

REDACTED

Docket No. 20000-519-EA-17

Witness: Timothy J. Hemstreet

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

REDACTED

Supplemental Direct Testimony of Timothy J. Hemstreet

February 2018

1 **Q. Are you the same Timothy J. Hemstreet who previously provided direct and**
2 **rebuttal testimony in this case on behalf of Rocky Mountain Power (“Company”),**
3 **a division of PacifiCorp?**

4 A. Yes.

5 **PURPOSE AND SUMMARY OF SUPPLEMENTAL DIRECT TESTIMONY**

6 **Q. What is the purpose of your supplemental direct testimony in this proceeding?**

7 A. My supplemental direct testimony provides the latest technical and commercial
8 information on the Company’s wind repowering project. This update includes
9 developments since the Company’s rebuttal filing in November 2017.

10 **Q. What are the key issues you address in your supplemental direct testimony?**

11 A. I provide an update on the following key issues:

- 12 • Changes in turbine specifications due to the completion of the technical review of
13 all facilities that are proposed to be repowered;
- 14 • Changes in project costs and energy benefits as a result of the completion of
15 technical design and foundation review for all of the facilities, and now-known
16 transmission capacity increases; and
- 17 • The status of project permitting and the contracting process the Company has
18 undertaken for installation of turbines to be supplied by Vestas-American Wind
19 Technology, Inc. (“Vestas”) to facilitate the repowering project.

20 **Q. Please summarize your testimony.**

21 A. Since rebuttal testimony was filed in the fall of 2017, the Company has observed
22 continued reduction in wind repowering project risks and uncertainties as the technical
23 studies conclude and contracting progresses. The Company has a) updated its energy

1 production estimates to reflect recent project-specific changes and additional available
2 data, with only a small net change in production; b) confirmed the need and scope of
3 required facility retrofits, with project costs remaining within 1.6 percent of estimates
4 included in my rebuttal testimony; and c) completed significant permitting
5 requirements for 11 of the 12 facilities. Despite the delay in the original procedural
6 schedule in this case, the Company remains confident that it can qualify for the
7 production tax credits (“PTCs”), and deliver the repowering project on-time at or below
8 the cost estimates included here. Even after accounting for recent changes to the federal
9 income tax rates, the customer benefits resulting from the repowering project remain
10 robust and the Company remains on track to deliver these benefits to customers.

11 **UPDATE ON COST AND PERFORMANCE**

12 **Q. Have there been any changes to the Company’s estimates of run-rate capital**
13 **expenditures for the repowering or status quo cases as compared to the rebuttal**
14 **filing?**

15 A. No. The Company’s estimates of run-rate capital expenditures for both cases are
16 unchanged.

17 **Q. Have there been any changes in the Company’s operations and maintenance cost**
18 **assumptions since the time of your rebuttal testimony?**

19 A. No. There have been no changes in operations and maintenance cost assumptions and
20 costs for the status quo case remain unchanged. However, the energy estimates for
21 certain facilities have changed, as described later in my testimony. The operations and
22 maintenance costs for the repowering case have adjusted slightly for those facilities as
23 a result of changed land lease payments that are tied to energy production.

1 **Q. Have there been any changes to turbine specifications for the wind facilities since**
2 **your previous testimony?**

3 A. Yes. The specified turbine for the Leaning Juniper facility has changed [REDACTED]
4 [REDACTED]
5 [REDACTED]

6 **Q. Why was this change made?**

7 A. As site-specific climactic conditions and design loads for this project site were
8 evaluated and developed, the turbine supplier made the change to ensure the turbine
9 loading is within the allowable load limits of the existing towers and foundations at the
10 project site.

11 **Q. Does the reduction in nameplate capacity of the specified turbine type impact the**
12 **amount of energy expected from this repowered facility?**

13 A. Yes. The reduction in nameplate capacity reduces the estimated generation increase of
14 the repowered facility from 30.0 percent to 27.0 percent—a three percent reduction.

15 **Q. Has this reduction in energy been factored into the Company's economic analysis**
16 **for this facility?**

17 A. Yes. The economic analysis of Company witness Mr. Rick T. Link accounts for the
18 updated generation expected for the Leaning Juniper facility.

19 **Q. Does the change in turbine type for the Leaning Juniper facility impact the cost of**
20 **repowering that facility?**

21 A. Yes. The change in turbine specification has also resulted in revised pricing from the
22 turbine supplier that has lowered the costs for turbine supply at this project.

1 **Q. Are there any other changes to the estimated energy output from the repowering**
2 **project, as compared to the estimates in your previous testimony?**

3 A. Yes. When my prior testimony was filed, only one year of historical data was available
4 to estimate the energy increases for the Glenrock I, Glenrock III, and Rolling Hills
5 facilities. Since then, the Company has been able to evaluate additional years of data
6 for these facilities and complete further analysis. The Company's estimated energy
7 increase for these facilities is now based on four years of historic data, consistent with
8 the methodology and data history used for all the other facilities.

9 **Q. Has this changed the energy production estimates for the Glenrock I, Glenrock**
10 **III, and Rolling Hills facilities?**

11 A. Yes, slightly. The estimated energy production for the Glenrock I, Glenrock III, and
12 Rolling Hills facilities decreased by 1.1 percent, 0.5 percent, and 0.3 percent,
13 respectively. These changes in the energy production estimates are shown in
14 Confidential Exhibit RMP____(TJH-1SD). These changes have also been factored into
15 the Company's economic analysis presented in Mr. Link's supplemental direct
16 testimony.

17 **Q. Are there any other changes in the energy production estimates included in this**
18 **supplemental direct filing?**

19 A. Yes. Transmission studies for the Marengo I and Marengo II facilities have advanced
20 to the point where the Company is now confident that an interconnection agreement
21 can be executed with the Company's transmission function that will allow the
22 repowered Marengo facilities to deliver their full repowered energy capability to
23 customers. This results in a 1.0 percent and 2.2 percent increase in the estimated energy

1 production from the Marengo I and Marengo II facilities, respectively. The Company's
2 economic analysis includes this increased energy production.

3 **Q. What is the net change in estimated energy production for the repowering project**
4 **given decreases at Glenrock I, Glenrock II, Rolling Hills, and Leaning Juniper,**
5 **and increases at Marengo I and Marengo II?**

6 A. There is only a small net change. In my previous testimony, I estimated an energy
7 production increase of 25.9 percent for the repowering project; my current estimate is
8 an energy production increase of 25.7 percent.

9 **Q. Have the costs for the required transmission system modifications for the**
10 **Marengo facilities been factored into the financial analysis?**

11 A. Yes. The costs for the required transmission system modifications needed to
12 interconnect this additional capacity—which the transmission studies have estimated
13 at \$180,000—are now included in the cost estimates for the Marengo facilities included
14 in this supplemental direct filing.

15 **Q. Does the Company now know whether the transmission interconnection**
16 **agreements at the other facilities can be modified to increase the amount of energy**
17 **that can be delivered from those facilities?**

18 A. No. Transmission studies have not yet advanced at the Wyoming wind facilities to the
19 point where the Company knows whether this additional capacity will be available for
20 these facilities. For this reason, the Company's economic analysis still shows the
21 Wyoming projects operating under their current interconnection agreement limits.
22 Finally, the Company does not anticipate additional transmission capacity will be
23 available for the Leaning Juniper and Goodnoe Hills facilities due to transmission

1 constraints.

2 **Q. Has the Company now completed an evaluation of the foundations at all wind**
3 **repowering sites and confirmed that the foundations are suitable for the new**
4 **turbines?**

5 A. Yes. Since my prior testimony was filed, site-specific turbine design and foundation
6 analyses have now been completed for the Goodnoe Hills and Leaning Juniper
7 facilities. When my prior testimony was filed, site-specific foundation load
8 specifications for these facilities were not yet available and the Company had not yet
9 verified that the foundations at these facilities were suitable for the specified
10 repowering turbines. Black & Veatch, Inc., has now evaluated the foundations at the
11 Leaning Juniper and Goodnoe Hills facilities and determined that the foundations will
12 be suitable for the repowered turbines following a standard retrofit that will add
13 strength to these foundations. This strengthening will allow the foundations to resist
14 the loads of the larger turbines for an additional 30-year service life following
15 repowering, similar to all the other facilities previously evaluated.

16 **Q. Was the cost of these foundation retrofits previously included in the Company's**
17 **cost estimates for the Leaning Juniper and Goodnoe Hills facilities?**

18 A. No. The cost was not included because we did not know the retrofits would be
19 necessary. The Company has now included the estimated cost of these foundation
20 retrofits into the costs for these repowered facilities, which have been evaluated in the
21 project-by-project economic analysis described in the testimony of Mr. Link. Changes
22 in project costs as compared to those in my prior testimony are also shown in
23 Confidential Exhibit RMP____(TJH-1SD). The only material cost changes are

1 associated with the Marengo facilities, for increased interconnection agreements and
2 updated installation costs, and Leaning Juniper and Goodnoe Hills, reflecting the costs
3 of foundation retrofits and updated turbine installation costs. In addition, the reduction
4 in turbine supply costs for Leaning Juniper offsets the cost increases for this facility.

5 **Q. How much have project costs increased as compared to costs included in your**
6 **prior testimony?**

7 A. Project costs have increased by \$17.6 million—or approximately 1.6 percent—to
8 \$1.10 billion for the Company’s base repowering scenario which assumes transmission
9 interconnection agreements in Wyoming are not modified. The Company continues to
10 expect \$36 million in project upgrade costs to allow the Wyoming facilities to deliver
11 additional energy under modified interconnection agreements, for a total cost of
12 \$1.137 billion. As before, ongoing transmission studies will determine the costs of any
13 necessary upgrades to the transmission system to interconnect this additional project
14 capacity.

15 **Q. Given the increased costs for the projects that will employ Vestas turbines (i.e.,**
16 **Leaning Juniper, Goodnoe Hills, Marengo I, and Marengo II), is the Company**
17 **still confident that it will have sufficient safe harbor wind turbine generator**
18 **equipment purchased in 2016 to satisfy the five percent safe harbor requirement**
19 **and qualify the projects for 100 percent of the value of the PTCs?**

20 A. Yes. As a result of the increased costs of repowering the Goodnoe Hills facility due to
21 the necessary foundation retrofit, the Company has changed its allocation of safe harbor
22 nacelles to increase the number of nacelles for the Goodnoe Hills facility. This will
23 allow all wind facilities to maintain an adequate safe harbor percentage so that project

1 costs that are not yet contractually fixed could escalate 65 percent or more with the
2 facilities still having sufficient safe harbor equipment. The Company also has access to
3 additional Vestas safe harbor equipment from Berkshire Hathaway Energy of the same
4 type as the safe harbor nacelles purchased for the repowering project in December
5 2016. If necessary, the Company can supplement the safe harbor equipment in order to
6 ensure there is adequate safe harbor equipment to qualify for 100 percent PTCs.

7 **UPDATE ON PERMITTING, CONTRACT STATUS AND PROJECT SCHEDULE**

8 **Q. Since the Company's rebuttal filing, has progress been made on permitting for the**
9 **Company's repowering project?**

10 A. Yes. Since the Company filed rebuttal testimony, Klickitat County, Washington has
11 determined that no additional permitting through its Planning Department is necessary
12 for the Company's proposed repowering of the Goodnoe Hills facility. With this
13 approval, 11 of the 12 facilities have been approved by the relevant county or Industrial
14 Siting Division. The Company does not anticipate any issues with obtaining the
15 remainder of any necessary permits and authorizations.

16 **Q. In your November 2017 rebuttal testimony, you noted the Company had not**
17 **executed a contract for the installation services for facilities employing Vestas**
18 **turbines. (Hemstreet Rebuttal, page 3, lines 8-9.) What is the status of that**
19 **process?**

20 A. The Company issued a request for proposals in early December 2017 and received
21 qualified bids for installation of Vestas turbines from several wind energy construction
22 contractors in mid-January 2018. The Company is still evaluating these proposals to
23 determine which proposal provides the best value to customers.

1 **Q. Has the Company factored the information gained from the responsive bids into**
2 **its cost estimates for constructing the facilities employing Vestas turbines?**

3 A. Yes. The Company's cost estimates have been updated to reflect cost information
4 gained through the competitive bid process for installation, foundation retrofits (where
5 necessary), and other site construction services that will be provided by the successful
6 wind energy contractor.

7 **Q. When factoring in cost information from the competitive bids for installation and**
8 **foundation retrofit work (where necessary) for the Vestas projects, did the**
9 **Company simply take the costs from the lowest bid and incorporate that into the**
10 **Company's cost estimates?**

11 A. No. Because the Company has not yet fully evaluated the bids or completed
12 negotiations with the bidders, the Company did not simply rely on the lowest bid
13 submitted to develop its revised cost estimates. Instead, the Company excluded the low
14 bid in the event it was non-responsive and used pricing reflective of the average of the
15 next three lowest cost proposals. For this reason, I am confident that these construction
16 services can be contracted at pricing equal to or better than the pricing included in the
17 Company's current cost estimates.

18 **Q. When does the Company anticipate having the construction contract for the**
19 **Vestas turbines completed?**

20 A. The Company expects to have a fully negotiated construction contract with the
21 successful bidder completed by the end of March 2018.

1 **Q. Given the delay in the schedule of this proceeding to allow recent tax law changes**
2 **to be factored into the Company’s economic analysis, do you foresee schedule risks**
3 **that may now impact the ability of the repowering project to be constructed in the**
4 **timeframe originally described in your direct testimony?**

5 A. No. The Company continues to work with its turbine suppliers—General Electric, Inc.
6 and Vestas—to ensure timely delivery of the repowering project while accommodating
7 the delay in this proceeding. At this time, the construction schedule for the projects,
8 which shows completion of all facilities in 2019 except Dunlap, remains achievable
9 given the anticipated timing for the Commission’s final order on the Company’s
10 request. An updated project schedule for the repowering project is included in
11 Confidential Exhibit RMP____(TJH-2SD).

12 **Q. With the recent tax law changes, are you aware of any provisions that have**
13 **changed the ability of the facilities to qualify for the full value of PTCs as**
14 **described in your direct and rebuttal testimony?**

15 A. No. As more fully described by Company witness Ms. Nikki L. Kobliha, the recent tax
16 law changes have not impacted the ability of the repowering project to qualify for the
17 full value of PTCs under Internal Revenue Service guidance (including the safe harbor
18 requirements or the 80/20 rule).

19 **Q. Does this conclude your supplemental direct testimony?**

20 A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION OF WYOMING

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|---------------------------------|----------------------------|
| IN THE MATTER OF THE) | |
| APPLICATION OF ROCKY MOUNTAIN) | |
| POWER FOR AN ORDER APPROVING) | DOCKET NO. 20000-519-EA-17 |
| NONTRADITIONAL RATEMAKING) | (RECORD NO. 14780) |
| RELATED TO WIND REPOWERING) | |

AFFIDAVIT, OATH AND VERIFICATION

Timothy J. Hemstreet (Affiant) being of lawful age and being first duly sworn, hereby deposes and says that:

Affiant is the Director of Renewable Energy Development for PacifiCorp, which is a party in this matter.

Affiant prepared and caused to be filed the foregoing testimony. Affiant has, by all necessary action, been duly authorized to file this testimony and make this Oath and Verification.

Affiant hereby verifies that, based on Affiant's knowledge, all statements and information contained within the testimony and all of its associated attachments are true and complete and constitute the recommendations of the Affiant in his official capacity as Director of Renewable Energy Development.

Further Affiant Sayeth Not.

Dated this 2nd day of February, 2018



Timothy J. Hemstreet
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STATE OF OREGON)
) SS:
COUNTY OF Multnomah)

The foregoing was acknowledged before me by Timothy J. Hemstreet on this 2nd day of February, 2018. Witness my hand and official seal.



Notary Public

My Commission Expires: 12/26/2020

