Docket No. UE 352
Exhibit PAC/100
Witness: Etta P. Lockey

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Direct Testimony of Etta P. Lockey

December 2018

DIRECT TESTIMONY OF ETTA P. LOCKEY

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Q. Please state your name, business address, and present position with PacifiCorp.

A. My name is Etta P. Lockey. My business address is 825 NE Multnomah Street, Suite 2000, Portland, Oregon 97232. My title is Vice President, Regulation.

QUALIFICATIONS

Q. Briefly describe your education and business experience.

A. I have a Bachelor of Arts degree in Political Science from the University of Oregon and a Juris Doctorate from the Northwestern School of Law of Lewis and Clark College. I started at PacifiCorp as an attorney in 2013 and assumed my current role as Vice President, Regulation in 2017.

Q. Have you testified in previous regulatory proceedings?

A. Yes. I have previously testified in regulatory proceedings in Oregon and California.

PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony in this proceeding?

A. My testimony explains the benefits to customers from repowering the company's existing wind resources and outlines why wind repowering is an opportunity for customers that is both prudent and in the public interest. I also discuss PacifiCorp's Renewable Adjustment Clause (RAC) mechanism and describe the company's proposal for the ratemaking treatment of the repowering project, including a discussion of the relevant portions of the settlement approved by the Public Utility Commission of Oregon (Commission) in docket UE 339, PacifiCorp's 2019 Transition Adjustment Mechanism (TAM).

SUMMARY OF TESTIMONY

Q. Please summarize your testimony.

A. Beginning in 2018, PacifiCorp began upgrading or "repowering" 900.1 megawatts (MW) of company-owned, installed wind capacity (495 MW in Wyoming, 304.6 MW in Washington, and 100.5 MW in Oregon) with longer blades and new technology to generate more energy in a wider range of wind conditions.[1] The upgrades will increase output of the wind facilities by 26.7 percent on average, extend the operating life of the facilities, and allow the facilities to requalify for federal production tax credits (PTCs) for an additional 10 years. To receive the full PTC benefits for customers, the repowered facilities must be commercially operational by the end of 2020. PacifiCorp seeks to include in rates the costs associated with repowered facilities that are expected to come online by December 31, 2019.

Q. Please identify the other PacifiCorp witnesses supporting this RAC?

A. PacifiCorp's filing is supported by testimony from the following witnesses:

Mr. Timothy J. Hemstreet, Director of Renewable Energy Development, provides a detailed scope of the company's wind repowering project, including technical details, qualification for PTC benefits, increased energy production, reduced operating costs, and continued system reliability. Mr. Hemstreet also addresses the process and timing of wind-turbine generator (WTG) equipment purchases, construction requirements, construction timelines, and the disposition of removed equipment.

[1] The 900.1 MW capacity reflects all of PacifiCorp's wind repowering project, except Rolling Hills, which is not in Oregon rates. Inclusive of Rolling Hills, PacifiCorp is repowering 999.1 MW of company-owned wind capacity.

Mr. Rick T. Link, Vice President of Resource and Commercial Strategy, testifies on the economic analysis that supports the prudence of PacifiCorp's wind repowering project and quantifies customer benefit resulting from repowering. Mr. Link also explains the wind repowering planning and analysis included in the company's 2017 Integrated Resource Plan (2017 IRP).

Mr. Steven R. McDougal, Director of Revenue Requirements, provides the revenue requirement associated with the wind repowering project and explains the proposal for the ratemaking treatment of the costs and benefits of the wind repowering project in rates, the accounting treatment of the replaced wind plant equipment, and the inter-jurisdictional allocation of costs.

Ms. Judith M. Ridenour, Specialist**,** Pricing and Cost of Service, presents the company's proposed RAC prices and proposed tariff changes and provides the impact of the proposed rate changes on customers' bills.

RENEWABLE ADJUSTMENT CLAUSE

Q. Please describe PacifiCorp's RAC.

A. The RAC is the automatic adjustment clause created in accordance with Section 13 of Senate Bill 838 to allow for the timely recovery of costs associated with renewable portfolio standard compliance.[2] The RAC was adopted in 2007 through a stipulation agreed to by PacifiCorp, Portland General Electric Company, Staff, the Alliance of Western Energy Consumers (known at that time as the Industrial Customers of

[2] *See In the Matter of the Public Utility Commission of Oregon Investigation of Automatic Adjustment Clause Pursuant to SB 838,* Docket No. UM 1330, Order No. 07-572 at 1 (Dec. 19, 2007).

Northwest Utilities), and the Oregon Citizens' Utility Board.[3] PacifiCorp's RAC is set forth in Schedule 202.[4]

Q. Has PacifiCorp previously used the RAC to incorporate renewable resources into rates?

A. Yes. The Commission authorized recovery through the RAC for PacifiCorp's investments in the Leaning Juniper, Marengo, and Blundell resources in 2008,[5] and Seven Mile Hill II and Glenrock III resources in 2009.[6]

Q. What is PacifiCorp's proposal for cost recovery through the RAC?

A. The company seeks to recover the revenue requirement associated with the investments related to the repowering of its wind resources as described in this filing, supported by the testimony and exhibits from the identified company witnesses. PacifiCorp proposes to implement cost recovery in two separate rate changes to accommodate the expected in-service completion dates of the repowering project. PacifiCorp expects to implement a rate change on October 1, 2019, for the completion of repowering at Leaning Juniper, Seven Mile Hill I, Seven Mile Hill II, and Glenrock I, and a second rate change on December 1, 2019, for the completion of Goodnoe Hills, High Plans, McFadden Ridge, Marengo I and Marengo II. This approach minimizes the number of rate changes while also limiting regulatory lag on recovery of the completed repowered projects.

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[3] Order No. 07-572 at 2.
[4] Order No. 07-572, App. A at 20-21.
[5] *In the matter of PacifiCorp, dba Pacific Power, Application for an Accounting Order Approving Deferral of Costs Relating to Renewable Resources Pursuant to Senate Bill 838*, Docket No. UM 1338, Order No. 08-508 (Oct. 22, 2008).
[6] See *In the matter of PacifiCorp, dba Pacific Power, Application for Deferred Accounting*, Docket No. UM 1412, Order No. 09-072 (March 2, 2009) and Advice No. 09-015, Revising Schedule 203, Renewable Resource Deferral Adjustment, filed November 25, 2009, allowed (approved) on December 22, 2009.

Q. Does the company propose any updates to the RAC based on changes since the last RAC filing was implemented in 2009?

A. Yes. The company proposes to update the applicability of the RAC rate schedule to include direct access customers. PTCs have been included in the calculation of the TAM revenue requirement since 2017.[7] In the company's last TAM, UE 339, the final revenue requirement included the benefits of PTC's for the resources included in this RAC. Direct access customers receive the benefit of these PTCs through the calculation of their transition adjustments. Transition adjustments are a market-based credit for the energy freed up when a customer takes direct access offset by the cost of the TAM rate. Incorporating PTC credits into the TAM rate lowered the TAM rates and thereby increased the transition credits.[8] Since direct access customers are receiving the benefit of PTCs for these resources through transition adjustments, it is appropriate that the proposed RAC charges for these resources also apply to direct access customers.

Q. When costs for these RAC resources are rolled into base rates as part of a general rate case, will direct access customers pay those costs?

A. Yes. The cost of the RAC resources are generation costs that are recovered through Schedule 200, Base Supply Service. Direct access customers pay the rates in Schedule 200.

Q. Have proposed tariff changes been included in this filing?

A. Yes. The proposed tariff changes are provided in Exhibit PAC/502 accompanying the direct testimony of Ms. Ridenour.

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[7] Docket No. UE 307, PacifiCorp's 2017 Transition Adjustment Mechanism.
[8] Or, in the case where the transition adjustment is a charge, the inclusion of PTCs lowered the charge.

Q. Why is PacifiCorp filing the RAC now?

A. The RAC specifies that it will be filed on April 1, concurrent with the filing of a TAM. However, in PacifiCorp's 2019 TAM, the Commission approved a settlement in which parties agreed that PacifiCorp would file a RAC by January 2, 2019. Parties also agreed to support an expedited schedule to allow for conclusion of the RAC proceeding by July 1, 2019, before the first repowering facility is complete. This timeline allows PacifiCorp the opportunity to seek contemporaneous recovery of the repowering project without the need to file for a deferral of capital costs associated with the repowering projects.

Q. Does PacifiCorp's filing deviate from the RAC requirements in any other ways?

A. Yes. The RAC contemplates that both the costs and benefits of renewable projects be considered as part of the RAC filing. However, as part of the settlement in the 2019 TAM, PacifiCorp agreed to reflect the net power cost benefits, including the PTCs, in the 2019 TAM. The incremental generation provided by the repowered wind projects is zero-fuel-cost energy and either displaces higher cost energy or provides energy for off-system sales, thus reducing net power costs. In the 2019 TAM, net power costs were approximately $400,000 lower due to repowering. Additionally, the 2019 TAM includes approximately $4 million of customer benefits from PTCs.

Q. Please explain the timing differences that result from the costs and benefits being included in separate filings?

A. The repowering costs and benefits are aligned between the RAC and the 2019 TAM; however, there is a timing difference as to the impact to customer rates. For example, in the 2019 TAM customers will receive four months of repowering benefits for

Glenrock I since the benefits were included in the TAM beginning October 1, 2019 and this is the start date in the RAC to begin recovering the repowering costs. The timing difference is a result of the different rate effective dates between the 2019 TAM and the RAC. The inclusion of repowering benefits in the 2019 TAM allowed customers to begin receiving the benefits of the repowering project January 1, 2019. In other words, the four months of repowering benefits for Glenrock I are given to customers over the course of 2019. In the RAC, PacifiCorp will not begin to recover the costs associated with the repowering project until the first proposed rate change of October 1, 2019.

OVERVIEW OF REPOWERING

Q. Please describe the repowering of PacifiCorp's wind facilities.

A. Wind repowering takes advantage of technological advancements that enable increased generation from existing wind resources. PacifiCorp's wind repowering project involves installation of new rotors with longer blades and new nacelles with higher-capacity generators. These plant upgrades increase energy output without changing the footprint, towers, and energy collector systems of the wind facilities. Longer blades allow wind turbines to produce more energy over a wider range of wind speeds. The nacelle is the housing that sits atop the tower and contains the gear box, low- and high-speed shafts, generator, controller, and brake. The new nacelles include sophisticated control systems and more robust components necessary to handle the greater loads that come with longer blades.

Together, the new rotors and nacelles are estimated to increase generation from the repowered projects in Oregon rates by 21 to 39 percent, resulting in an overall average generation increase of 26.7 percent. Mr. Hemstreet's testimony provides greater detail on the technical aspects of the wind repowering project.

Q. Why is PacifiCorp repowering its wind fleet?

A. On December 18, 2015, Congress enacted changes to the federal Internal Revenue Code that extended the full value of the PTC for wind energy facilities that began construction in 2015 and 2016. The Internal Revenue Service issued guidance that establishes a "safe harbor" for taxpayers to demonstrate the year a facility will be deemed to "begin construction," thereby setting the value of the PTC.

PacifiCorp's repowering efforts allow for the requalification for PTCs for the repowered wind facilities. To maximize the PTC benefit, in December 2016, PacifiCorp executed and took delivery of safe-harbor purchases with General Electric International, Inc., and Vestas-American Wind Technology, Inc. for new WTG equipment. These safe harbor equipment purchases were of sufficient value to allow the repowered facilities to qualify for 100 percent of available PTC benefits if they are commercially operational within four calendar years—*i.e.*, by the end of 2020. PacifiCorp's purchases in 2016 were important because wind facilities that began construction *after* 2016 and come online after 2020 will receive a 20 percent decrease in the tax benefits that can be passed on to customers, declining an additional 20 percent each year until the PTC is entirely phased out for projects that come online after 2023. A delay in acquiring the safe harbor equipment would have made the economics of repowering less attractive and deprived customers of substantial benefits.

To meet the 2020 deadline, PacifiCorp ordered equipment and executed contracts in 2018 and will complete much of the construction in 2019. The renewal of the PTC has increased the demand for materials, equipment, and labor for wind facilities. By completing a substantial amount of construction in 2019, PacifiCorp will mitigate the risk of construction delays, or delays associated with the procurement of equipment while still allowing sufficient time to meet the 2020 deadline.

In addition, completing the majority of the construction in 2019 will maximize the value of the existing PTCs, while minimizing the period between the expiration of the prior PTCs and the eligibility for the new PTCs. As further described in the testimony and exhibits of Mr. Hemstreet, by achieving commercial operation in 2019 for most of the facilities, with the exception of Dunlap and Glenrock III (scheduled to be completed in 2020), PacifiCorp will also minimize the time during which the wind facilities are ineligible for PTCs.

Q. Which wind resources will be repowered?

A. PacifiCorp is repowering most of its Wyoming wind fleet (Glenrock I, Glenrock III, Seven Mile Hill I, Seven Mile Hill II, High Plains, McFadden Ridge, and Dunlap); the Marengo I, Marengo II, and Goodnoe Hills facilities in Washington; and the Leaning Juniper facility in Oregon. This results in a total of 1,035 MW of installed wind capacity, with 606 MW in Wyoming, 328 MW in Washington, and 101 MW in Oregon.

Q. Is PacifiCorp proposing to include all of these repowered wind resources in the RAC at this time?

A. No. PacifiCorp is seeking prudence review and rate recovery through the RAC for all of the projects listed above with the exception of the Dunlap and Glenrock III projects. The Glenrock III and Dunlap projects are not expected to come online until July 2020 and November 2020, respectively, and PacifiCorp will seek separate prudence review and rate recovery for these projects.

Q. What is the total repowering cost PacifiCorp is seeking recovery for at this time?

A. As described in Mr. McDougal's testimony the requested RAC recovery amounts are $16.0 million, through rates effective October 1, 2019, and an additional $20.8 million, through rates effective December 1, 2019.

CUSTOMER BENEFITS

Q. What are the customer benefits resulting from wind repowering?

A. The customer benefits resulting from wind repowering derive in part from the fact that repowering allows PacifiCorp's existing wind resources to requalify for federal PTCs—the benefits of which the company has already started passing back to Oregon customers through decreased net power costs since January 1, 2019. As noted above, the total revenue requirement related to the cost of repowering, excluding Glenrock III and Dunlap, is $36.8 million. As described in the testimony of Mr. Link, the customer benefits, however, exceed the cost, meaning wind repowering will save customers money.

Wind repowering creates these benefits by:

- Increasing zero-fuel-cost energy production from wind facilities between 21 to 39 percent because of longer blades and higher capacity generators;

- Reducing ongoing operating costs associated with aging wind turbines;
- Extending the useful lives of the wind facilities by at least 10 years;
- Reducing customer costs by requalifying the wind facilities for PTCs for an additional 10 years; and
- Improving the ability of the wind facilities to deliver cost-effective, renewable energy into the transmission system through enhanced voltage support and power quality.

The repowered facilities will deliver cost-effective energy to Oregon customers, while saving customers money over the life of the investment.

Q. Did PacifiCorp analyze wind repowering in the 2017 IRP?

A. Yes. PacifiCorp's 2017 IRP, which was acknowledged by Commission Order No. 18-138 issued on April 27, 2018, includes wind repowering as an integral component of the preferred portfolio, meaning that it was selected as a least-cost, least-risk resource option.[9]

Q. Does PacifiCorp's economic analysis demonstrate that the wind repowering project will provide net benefits to customers?

A. Yes. PacifiCorp's economic analysis of the wind repowering project demonstrates that it will provide substantial customer benefits. As described in more detail in Mr. Link's testimony, PacifiCorp analyzed nine different scenarios, each with varying natural gas and carbon dioxide (CO_2) price assumptions, and all nine scenarios show customer benefits ranging from $121 million when assuming low natural gas and zero CO_2 prices to $466 million when assuming high natural gas and high CO_2 prices. With medium natural gas price and CO_2 price assumptions, wind repower results in

[9] *In the Matter of PacifiCorp dba Pacific Power, 2017 Integrated Resource Plan,* Docket No. LC 67, Order No. 18-138 (Apr. 27, 2018).

customer benefits of $273 million.

Q. Is the repowering project prudent and in the public interest?

A. Yes. As described above and in more detail in the testimony of Mr. Link, repowering provides substantial customer benefits and is in the public interest. Repowering increases the energy generation of PacifiCorp's existing wind facilities, while saving customers money, and repowering provides these substantial customer benefits across all market price and Clean Power Plan[10] scenarios modeled in the 2017 IRP—demonstrating that wind repowering is both least-cost and least-risk. The benefits of repowering accrue through the extended life of the existing wind resources, thus providing long-term, cost-effective, emission-free generation to serve Oregon customers. Therefore, PacifiCorp is requesting that the Commission find that the repowering of these facilities is prudent and in the public interest.

CONCLUSION

Q. What is your recommendation to the Commission?

A. I recommend that by September 1, 2019, the Commission issue an order finding that PacifiCorp's decision to repower its wind fleet is prudent and in the public interest, approving the company's proposals for ratemaking, and for the continued recovery of the replaced equipment.

Q. Does this conclude your direct testimony?

A. Yes.

[10] Subsequent to the filing of the 2017 IRP, the Energy Protection Agency withdrew its rulemaking on the Clean Power Plan, effectively suspending implementation of the Clean Power Plan.