-shortlist bids from the 2017R RFP. PacifiCorp conducted two model runs—one with solar PPA bids and the 2017R RFP final-shortlist projects, and one with solar PPA bids alone.

Table 4 summarizes PVRR(d) results for the solar sensitivity where solar PPA bids are assumed to be pursued without any investments in the 2017R RFP final-shortlist resource and transmission project. This sensitivity was developed using SO model and PaR simulations through 2036 for the medium natural gas, medium CO<sub>2</sub> and the low natural gas, zero CO<sub>2</sub> price-policy scenarios. The results are shown alongside the benchmark study in which the 2017R RFP final-shortlist resources and transmission project were evaluated without solar PPA bids.

**Table 4: Solar Sensitivity with Solar PPAs Included in lieu of the 2017R RFP Final Shortlist (Benefit)/Cost (\$ million)**

	Sensitivity PVRR(d)	Benchmark PVRR(d)	Change in PVRR(d)
<b>Medium Gas, Medium CO<sub>2</sub></b>			
SO Model	(\$343)	(\$405)	\$61
PaR Stochastic Mean	(\$228)	(\$357)	\$129
PaR Risk Adjusted	(\$237)	(\$386)	\$149
<b>Low Gas, Zero CO<sub>2</sub></b>			
SO Model	(\$196)	(\$185)	(\$11)
PaR Stochastic Mean	(\$139)	(\$150)	\$11
PaR Risk Adjusted	(\$145)	(\$156)	\$11

In this sensitivity, the SO model selects 1,122 MW of solar PPA bids in the low natural gas, zero CO<sub>2</sub> price-policy scenario and 1,419 MW of solar PPA bids in the medium natural gas, medium CO<sub>2</sub> price-policy scenario. All of the selected solar PPA bids are for projects located in Utah.

In the medium natural gas, medium CO<sub>2</sub> price-policy scenario, a portfolio with the 2017R RFP final-shortlist resources delivers greater customer benefits relative to a portfolio

that adds solar PPA bids without these resources. Customer benefits are greater when the resource portfolio includes the 2017R RFP final-shortlist resources without solar PPA bids by \$149 million in the medium natural gas, medium CO<sub>2</sub> price-policy scenario based on the risk-adjusted PaR results. In the low natural gas, zero CO<sub>2</sub> price-policy scenario, the portfolio with the 2017R RFP final-shortlist resources delivers slightly greater customer benefits relative to a portfolio that adds solar PPA bids without these resources when modeled in PaR, and slightly lower customer benefits when analyzed with the SO model. The decrease in net benefits in the solar PPA portfolio is \$11 million based on the risk-adjusted PaR results.

When analyzed without the 2017R RFP final-shortlist resources, the solar PPA bids produce net customer benefits that are lower than the benefits expected from the 2017R RFP final-shortlist resources and transmission project in the medium natural gas, medium CO<sub>2</sub> price-policy scenario. While the sensitivity with a portfolio containing solar PPAs without the 2017R RFP final-shortlist resources produces PVRR(d) results that are similar to the PVRR(d) results with only the 2017R RFP final-shortlist resources in the low natural-gas, zero CO<sub>2</sub> price-policy scenario, both portfolios deliver customer benefits. This sensitivity does not support an alternative resource procurement strategy to pursue solar PPA bids in lieu of the 2017R RFP final-shortlist resources. This would leave the significant benefits from the 2017R RFP final-shortlist resources, which include building a much-needed transmission line, on the table.

Table 5 summarizes PVRR(d) results for the solar sensitivity where solar PPA bids are assumed to be pursued along with the proposed investments in the 2017R RFP final-shortlist resources and transmission project. This sensitivity was developed using SO model

and PaR simulations through 2036 for the medium natural gas, medium CO2 and the low natural gas, zero CO2 price-policy scenarios. The results are shown alongside the benchmark study in which the 2017R RFP final-shortlist resources were evaluated without solar PPA bids.

**Table 5: Solar Sensitivity with Solar PPAs Included  
With the 2017R RFP Final Shortlist (Benefit)/Cost (\$ million)**

	<b>Sensitivity PVRR(d)</b>	<b>Benchmark PVRR(d)</b>	<b>Change in PVRR(d)</b>
<b>Medium Gas, Medium CO2</b>			
SO Model	(\$647)	(\$405)	(\$242)
PaR Stochastic Mean	(\$519)	(\$357)	(\$163)
PaR Risk Adjusted	(\$543)	(\$386)	(\$157)
<b>Low Gas, Zero CO2</b>			
SO Model	(\$312)	(\$185)	(\$127)
PaR Stochastic Mean	(\$250)	(\$150)	(\$100)
PaR Risk Adjusted	(\$259)	(\$156)	(\$103)

In this sensitivity, the SO model continues to choose the winning bids included in the 2017R RFP final shortlist as part of the least-cost bid portfolio. In addition to these wind-resource selections, the SO model selects 1,042 MW of solar PPA bids in the low natural gas, zero CO<sub>2</sub> price-policy scenario and 1,419 MW of solar PPA bids in the medium natural gas, medium CO<sub>2</sub> price-policy scenario. Again, all of the selected solar PPA bids are for projects located in Utah.

When the solar PPAs are assumed to be pursued in addition to the 2017R RFP final-shortlist resources, total net customer benefits increase. This result is consistent with the company’s expectation expressed during the 2017R RFP approval process in Utah Docket No. 17-035-23 that cost-effective solar opportunities would not displace the proposed new wind

and transmission project, but would only potentially add to incremental resource procurement opportunities that might provide net customer benefits. Importantly, this sensitivity produces net benefits that are greater than the net benefits from the 2017R RFP final-shortlist resources and transmission project without the solar PPAs. This confirms that near-term renewable procurement is not a matter of whether PacifiCorp should pursue the 2017R RFP final-shortlist resources *or* the solar PPAs, but whether the company should consider both opportunities. At this time, it is clear that the 2017R RFP final-shortlist resources provide significant net benefits, and that these benefits are not eliminated if PacifiCorp were to also pursue solar PPA bids through the 2017S RFP.

**G. Wind-Repowering Sensitivity**

PacifiCorp conducted additional sensitivity analysis to evaluate the impacts of its proposal to repower the company's wind facilities. This sensitivity was developed using SO model and PaR simulations through 2036 for the medium natural gas, medium CO<sub>2</sub> and the low natural gas, zero CO<sub>2</sub> price-policy scenarios. The results are shown alongside the benchmark study in which the 2017R RFP final-shortlist projects were evaluated without wind repowering. Table 6 summarizes the results of this analysis.

**Table 6: Wind-Repowering  
 Sensitivity (Benefit)/Cost (\$ million)**

	Sensitivity PVRR(d)	Benchmark PVRR(d)	Change in PVRR(d)
<b>Medium Gas, Medium CO2</b>			
SO Model	(\$608)	(\$405)	(\$204)
PaR Stochastic Mean	(\$541)	(\$357)	(\$184)
PaR Risk Adjusted	(\$567)	(\$386)	(\$181)
<b>Low Gas, Zero CO2</b>			
SO Model	(\$334)	(\$185)	(\$149)
PaR Stochastic Mean	(\$281)	(\$150)	(\$131)
PaR Risk Adjusted	(\$295)	(\$156)	(\$138)

In the wind-repowering sensitivity, customer benefits increase significantly when the wind-repowering project is implemented with the 2017R RFP final shortlist in both the medium natural gas, medium CO<sub>2</sub> and the low natural gas, zero CO<sub>2</sub> price-policy scenarios. These results demonstrate that customer benefits not only persist, but increase, if both the wind-repowering project and the final shortlist projects are completed.

**H. Turbine-Equipment Sensitivity**

Technical discussions and preliminary modeling of [REDACTED] in the interconnection-restudy process raised concerns that a synchronous condenser or other electrical compensation equipment might be required at the Aeolus substation if the [REDACTED] [REDACTED] to address system performance in a low stiffness-factor environment. Considering that [REDACTED] [REDACTED] [REDACTED], PacifiCorp



produced this sensitivity to estimate the incremental amount of network upgrade costs that would [REDACTED]

[REDACTED]. Table 7 summarizes PVRR(d) results for the turbine-equipment sensitivity. This sensitivity was developed using the SO model through 2036 for the medium natural-gas, medium CO<sub>2</sub> and the low natural-gas, zero CO<sub>2</sub> price-policy scenarios. The results are shown alongside the benchmark study including the 2017R RFP final-shortlist resources and transmission project.

**Table 7: Turbine-Equipment  
Sensitivity (Benefit)/Cost (\$ million)**

	Sensitivity PVRR(d)	Benchmark PVRR(d)	Change in PVRR(d)
Medium Gas, Medium CO <sub>2</sub>	(\$381)	(\$405)	\$24
Low Gas, Zero CO <sub>2</sub>	(\$143)	(\$185)	\$42

Considering that the SO model uses levelized capital costs, the reduction in PVRR(d) net benefits in this sensitivity would require at least [REDACTED] in incremental in-service transmission upgrade costs attributable to [REDACTED].

PacifiCorp does not anticipate that incremental in-service transmission costs would exceed [REDACTED] should a synchronous condenser or other electrical compensation equipment be required. Moreover, [REDACTED].  
[REDACTED] Based on these findings [REDACTED], PacifiCorp did not [REDACTED]

[REDACTED]

[REDACTED]

#### IV. 2017R RFP COMPLIANCE WITH GUIDELINES

##### A. Review of Guidelines

On April 30, 2014, the Commission issued revised competitive bidding requirements for new supply-side resource acquisitions applicable to Oregon’s investor-owned utilities.<sup>20</sup> Each RFP must demonstrate that it can satisfy these Guidelines before receiving approval and, after the RFP has taken place, must demonstrate compliance with the Guidelines in order to receive acknowledgment of a final shortlist.<sup>21</sup> Here, the 2017R RFP fully complied with each of the thirteen Guidelines, as explained below.

##### 1. Guideline 1

Guideline 1 requires PacifiCorp to issue an RFP for all major resource acquisitions identified in its IRP.<sup>22</sup> The 2017R RFP was issued to address the major wind resource additions reflected in the 2017 IRP. PacifiCorp’s issuance of the 2017R RFP for its prospective wind resource additions satisfied Guideline 1.

##### 2. Guideline 2

Guideline 2 allows the Commission to modify the requirements of the Guidelines when there is a “time-limited resource opportunity of unique value to customers,” among other reasons.<sup>23</sup> This Guideline is inapplicable because no modifications were adopted for the 2017R RFP.

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<sup>20</sup> Order No. 14-149.

<sup>21</sup> *Id.*, Appendix A at 2 (requiring Commission approval of an RFP); *see also id.* at 5 (requiring the utility to request that the Commission acknowledge a shortlist after completion of an RFP).

<sup>22</sup> *Id.*, Appendix A at 1 (Guideline 1).

<sup>23</sup> *Id.*, Appendix A at 1 (Guideline 2).

### 3. Guideline 3

Guideline 3 requires utilities to blind all RFP bids if it chooses to submit affiliate bids.<sup>24</sup> This Guideline is inapplicable because there were no affiliate bids in the 2017R RFP.

### 4. Guideline 4

Guideline 4 allows utilities to include self-build and ownership-transfer options in an RFP, to provide a potential cost-effective alternative for customers; a utility may also consider ownership transfers within an RFP solicitation. In the 2017R RFP, PacifiCorp submitted four self-build ownership bids and accepted bids structured as BTAs and PPAs. PacifiCorp worked closely with the IE to ensure that all bids were scored fairly regardless of build and ownership structures, while identifying the least-cost, least-risk options for customers.

### 5. Guideline 5

Guideline 5 requires the use of an IE to “help ensure that all offers are treated fairly,” and that the IE be both independent and competent.<sup>25</sup> Here, the Commission appointed Bates White, LLC, to serve as the IE.<sup>26</sup> As Staff noted when the Commission approved the IE, the chosen IE is independent of PacifiCorp and of the bidders, and has significant experience as an IE for state public utility commissions, including previously monitoring PacifiCorp’s 2008 R-1 Renewables RFP and 2012 Baseload RFP on behalf of the Commission.<sup>27</sup>

Over the course of the 2017R RFP, the IE worked closely with PacifiCorp to ensure that the solicitation process was both transparent and fair. In advance of issuing the RFP, the

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<sup>24</sup> *Id.*, Appendix A at 2 (Guideline 3).

<sup>25</sup> *Id.*, Appendix A at 2 (Guideline 5).

<sup>26</sup> Order No. 17-279 at 1 (adopting Staff’s recommendation to select Bates White, LLC to serve as IE); *see also id.*, Appendix A at 1 (recommending approval of Bates White, LLC).

<sup>27</sup> *Id.*, Appendix A at 5.

IE provided detailed feedback to expand the reach of the solicitation, and to effectively balance benchmark and market bids.<sup>28</sup> During the solicitation, the IE independently monitored all bids and bid scoring procedures, evaluated PacifiCorp's initial shortlist, and proposed additional sensitivity analysis, detailed above. The IE also performed a comprehensive evaluation of the RFP in its Final Report.

## **6. Guideline 6**

Guideline 6 requires that PacifiCorp prepare a draft RFP and provide it to all parties and interested persons in the company's most recent general rate case, RFP, and IRP dockets. Consistent with Guideline 6, PacifiCorp submitted its final draft RFP to the Commission for approval, along with standard form contracts on August 4, 2017. This filing was also provided to parties and interested persons in PacifiCorp's most recent general rate case, RFP, and IRP dockets. PacifiCorp also conveyed the initial application in this docket to each of the required parties on June 1, 2017. Although PacifiCorp provided standard form contracts, PacifiCorp also encouraged bidders to provide comments on these standard contracts and recognizes that mutually agreeable final contract terms are ultimately subject to negotiation.

Guideline 6 further requires utilities to conduct bidder and stakeholder workshops on the draft RFP. PacifiCorp held a bidder and stakeholder workshop on August 2, 2017, and solicited feedback on the 2017R RFP design process.

Guideline 6 also mandates that the draft RFP set forth any minimum bidder requirements for credit and capability, along with bid evaluation and scoring criteria, and

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<sup>28</sup> Initial suggestions included removing the requirement for bidders to 100 percent qualify for PTCs, allowing a slightly longer timeline for submitting notices of intent to bid, and allowing additional time for bidders to complete a system impact study. Each of these were incorporated into the 2017R RFP.

allows utilities to set a minimum resource size. The 2017R RFP set forth certain minimum bidder requirements, including:

- Minimum project size of 20 MW
- Must achieve a commercial operation date of no later than December 31, 2020
- Must interconnect with or deliver to PacifiCorp's Wyoming transmission system
- Provide bidder credit information before bid submittal(s)

Consistent with Guideline 6, PacifiCorp consulted with the IE in preparing the draft RFP, and the IE submitted its corresponding assessment on August 10, 2017.

### **7. Guideline 7**

Guideline 7 states that the Commission's review of a proposed RFP "should focus on: (1) the alignment of the utility's RFP with its acknowledged IRP; (2) whether the RFP satisfies the Commission's competitive bidding guidelines; and (3) the overall fairness of the utility's proposed bidding process."<sup>29</sup> As required by Guideline 7, the Commission reviewed and approved the 2017R RFP on September 27, 2017, subject to the condition that the Commission acknowledge the 2017 IRP as well.<sup>30</sup> On December 11, 2017, the Commission voted to acknowledge the 2017 IRP (although a formal order is still pending).

### **8. Guideline 8**

Consistent with Guideline 8, PacifiCorp submitted a detailed score for its benchmark bids to the Commission and IE before opening market bids. PacifiCorp also provided the benchmark bids' supporting cost information, including transmission arrangements and all other information necessary to score the benchmark bids. The IE reviewed the reasonableness of the scores for the benchmark bids. The benchmark bids score was

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<sup>29</sup> Order No. 14-149, Appendix A at 2 (Guideline 7).

<sup>30</sup> See Order 17-345 (as amended by Order No. 17-367).

assigned using the same bid scoring and evaluation criteria that was used to score market bids.

Guideline 8 also provides that, during the RFP process and with IE input, the utility may provide bidder updates where appropriate, and may also update the costs and score for the benchmark bids. In November 2017, after the IEs had completed their review of the initial shortlist, bidders were provided with an opportunity to update pricing. Again on December 18, 2017, PacifiCorp notified bidders that updated best-and-final pricing must be provided to reflect the revised federal tax provisions.

### **9. Guideline 9**

Guideline 9 provides that initial-shortlist bids be based on both price and non-price factors, and provide resource diversity. The non-price score “should be based on resource characteristics identified in the utility’s acknowledged IRP Action Plan . . . and conformance to the standard form contracts attached to the RFP.”<sup>31</sup> Final-shortlist bids are then to be based, at least in part, on the candidate resources’ overall system costs and risks, and the IE must have full access to the production cost and risk models.

The 2017R RFP final shortlist was identified using both price and non-price scoring. Non-price scoring involved three weighted factors: (1) conformity to RFP requirements, (2) project deliverability, and (3) transmission progression.<sup>32</sup> First, to assess conformity to RFP requirements, PacifiCorp evaluated whether bids provided complete and accurate information, were in compliance with technical specifications, and the extent of previous development-and-construction experience related to wind projects. Second, to assess project deliverability, PacifiCorp considered each project’s ability to achieve a December 31, 2020,

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<sup>31</sup> Order No. 14-149, Appendix A at 3 (Guideline 9).

<sup>32</sup> 2017R RFP at 21-22.

commercial operation date, progress in collecting avian data, and permitting timelines.

Third, to assess transmission progression, PacifiCorp evaluated each project's ability to deliver service, either directly or by securing third party transmission service, by December 31, 2020.

This non-price scoring was consistent with PacifiCorp's 2017 IRP Action Plan. The Action Plan planned for the addition of at least 1,100 MW of new wind resources achieving commercial operation by December 31, 2020, and in conjunction with Wyoming transmission infrastructure upgrades to be implemented on the same timeline. By evaluating each bid's capability of providing wind resources to PacifiCorp's transmission system by the end of 2020, the company's non-price factors are clearly consistent with the 2017 IRP Action Plan.

PacifiCorp's non-price scoring also conformed to the draft contracts, which included minimum requirements such as minimum project size, final commercial operation date deadline, and bidder-credit information. PacifiCorp, however, also allowed comments on the standard form contract as well as redlining the standard form contract in order to provide greater flexibility.

PacifiCorp's price scoring was also consistent with the 2017 IRP analysis because it used the same economic models and methodology to evaluate the system impact and costs associated with each bid, as described above.

Consistent with Guideline 9, the IE had full access to PacifiCorp's non-price scoring, and to production cost and risk models.

## **10. Guideline 10**

Guideline 10 prescribes the role of the utility and the IE in the RFP process. In accordance with this Guideline, PacifiCorp conducted the RFP process, scored the bids, selected the initial and final shortlists, and is currently undertaking negotiations with bidders.

Because PacifiCorp submitted benchmark bids into the RFP, the IE independently scored the benchmark bids and a sample of the bids to determine whether the selection for the initial and final shortlists was reasonable. The IE also evaluated the unique risks and advantages associated with the benchmark bids, including an evaluation of the following issues set forth in Guideline 10(d): construction cost over-runs (considering contractual guarantees, cost and prudence of guarantees, remaining exposure to ratepayers for cost over-runs, and potential benefits of cost under-runs); reasonableness of forced outage rates; end-effect values; environmental emissions costs; reasonableness of operation and maintenance costs; adequacy of capital additions costs; reasonableness of performance assumptions for output, heat rate, and power curve; and specificity of construction schedules or risk of construction delays.

Consistent with Guideline 10(e), PacifiCorp and the IE compared the results of their respective scoring and evaluation of competing bids and benchmark bids.

Because this is a wind RFP, PacifiCorp also allowed independent-power producers to submit bids with and without an option to renew, as allowed by Guideline 10(f). PacifiCorp also retained an independent third-party expert, Sapere Consulting, to evaluate the capacity factors proposed for each bid selected to the initial shortlist.

## **11. Guideline 11**

As required by Guideline 11, the IE prepared a Final Report for the Commission, which has been concurrently filed.



## 12. Guideline 12

As required by Guideline 12, PacifiCorp will make available to Staff and non-bidding parties the bidding information (including the company’s cost support for its benchmark bids) and detailed bid scoring and evaluation results, subject to protective orders limiting the use of the information to acknowledgment of the final shortlist and to cost-recovery proceedings.<sup>33</sup>

## 13. Guideline 13

Guideline 13 requires utilities to request acknowledgement of an RFP final shortlist, and to explain how the final shortlist is consistent with the utility’s most recently acknowledged IRP Action Plan. Acknowledgement does not “provide a guarantee of favorable ratemaking treatment,”<sup>34</sup> and the Commission “does not become directly involved in bid evaluation and selection.”<sup>35</sup> Rather, acknowledgement is a determination that a final shortlist “seems reasonable, based on the information provided to the Commission at that time.”<sup>36</sup>

PacifiCorp here seeks acknowledgement of the 2017R RFP final shortlist, which is consistent with the company’s 2017 IRP Action Plan. The 2017 IRP Action Plan provided for the development of “at least 1,100 MW of Wyoming wind resources that will qualify for federal wind PTCs and achieve commercial operation by December 31, 2020,”<sup>37</sup> and the development of the Aeolus-to-Bridger/Anticline transmission line, also to be completed by December 31, 2020. The 2017R RFP final shortlist includes 1,311 MW of Wyoming wind

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<sup>33</sup> See *supra* n. 8.

<sup>34</sup> *In the Matter of the Pub. Util. Comm’n of Or., Investigation Regarding Competitive Bidding*, Docket No. UM 1182, Order No. 06-446 at 15 (Apr. 30, 2014).

<sup>35</sup> Order No. 14-358, Appendix A at 16.

<sup>36</sup> Order No. 14-358, Appendix A at 16.

<sup>37</sup> PacifiCorp’s 2017 IRP at 265, Table 9.1(1b).

resources that will qualify for federal PTCs and that will come online by the end of 2020. Moreover, all of the final-shortlist projects have demonstrated site control, have reasonable permitting timelines, and have collected initial avian data sufficient to support the projects' development timetables. The final shortlist is thus consistent with the 2017 IRP Action Plan.

PacifiCorp requests that the Commission acknowledge the shortlist within 60 days, or by March 27, 2018, as provided for in Guideline 13.

**B. Overall Fairness of the Proposed Bidding Process.**

Staff has previously noted that the “use of an IE, the transparency of the process, and the inclusion of stakeholders . . . all indicate” the fairness of a bidding process.<sup>38</sup> In order to provide for a transparent and fair process, the 2017R RFP was overseen by two IEs—one on behalf of the Commission and the other on behalf of the Utah Commission. These IEs were closely involved in the RFP process, both in its development, by suggesting revisions to the draft solicitation, and during receipt and review of bids, wherein both IEs independently scored the initial shortlists and suggested additional analysis where deemed necessary. PacifiCorp also maintained open communication with bidders as appropriate—particularly when novel circumstances, such as the recent federal tax law, required updated analysis. Taken together with the approvals provided by the Commission throughout the process, these efforts demonstrate that the 2017R RFP was conducted both transparently and fairly.

**C. Disqualification of Caithness Beaver Creek, LLC's (Caithness) Bid**

Caithness submitted a bid that included wind generation with on-site battery storage options. PacifiCorp determined the Caithness bid was non-conforming under the eligibility

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<sup>38</sup> *In the Matter of Portland General Electric Co. Petition for Partial Waiver of Competitive Bidding Guidelines and Approval of Request for Proposals (RFP) Schedule*, Docket No. UM 1773, Order No. 16-280, Appendix A at 11 (July 29, 2016).

requirements in the RFP. Caithness has since objected to the exclusion of its bid.<sup>39</sup>

Caithness asks the Commission to modify the 2017R RFP's eligibility requirements to allow for consideration of combined wind/storage bids. The Commission subsequently asked PacifiCorp "to provide more information on the Caithness Beaver Creek bids" to allow the Commission "to fully consider the issues raised."<sup>40</sup>

As PacifiCorp has stated, the Caithness bid was non-conforming because it was not solely a wind generation resource, it was a wind generation resource with battery storage.

The IE and PacifiCorp have maintained that only bids for new wind or repowered wind are conforming to the 2017R RFP. The Caithness bid was not the only bid that was deemed to be non-conforming due to its failure to limit the bid offering to wind generation only.

PacifiCorp discussed these requirements at the bidders' conferences on August 2, 2017, and October 2, 2017. The fact that this resource was non-conforming was made clear to Caithness during a phone conversation on December 2, 2017.

Caithness attempts to state that their bid conformed to the RFP.<sup>41</sup> However, their pleadings only serve to highlight that their bid was non-conforming. Caithness states in their filings that their proposals "would not allow PacifiCorp to dispatch the wind facility" and their "wind facility output would be provided during peak hours."<sup>42</sup> In each of their bid proposals they state that a different entity other than bidder would be delivering a shaped

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<sup>39</sup> Caithness Beaver Creek, LLC's Reply to Staff's Response to ALJ's Ruling, in Support of Request to Modify Conditions in Order 17-345 Re. Conditional Approval of PacifiCorp's 2017R Request for Proposals (Jan. 8, 2018).

<sup>40</sup> *In the Matter of PacifiCorp dba Pacific Power, Request for Proposals of an Independent Evaluator to Oversee the Request for Proposal Process*, Docket No. UM 1845, Order No. 18-026 at 2 (Jan. 26, 2018).

<sup>41</sup> Caithness Beaver Creek, LLC's Reply to Staff's Response to ALJ's Ruling, in Support of Request to Modify Conditions in Order 17-345 Re. Conditional Approval of PacifiCorp's 2017R Request for Proposals (Jan. 8, 2018).

<sup>42</sup> *Id.*

“product,” not project output, on the following day during peak hours. These statements further reinforce why this type of resource is inappropriate. It is not a dispatchable wind resource under the eligible resource types.<sup>43</sup> Caithness is attempting to circumvent the RFP process, even though it has been repeatedly made clear to them that their bid is non-conforming. Additionally, PacifiCorp has concerns regarding their transmission arrangements with other parties, that Caithness would not be the owner of power ultimately delivered to PacifiCorp, and the overall competitiveness of Caithness’s bid pricing. Therefore, the Commission should support PacifiCorp’s and the IE’s findings and deny Caithness’s motion.

## V. CONCLUSION

The results of the 2017R RFP confirmed that the final shortlist projects are the least-cost, least-risk resources to implement the 2017 IRP Action Plan. The 2017R RFP was well received by the market and resulted in robust competition among bidders. The results of the 2017R RFP allowed PacifiCorp to obtain greater generating capacity for lower overall wind project capital costs. The final shortlist projects show net customer benefits under all scenarios through 2036 and in seven of nine scenarios through 2050. PacifiCorp’s updated sensitivities further demonstrate that the final-shortlist projects are not displaced by solar resources that bid into the 2017S RFP, and that they remain economic when combined with repowering.

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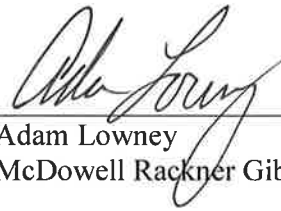
<sup>43</sup> 2017R RFP at 20 (“PacifiCorp is seeking new wind energy resources or repowered existing wind resources capable of directly interconnecting and/or delivering energy to PacifiCorp’s PACE and PACW network transmission system by December 31, 2020.”),

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Commission acknowledgement of the 2017R RFP final shortlist will enable PacifiCorp to effectively negotiate with final-shortlist bidders for the lowest price and acceptable terms to maximize customer benefits.

For the reasons stated above, PacifiCorp respectfully requests that the Commission acknowledge its final shortlist of bidders to the 2017R RFP.

Respectfully submitted this 23rd day of February, 2018.



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