Exh. RTL-1Tr
Docket UE-23——0172
Witness: Rick T. Link

BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, Complainant, v. PACIFICORP dba PACIFIC POWER & LIGHT COMPANY Respondent.	Docket UE-23——0172

PACIFICORP

DIRECT TESTIMONY OF RICK T. LINK

March 2023 (REVISED April 4, 2023, and REFILED April 19, 2023)

TABLE OF CONTENTS

EXHIBITS

2021 IRP Update shows a resource need in all years of the planning horizon—starting at 1,584 MW in 2022 and increasing to 6,755 MW in 2040.[2] In 2025, the first full year that includes Rock Creek I's operation, the resource need is 1,867 MW, an increase of 240 MW or approximately 15 percent from the 2021 IRP. The higher load reflected in the 2021 IRP Update approaches the level analyzed in the high-load sensitivity conducted in the 2021 IRP.[3] And, as discussed later in my testimony, the most recent load forecast is even higher that that assumed in the 2021 IRP Update.

Since the Company initiated construction of the Transmission Projects, national tariff policies, global supply-chain issues, and inflationary pressures eliminated some bids on the 2020AS RFP final shortlist. Consequently, PacifiCorp's procurement was reduced by 902 MW of solar resources and 497 MW of battery storage resources. Additional resources are needed to reduce PacifiCorp's reliance on the market.

Q. Why is it important to reduce PacifiCorp's reliance on market purchases?

A. There is a strong consensus that the western United States will face an increasing capacity deficit in the near future.[4] For example, in December 2020, the Western Electricity Coordinating Council (WECC) issued its Western Assessment of Resource Adequacy Report (WARA).[5] The WARA was developed based on data collected from balancing authorities describing their own demand and supply projections over the next ten years. The WARA evaluated resource adequacy among six subregions

[2] *Id.* at Table 4.2.
[3] *Id.* at 2.
[4] *Id.* at Vol. I, Ch. 5.
[5] *The Western Assessment of Resource Adequacy Report,* Western Electricity Coordinating Council (Dec. 18, 2020) (https://www.wecc.org/Administrative/Western%20Assessment%20of%20Resource%20Adequacy%20Report%2020201218.pdf).

under two scenarios—one with and without imports to the subregion. PacifiCorp serves load in three of these subregions—Northwest Power Pool Northwest (NWPP-NW), Northwest Power Pool Northeast (NWPP-NE), and Northwest Power Pool Central (NWPP-C). For each of these scenarios, the WARA considered variations of supply. The most conservative assumes availability of only existing resources, and the most liberal includes availability of new resources under construction, those expected to come online, and those under development. The study found that for each of the three subregions in which PacifiCorp serves load, imports are needed to meet a one-day in ten-year planning threshold. The WARA shows that the NWPP-NW subregion would fall short of the planning threshold in 194 hours (under the most liberal supply case) to 208 hours (assuming availability of only existing resources) without imports. In the NWPP-NE and NWPP-C subregions, the study found that planning threshold is not met in 4,200 hours without imports.

These findings highlight that there are real reliability risks associated with relying on supply being available in the market to meet projected load obligations. In addition, WECC's 2021 WARA issued December 2021 further concludes that not only are resource adequacy risks to reliability likely to increase over the next 10 years, it recommends entities take immediate action to mitigate near-term risks and prevent long-term risks. The 2021 WARA projects that "by 2025, each subregion, and the interconnection, will be unable to meet the 99.98%-one-day-in-ten-year-reliability threshold."[6]

[6] *2021 Western Assessment of Resource Adequacy Report*, Western Electricity Coordinating Council (Dec. 17, 2021) (~~available here~~https://www.wecc.org/Administrative/WARA%202021.pdf).

Q. Are there any other third-party studies confirming the resource adequacy concerns in the west?

A. Yes. In December 2020, the North American Electric Reliability Corporation (NERC) issued its Long-Term Resource Adequacy (LTRA) study that included its ten-year WECC region reliability assessment.[7] The NERC LTRA calculates an anticipated resource-based reserve margin to a reference reserve margin to establish one of three risk determinations—adequate (anticipated margin exceeds the reference margin), marginal (anticipated margin is below the reference margin, but new resources under development could cover the shortfall), and inadequate (anticipated reserve margin is below the reference margin and load interruption is likely).

The NERC LTRA shows that the Northwest Power Pool region and Rocky Mountain Reserve Group regions are projected to be inadequate beginning in 2028 even if resources under development come online. Again, these findings highlight the risk of relying on other entities in the region to have excess supply available for the market when PacifiCorp may be required to buy power to serve its customers.[8]

Q. How did the 2021 IRP preferred portfolio address the need for new resources?

A. The 2021 IRP preferred portfolio represented PacifiCorp's least-cost, least-risk plan to reliably meet customer demand over a 20-year planning period, based on the information available at the time the plan was developed. Using a range of cost and risk metrics to evaluate numerous resource portfolios, PacifiCorp selected a preferred

[7] *2020 Long-Term Reliability Assessment*, North American Electric Reliability Corporation (Dec. 2020) (https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2020.pdf).
[8] *2021 Long-Term Reliability Assessment,* North American Electric Reliability Corporation (Dec. 2021) (indicating resource adequacy needs in next ten years, with shortfalls appearing earlier (in 2026) based on existing resources) (https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2021.pdf).

portfolio that reflected a cost-conscious plan with near-term investments in renewable resources that capture tax credits before they expire or decrease, and new transmission infrastructure to facilitate the interconnection and delivery of these resources. These new resources and transmission investments are lower cost than other resource and transmission alternatives and are necessary to reliably serve our customers.

Q. Are the Transmission Projects a part of the 2021 IRP preferred portfolio?

A. Yes. As described in Volume I, Chapter 4 of the 2021 IRP, the preferred portfolio includes both Gateway South and Gateway West Segment D.1. In the 2021 IRP, the Transmission Projects are assumed to be placed in service by the end of 2024, consistent with current construction timelines discussed by Company witness Vail. The Transmission Projects will enable the addition of new wind facilities that contribute to meeting 1,627 MW of projected resource need beginning 2025.

Q. Are the Transmission Projects part of the 2021 IRP Update?

A. Yes.[9]

Q. Are the Transmission Projects part of the 2021 Clean Energy Implementation Plan?

A. Yes.[10]

[9] PacifiCorp's 2021 Integrated Resource Plan Update, Ch. 7, Action Plan Item 3a–3b, at 103–104 (Mar. 31, 2022) (https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2021_IRP_Update.pdf).

[10] PacifiCorp's 2021 Clean Energy Implementation Plan, at 16, 21 (Dec. 30, 2021) (https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/ceip/PAC-CEIP-12-30-21_with_Appx.pdf).

Q. What new transfer capabilities and interconnection capacity do the Transmission Projects add to PacifiCorp's system?

A. The Transmission Projects will increase the transfer capability between the Aeolus substation in eastern Wyoming and the Clover substation located near Mona, Utah by 1,700 MW, and enable the interconnection of 2,030 MW of new resources in eastern Wyoming.

Q. Please describe key factors supporting the inclusion of the Transmission Projects as prudent investments in this case.

A. The Transmission Projects allow PacifiCorp to implement system improvements, support the full capacity rating of Gateway South and West, and enable the addition of incremental Wyoming renewable resources to support customer needs and deliver value for customers in the most cost-effective way. As discussed by Company witness Vail, the Transmission Projects will also improve overall reliability of the transmission system, and enhance PacifiCorp's ability to comply with mandated reliability and performance standards. Importantly, the Transmission Projects ensure the Company will meet its obligations to reliably accommodate nearly 2,500 MW of interconnection and transmission service requests, including 13 executed interconnection service and transmission service agreements for over 1,600 MW of new wind resources. This includes 500 MW of firm PTP transmission service to a third-party transmission customer under the FERC's jurisdiction.

Q. Please describe the reliability benefits of the Transmission Projects.

A The Transmission Projects directly connect eastern Wyoming to central Utah while enhancing reliability throughout PacifiCorp-served regions. Connecting to the

Mona/Clover market hub provides additional flexibility in the use of least-cost resources from eastern Wyoming or southern Utah.

Moreover, allowing additional generation resources to interconnect and serve load will lessen PacifiCorp's reliance on volatile and potentially diminishing market transactions to serve load. Given concerns over regional resource adequacy, reducing reliance on the market ensures a stable and reliable supply of capacity and energy going forward.

In addition, Gateway South improves reliability by relieving the stress on the transmission system in eastern Wyoming and central Utah. Gateway South relieves stress on the underlying 230-kV transmission system in Wyoming, and it unloads the underlying 345-kV transmission system in central Utah, improving reliability in both regions. Essentially, the 500-kV line brings two distant areas closer to each other in a way that improves regional reliability.

Gateway West Segment D.1 creates a new transmission path that allows for additional resource development in the area. The addition of this line improves the reliability of the transmission system during certain identified outage conditions (Dave Johnston to Amasa 230-kV outage or Amasa – Shirley Basin 230-kV outage). Gateway West Segment D.1 is also a prerequisite for interconnecting new resources, including those selected in the 2020AS RFP. Company witness Vail's testimony addresses transmission system reliability and interconnection issues in greater detail.

B. The 2020AS RFP

Q. Please provide an overview of the 2020AS RFP.

A. The 2020AS RFP was issued to identify resources that could meet the Company's

projected resource need identified in the 2019 IRP. Based on the cost-and-performance assumptions for proxy resources in the 2019 IRP, the Company expected that new wind, solar and battery energy storage systems (BESS) were likely to be the most cost-competitive types of resources offered into the 2020AS RFP. However, bidders could offer proposals for other types of resources (*i.e.*, natural gas, pumped storage, *etc.*).

Q. When was the 2020AS RFP issued?

A. After receiving approval from the Utah Commission (docket 20-035-05) and Oregon Commissions (docket UM 2059), PacifiCorp issued the 2020AS RFP on July 7, 2020.[11]

Q. What was the market response to the 2020AS RFP?

A. There was a robust market response that resulted in over 28,000 MW of conforming bids, with an additional 12,500 MW of non-confirming bids. Bids for 24 projects totaling over 9,000 MW of resource capacity located in eastern Wyoming were submitted.

Q. How did the Company evaluate submitted bids?

A. The Company created an initial shortlist that was made public on October 29, 2020. This shortlist included 5,453 MW of renewable resource capacity: 2,974 MW of solar or solar with storage (1,130 MW of battery storage), 2,479 MW of wind, and

[11] In Oregon Administrative Rules 860-89-0010, et seq., the Oregon Commission has established competitive bidding requirements for certain resource acquisitions by Oregon's investor-owned utilities. *In the Matter of the Rulemaking Regarding Allowances for Diverse Ownership of Renewable Energy Resources*, Docket No. AR 600, Order No. 18-324, Appendix A (Aug. 30, 2018) (https://apps.puc.state.or.us/edockets/orders.asp?OrderNumber=18-324). In addition, Utah's Energy Resource Procurement Act requires a competitive solicitation process before the acquisition of renewable resources greater than 300 MW *See* Utah Code Ann. § 54-17-201 *et. seq.*

200 MW of standalone BESS. PacifiCorp then initiated a capacity factor evaluation process (performed by third-party expert WSP Global). The initial shortlist contained a mix of various ownership structures, including proposals for power-purchase agreements (PPAs), build-transfer agreements (BTAs), and battery storage agreements (BSAs).

Q. What resources were selected to the final shortlist?

A. After evaluating a range of potential bid portfolios, and accounting for bid updates from interconnection study results, the final shortlist included: 1,792 MWs of new wind capacity (590 MWs as BTAs and 1,202 as PPAs); 1,302 MW of solar capacity as PPAs; 697 MW of BESS (497 MW of BESS capacity paired with solar bids, and 200 MW as standalone BESS capacity as a BSA).[12]

Q. Which final shortlist resources depend on the Transmission Projects for interconnection?

A. Six final shortlist resources, representing over 1,600 MW of wind generation, require the Transmission Projects to interconnect to PacifiCorp's transmission system. Table 1 summarizes the wind resources that require the Transmission Projects to achieve interconnection.

Table 1. 2020AS RFP Wind Bids Dependent on the Transmission Projects for Interconnection

Project	Bidder	Structure	Capacity (MW)
Cedar Springs IV	NextEra	PPA	350
Boswell Springs	Innergex	PPA	320
Two Rivers	BlueEarth Renewables LLC and Clearway Renew LLC	PPA	280
Anticline	NextEra	PPA	101
Rock Creek I	Invenergy	BTA	190
Rock Creek II	Invenergy	BTA	400

[12] The final shortlist originally included an additional solar bid collocated with BESS. Shortly after the bidder was notified its project was on the final shortlist, it withdrew the bid from the 2020AS RFP. This bid is not included in the total capacity.

Q. Was the 2020AS RFP overseen by independent evaluators?

A. Yes. Consistent with Utah and Oregon Commission's requirements, the solicitation process was overseen by two independent evaluators—one retained by PacifiCorp and appointed by the Oregon Commission (PA Consulting Group, Inc.), and one retained by the Utah Commission (Merrimack Energy Group).

Q. What were the independent evaluators' conclusions regarding the 2020AS RFP?

A. Both independent evaluators concluded that the process was fair and transparent, and that the bids selected for the final shortlist were reasonable.

Q. Please describe the Utah independent evaluator's conclusions regarding the 2020AS RFP.

A. In its Shortlist Report, the Utah independent evaluator concluded that the RFP was fair, reasonable, and in the public interest.[13] In particular, the Utah independent evaluator concluded:

- The market response to the RFP was robust and, "Based on the unbelievable response from the market it is safe to say that the solicitation process resulted in a very competitive process with many more proposals generally submitted than the expected requirements by bubble identified by PacifiCorp."[14]
- PacifiCorp engaged the bidders throughout the process in a timely manner to ensure that all bidders were treated fairly.
- All bidders were treated the same, had access to the same information at the same time, and had an equal opportunity to compete.
- PacifiCorp implemented its evaluation and selection process consistent with its proposed evaluation and selection process as outlined in the RFP in a structured and consistent manner designed to result in the selection of a portfolio of projects that would result in a least cost solution.

[13] *In re Rocky Mountain Power 2020AS RFP Application,* Docket No. 20-35-05 (Utah Public Service Commission; Sept. 2, 2021) (~~available here~~https://psc.utah.gov/2020/01/24/docket-no-20-035-05/).
[14] Utah Independent Evaluator Shortlist Report at 74.

- PacifiCorp subjected all bidders to the same information requirements and conducted a consistent evaluation process with all proposals treated equally in terms of the evaluation methodology and information required of each bidder.

- The selection process was unbiased with respect to ownership structures, i.e., the process did not unreasonably favor bids that resulted in a utility-owned resource.

- The selected bids resulted in lower system cost than a case where no bids were selected and maximized customer benefits while managing risk.

Q. Please describe the Oregon independent evaluator's conclusions regarding the 2020AS RFP.

A. In its Closing Report, the Oregon independent evaluator concluded that the final shortlist reflected a diverse portfolio of competitive resources that achieves the resource adequacy and least cost goals set forth in PacifiCorp's IRP.[15] This was based on the following conclusions:

- PacifiCorp's procurement process, scoring methodology and results were fair and free of bias across all bids and bidders.

- PacifiCorp applied the rules of the 2020AS RFP in an unbiased manner, communicated transparently with the independent evaluators regarding their modelling processes and with stakeholders regarding their decisions.

- PacifiCorp's bid price scores were on average consistent with the independent evaluator's independent scoring methodology.

- PacifiCorp's utilization of an outside consultant, WSP Global, to evaluate wind, solar, and battery storage benefitted stakeholders.

- The final shortlist was reasonably aligned with the 2019 IRP preferred portfolio.

[15] *In re PacifiCorp's 2020AS RFP Application,* Docket No. UM 2059 (Oregon Commission; Jun. 15, 2021) (~~available here~~https://apps.puc.state.or.us/edockets/DocketNoLayout.asp?DocketID=22320).

Q. Did the Oregon Commission acknowledge the shortlist?

A. Yes.[16] Acknowledgement means that the Oregon Commission found that the "final shortlist appears reasonable at the time of acknowledgment and was determined in a manner consistent with [Oregon's] competitive bidding rules."[17] The Oregon Commission noted that the final shortlist "is a reasonable capacity and energy blend, with diversity in contract structures (and therefore rate impact profiles), technology types, and geography."[18]

C. Price-Policy Assumptions

Q. Please summarize the natural gas and CO_2 price assumptions used in the economic analysis.

A. The economic analysis of the Transmission Projects includes five price-policy scenarios—MM, MN, HH, LN, and SCGHG. These assumptions can influence the value of system energy, the dispatch of system resources, and PacifiCorp's resource mix. Consequently, wholesale-power prices and CO_2 policy assumptions affect net-power costs (NPC) benefits, non-NPC variable-cost benefits, and system fixed-cost benefits associated with the Transmission Projects. Because wholesale power prices and CO_2 policy outcomes are both uncertain and important drivers to the economic analysis, it is important to evaluate a range of assumptions for these variables. Table 2 summarizes the price-policy scenarios used to analyze the Transmission Projects.

[16] Docket No. UM 2059, Order No. 21-437 (Nov. 24, 2021) (https://apps.puc.state.or.us/edockets/orders.asp?OrderNumber=21-437).
[17] *Id.* at 12.
[18] *Id.* at 13.

Q. Did PacifiCorp analyze how other assumptions affect its economic analysis of the Transmission Projects?

A. Yes. The economic analysis also included one sensitivity that quantified how changes in new resource capital costs for the two BTA wind projects and capital cost assumptions for the Transmission Projects influenced projected customer benefits.

Q. Company witness Vail's testimony indicates that the Transmission Projects will enable up to 2,030 MW of new resources to interconnect in eastern Wyoming. Why does your analysis only account for 1,640 MW?

A. The economic analysis reasonably accounted for only those wind resources that were selected to the 2020AS RFP final shortlist.

Q. Does PacifiCorp assume that all the up-front capital costs of the Transmission Projects will be paid by its retail customers?

A. No. The cost of the Transmission Projects will be shared between PacifiCorp's retail and wholesale transmission customers. In my analyses, I assumed retail customers would pay 80 percent of the revenue requirement from the up-front capital cost for the Transmission Projects, after accounting for an assumed 20 percent revenue credit from the Company's transmission customers.

E. Price-Policy Scenario Results

Q. Please summarize the PVRR(d) results calculated from the PLEXOS model.

A. Table 3 summarizes the PVRR(d) results for each price-policy scenario.[20]

[20] Exhibit No. TRL-2C Transmission Projects Analysis