Exh. VRS-1T
Docket UE-250224
Witness: Vijay R. Singh

BEFORE THE WASHINGTON

UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, Complainant, v. PACIFICORP dba PACIFIC POWER & LIGHT COMPANY Respondent.	Docket UE-250224

PACIFICORP

REBUTTAL TESTIMONY OF VIJAY R. SINGH

September 2025

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ATTACHED EXHIBIT

Exhibit No. VRS-2—PacifiCorp Response to Public Counsel Data Request 102[1]

[1] Public Counsel issued its data request designating a portion of its question as confidential. After reviewing the information, however, PacifiCorp has determined that the information designated as confidential are only the file names, which are not confidential.

I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, business address, and present position with PacifiCorp d/b/a Pacific Power & Light Company (PacifiCorp or Company).

A. My name is Vijay R. Singh, my business address is 825 NE Multnomah Street, Suite 600, Portland, Oregon 97232. My present position is Senior Organized Markets Analyst.

Q. Please describe your education and professional experience.

A. I received a Master of Engineering in Electrical and Computer Engineering from the University of Texas at Austin and a Bachelor of Arts degree in Electrical and Electronics Engineering from the University of Washington. I currently hold a Professional Engineering license in the state of Oregon. I was first employed by the Company in 2022 in the same position I am in now. In my current role I am responsible for leading and overseeing various regional initiatives related to organized electricity market design and analysis related to the Company's participation in various markets. I am also responsible for overseeing the Company's Western Energy Imbalance Market (WEIM) benefits reporting and forecasting.

II. PURPOSE OF REBUTTAL TESTIMONY

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

A. My testimony responds to the testimony of Washington Utilities and Transportation Commission (Commission) Staff (Staff) witness John D. Wilson, which recommends a change to PacifiCorp's models for forecasting WEIM transfer benefits (Transfer Benefits) for PacifiCorp's power cost only rate case (PCORC).

Q. Please summarize your rebuttal testimony.

A. PacifiCorp believes Staff witness Wilson's recommendation is reasonable. PacifiCorp proposes to alter the forecasted WEIM transfers for the PacifiCorp East (PACE) Export and Import models to align with California solar export trends in future net power cost (NPC) filings, as recommended by Staff witness Wilson. PacifiCorp also recommends updating the months considered as California solar export months to include February but exclude July.

III. ALIGNING CALIFORNIA EXCESS SOLAR MONTHS WITH WEIM TRANSFER FORECASTS IS A REASONABLE ADJUSTMENT TO THE FORECASTING MODEL

Q. How did PacifiCorp alter its forecasting models to test Staff witness Wilson's recommendation to update the WEIM transfer forecasts with alternative seasonal definitions?

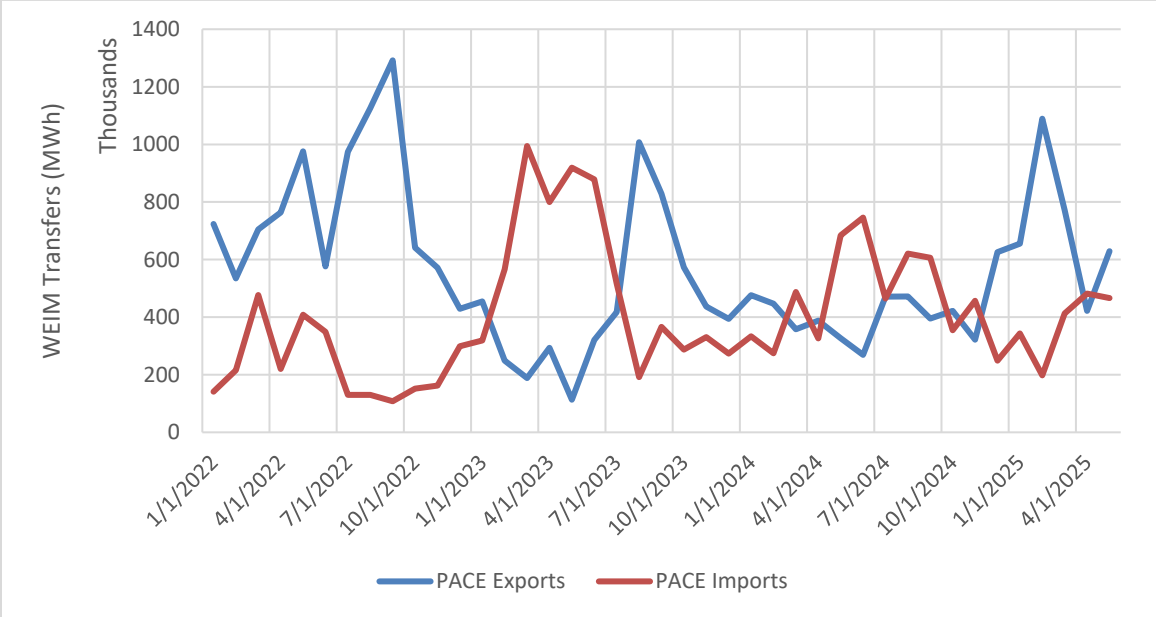
A. For the current PACE Export and Import forecasting models, PacifiCorp uses the seasonal definitions identified in Staff witness Wilson's testimony to forecast WEIM transfers.[2] The PacifiCorp West (PACW) Export and Import forecasting models do not use a seasonal definition, as the Company previously has shown that the WEIM transfers into and out of PACW do not follow a clear pattern.[3] Staff witness Wilson recommends aligning the seasonal definitions for the PACE Export and Import forecasting models with the Company's understanding of the California solar surplus delivery months.[4] To do this, PacifiCorp used the forecasting models from the

[2] Wilson, Exh. JDW-1T at 49:11-17.
[3] Mitchell, Exh. RJM-9 at 6.
[4] Wilson, Exh. JDW-1T at 51:2-4.

Company's initial PCORC filing and changed the forecasted WEIM transfers for the PACE models to be equal to the average WEIM transfers during the solar surplus months for the past two years for months that were considered solar surplus months. For non-solar surplus months, the WEIM transfer forecast was calculated as the average WEIM transfer during the non-solar surplus months from the past two years. Solar surplus months were originally considered to be March through July, which is the definition used for the "Solar_Increasing" variable in PacifiCorp's PACE Export and Import forecasting models.

By making this change, PacifiCorp is acknowledging that the WEIM transfers in and out of the PACE balancing authority area (BAA) are more related to whether there is excess solar in California than related to a typical seasonal definition. This trend can be seen by looking at PacifiCorp's historical transfers in and out of the PACE BAA. The figure below shows historical WEIM PACE exports and imports between January 2022 and May 2025.

Figure 1: Historical PACE WEIM Transfers



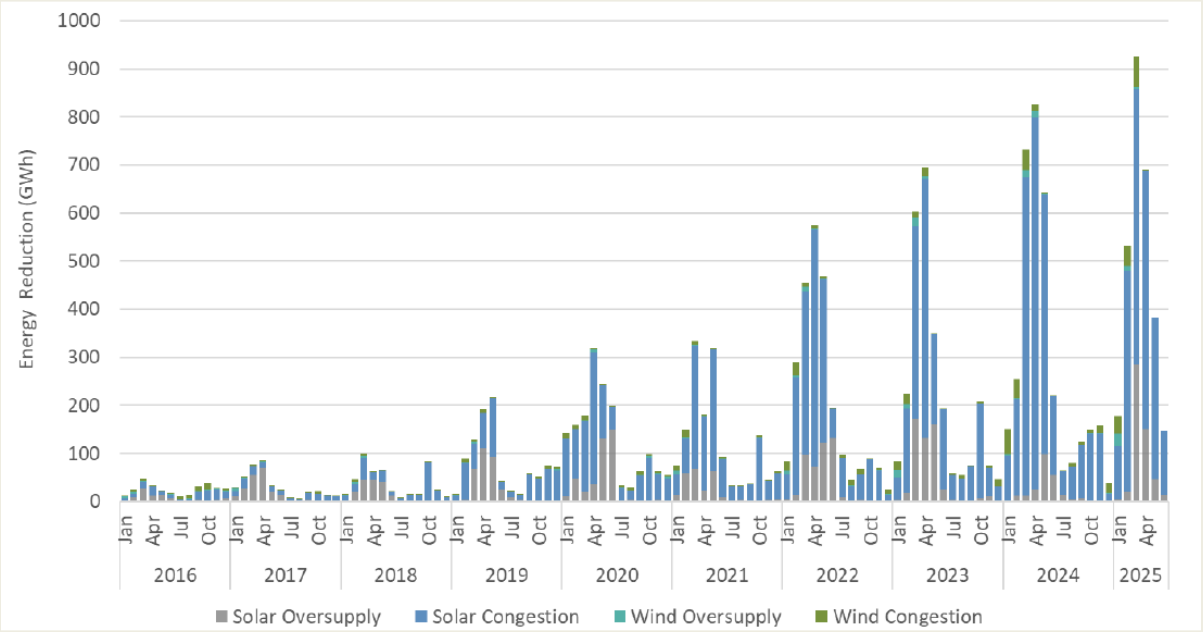
The figure shows there is a pattern that aligns with the months where California likely has excess solar. PACE imports have historically increased starting around February and decreased around June or July, while PACE exports were highest in the late summer months. The chart does show that trend may not have been as strong in 2025, however. Still, PacifiCorp believes the figure supports Staff witness Wilson's recommendation to align WEIM transfer forecasts with the times of the year when there may be excess solar energy coming from California.

Q. Does PacifiCorp propose making any other changes to its forecasting models?

A. Yes. As PacifiCorp was evaluating Staff witness Wilson's recommendation, the Company saw data that suggested PacifiCorp's current designation of California solar surplus months should be revised. Recent data from the California Independent System Operator (CAISO) on solar production reductions led PacifiCorp to believe that there is not much surplus solar in California during the month of July relative to other months, but there has been a significant amount of surplus solar in February in recent years. The figure below is from the CAISO's Market Performance and Planning Forum for quarter two 2025[5] and shows the energy reduction of solar and wind resources.

[5] CAISO, *Market Performance and Planning Forum* at 56 (June 26, 2025) (available at https://www.caiso.com/documents/presentation-market-performance-and-planning-forum-jun-26-2025.pdf).

Figure 2: Energy Reduction of Solar and Wind Resources with the CAISO BAA



The figure shows that there are typically high reductions of solar energy between the months of February and June but not in July. As such, PacifiCorp proposes removing July and adding February as an excess solar month for the "Solar_Increasing" variable and forecasting WEIM transfers for the PACE BAA.

Q. How did PacifiCorp test the alterations to its forecasting models?

A. In Company witness Ramon J. Mitchell's direct testimony on the Energy Imbalance Market Benefits Forecasting Update, PacifiCorp described using the Kruskal-Wallis test for determining whether there was seasonality in the WEIM transfers for the PACE Export and Import forecasting models.[6] PacifiCorp re-ran the Kruskal-Wallis test using data through May 2025 to determine whether the seasonal definitions were still reasonable for estimating future WEIM transfers. The table below shows the

[6] Mitchell, Exh. RJM-9 at 6.

results of the Kruskal-Wallis test using the seasonal definitions as in Company witness Mitchell's testimony.

Table 1: Results of Kruskal-Wallis Test for Seasonal WEIM Transfers

	PACE Exports	PACW Exports	PACE Imports	PACW Imports
P-Value	0.041	0.965	4.21E-4	0.863

The P-Value is less than 0.05 for both the historical PACE exports and imports, which means the hypothesis that each season has the same median WEIM transfer should be rejected. So, PacifiCorp continues to believe it would be reasonable to use the seasonal definitions to average historical transfers as an estimation for future transfers for the PACE Export and Import forecast models. The test also shows that the seasonal definition may not be the best fit for determining future PACE exports because the P-Value of 0.041 is close to 0.05. The Company also believes it is appropriate to not use a seasonal average for the PACW Export and Import models because Table 1 shows the P-Values for the models are greater than 0.05.

PacifiCorp then used the same Kruskal-Wallis test to determine whether there was variation in the historical WEIM transfers in California solar surplus months compared to non-surplus months. For the test, PacifiCorp designated the months February through June as the California surplus solar months. The table below shows the results of the Kruskal-Wallis test using the California solar surplus months to group the historical WEIM transfers.

Table 2: Results of Kruskal-Wallis Test for Excess Solar Months WEIM Transfers

	PACE Exports	PACW Exports	PACE Imports	PACW Imports
P-Value	0.002	0.481	4.12E-6	0.578

The test suggests that using a definition of California solar surplus months based on the CAISO's data on solar energy reductions is also a reasonable way to group months for forecasting WEIM transfers for the PACE forecasting models. In fact, the lower P-Values for the PACE exports and imports compared to the seasonal definitions in Table 1 suggest that using the California solar surplus month definition may be a better method for grouping months to forecast PACE WEIM transfers. Aligning the months where the "Solar_Increasing" variable is used with forecasting WEIM transfers follows Staff witness Wilson's recommendation to improve the models' performance.[7]

Q. Do the forecasting models show better model fit after PacifiCorp's proposed change?

A. Yes. PacifiCorp tested the PACE Export and Import models the Company used in its initial PCORC filing against the adjusted models using the adjusted R-squared metric. This is the same metric PacifiCorp used in Company witness Mitchell's direct testimony to show that the updated forecasting models had a better model fit than PacifiCorp's prior forecasting models.[8] The table below shows the adjusted R-squared values for the PACE forecasting models used for the initial filing and the models adjusted by PacifiCorp to better reflect California solar surplus months.

Table 3: Adjusted R-Squared Values for Selected Forecasting Models

	Used for Filing	Adjusted
PACE Exports	0.741	0.745
PACE Imports	0.573	0.587

[7] Wilson, Exh. JDW-1T at 51:2-10.
[8] Mitchell, Exh. RJM-9 at 6.

The table shows that PacifiCorp's proposal for changing the California solar surplus months slightly improves the model fit for the PACE forecasting models when compared to the models used in PacifiCorp's initial PCORC filing. While the improvement to model fit is small, PacifiCorp believes the adjusted R-squared values show that PacifiCorp's recommendation is reasonable.

Q. How do the forecasting model changes proposed by Staff witness Wilson and PacifiCorp change the 2026 WEIM benefits forecast?

A. PacifiCorp responded to Public Counsel Data Request 102 with a revised data response that contained PacifiCorp's 2026 WEIM benefits forecast.[9] The total-company forecasted WEIM benefit was roughly $117.89 million. After making the forecasting model changes of adding February as a California solar surplus month, removing July as a California solar surplus month, and forecasting WEIM transfers in the PACE BAA using the California solar surplus months, the total-Company forecasted 2026 WEIM benefit is roughly $114.01 million. This is a 3.3 percent decrease to the total-company forecasted 2026 WEIM benefits.

IV. CONCLUSION

Q. Why does PacifiCorp believe the changes to the forecasting models are reasonable?

A. Generally, PacifiCorp believes the changes improve the forecasting models. PacifiCorp agrees with Staff witness Wilson that aligning the WEIM transfer forecasts with the assumptions the Company makes about surplus solar in California is reasonable because PacifiCorp expects the surplus solar in California to impact the

[9] Exhibit VRS-2.

WEIM transfers in and out of the PACE BAA. The PACE WEIM transfer forecasts are likely more accurate if they consider the months when there is surplus solar in California rather than just assuming that the WEIM transfers follow a seasonal pattern. It follows that, if PacifiCorp changes the WEIM transfer forecast to align with months there is surplus solar in California, the Company should be designating the solar surplus months appropriately. Data from the CAISO shows that there has historically been surplus solar from February through June, but there is much less in other months. It therefore makes sense to update PacifiCorp's assumptions used in the forecasting models, specifically for using the "Solar_Increasing" variable and forecasting WEIM transfers, to match the historical trends.

Q. When does PacifiCorp propose making the changes?

A. PacifiCorp proposes that the 2026 WEIM benefits forecast from the Company's initial 2025 PCORC filing be used for the 2025 PCORC, and the Company will update its models for future NPC filings. This is consistent with Staff witness Wilson's recommendation. Using the 2026 WEIM benefits from the initial filing allows the Company to maintain consistency in its NPC through on-going rate cases in other states, while acknowledging the forecasting models can be improved for rate cases going forward.

Q. Does this conclude your rebuttal testimony?

A. Yes.