

**Exh. JDW-20
Dockets UE-230172 and UE-210852
Witness: John D. Wilson**

**BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

**PACIFICORP d/b/a PACIFIC POWER
AND LIGHT COMPANY,**

Respondent.

**DOCKETS UE-230172 and
UE-210852 (Consolidated)**

In the Matter of

**ALLIANCE OF WESTERN ENERGY
CONSUMERS'**

**Petition for Order Approving Deferral of
Increased Fly Ash Revenues**

EXHIBIT TO TESTIMONY OF

JOHN D. WILSON

**ON BEHALF OF STAFF OF
WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION**

PacifiCorp Response to UTC Staff Data Request No. 46

September 14, 2023

UE-230172 / PacifiCorp
July 5, 2023
WUTC Data Request 46

WUTC Data Request 46

Power Costs- Witness Painter asserts that the primary factors contributing to the inaccuracy of Forecast NPC are "... (1) regional forward power market price forecasts in the western interconnection becoming less accurate; and (2) renewable resources being added to the Company's system ...". (JP-1T at 8, lines 5-7)

- (a) If convincing evidence were presented that showed that market prices in the western interconnection are not major drivers of NPC, would Witness Painter still find that the NPC forecast would result in an unbalanced outcome for customers?
- (b) Please confirm the reasonableness or revise the following summary of Witness Painter's argument.

Higher levels of renewable resources have the following effects on NPC variability:

- The Company is only able to forecast renewable resource generation over the long term; (JP-1T at 20:10-22, JP-1T 21:3-22:4)
 - Variations in renewable resources are correlated across the western interconnection, meaning that periods when the Company's renewable resources generate less are associated with higher power market prices; (JP-1T at 19:11-20:7) and
 - The Company is unable to model some known variations in renewable resources. (JP-1T at 22: 2-24:17)
- (c) Please state whether, over several years, each of the factors contributing to the inaccuracy of Forecast NPC (as referenced in part a. and part b. as revised, if applicable) are expected to be symmetric (effects on NPC balancing out over time), cause an increase in NPC, cause a decrease in NPC, or the Company is not yet able to determine the answer.
- (d) For each of the summarized effects in part c., please provide the Company's best estimate as to its annual variability impact on the NPC, such as a standard deviation or some other measure of variance. If the Company is not yet able to provide an estimate, please explain what information the Company requires, (e.g. such as the number of years of experience with the effect, or some other factor(s)).

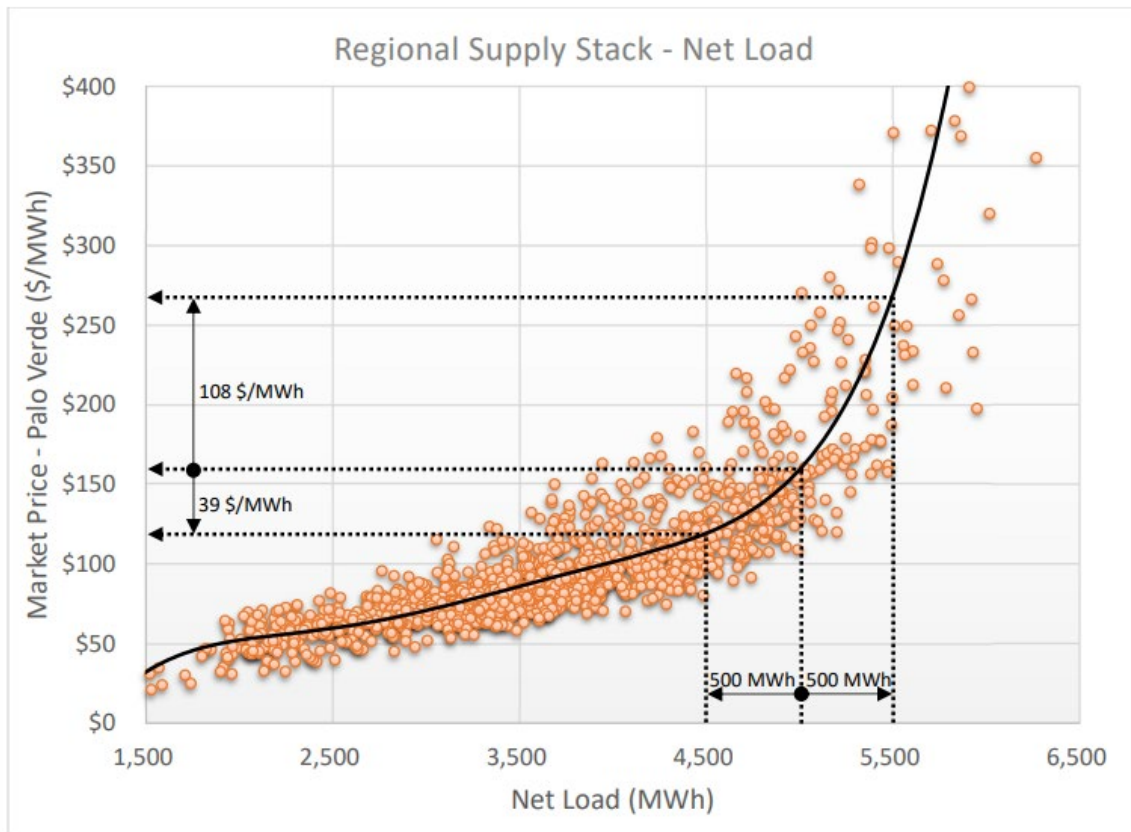
UE-230172 / PacifiCorp
July 5, 2023
WUTC Data Request 46

Response to WUTC Data Request 46

- (a) The Company objects to this request as it calls for speculation and is not reasonably calculated to lead to the discovery of admissible information. Without waiving the foregoing objection, PacifiCorp responds as follows:

Yes, under this hypothetical scenario, the Company's position would be the same. Both regional forward power market price forecasts in the western interconnection becoming less accurate and renewable resources being added to the Company's system were cited in the direct testimony of Company witness, Jack Painter, as primary factors contributing to the inaccuracy of forecast net power costs (NPC). The change in resource mix within the western interconnection decreases NPC forecast accuracy because current forecasting techniques are incapable of accurately predicting the weather one to two years out into the future. For example, the wind speeds across the western interconnection during February 2024 were impossible to predict with any reasonable degree of accuracy on the day that Mr. Painter's direct testimony was filed. Using the Pacific Northwest as an example, wind generation changes are correlated with regional power market price changes and consequently, any material variance in wind generation from forecast to actual corresponds to a material variance in regional power market prices, from forecast to actual. Consequently, as the resource mix in the western interconnection becomes more dominated by generation that is dependent on wind speed and solar irradiance (sunshine), the regional power market price expectations for one to two years out become less accurate. As previously illustrated in Figure 2 of Mr. Painter's direct testimony, any material change in the regional market prices corresponds to a proportionate and material change in NPC and the associated NPC forecast accuracy (variance). Additionally, it is not expected that these errors in the NPC forecast will cancel out over time. There is an asymmetry in the response of market prices to changes in regional generation or load. As an illustrative example, the figure below depicts a proxy supply curve (with inelastic demand) based on actual load, wind, and solar data within the region during the summer of 2022. In this illustrative example, because of the asymmetry of regional market price response, a 500 megawatt-hour (MWh) increase in net load (load less wind less solar) results in a \$108 per megawatt-hour (\$/MWh) increase in market price whereas an identical 500 MWh decrease in net load results in only a \$39/MWh decrease to market price.

UE-230172 / PacifiCorp
July 5, 2023
WUTC Data Request 46



(b) For “the Company is only able to forecast renewable resource generation over the long term; (JP-1T at 20:10-22, JP-1T 21:3-22:4)”, this is too simplistic. The Company is able to forecast renewable resources in both the short-term and long-term in actual operations, but the market prices in the short-term after the NPC forecast has been set are completely out of the Company’s control.

For “variations in renewable resources are correlated across the western interconnection, meaning that periods when the Company’s renewable resources generate less are associated with higher power market prices; (JP-1T at 19:11-20:7)” this is correct, but missing the context that different regions and relevant trading hubs within the western interconnection experience shared conditions. For example, if there are multiple solar generating facilities, owned by multiple utilities, in a specific region and it suddenly becomes cloudy and the Company along with the other utilities all lose that region of solar generation at the same time, it is likely market prices at the relevant trading hubs to purchase energy will be higher because of the increased demand by those multiple utilities.

UE-230172 / PacifiCorp
July 5, 2023
WUTC Data Request 46

For “the Company is unable to model some known variations in renewable resources. (JP-1T at 22: 2-24:17)”, this is also correct, but again missing context. The Company may predict that a heat wave in the summer will occur, but that is not something that can be modeled for the purposes of a normalized NPC forecast and this puts additional undue risk on the NPC forecast that is outside of its control.

- (c) Please refer to the Company’s response to subpart (a) above. Additionally, as previously illustrated in Figure 2 in Mr. Painter’s direct testimony, because NPC move in proportion to regional market prices, and continuing with the illustrative example provided above, the Company observes that an unexpected increase in net load will increase NPC by an amount far greater than the decrease in NPC observed because of an identical and opposite unexpected decrease in net load. This asymmetrical response moves the NPC forecast persistently downwards such that any attempt to accurately model will probabilistically result in actual NPC being greater than forecast NPC.
- (d) The Company is not able to provide an estimate and would likely require 5-10 years of data, however, preliminary analysis of the Washington Inter-Jurisdictional Allocation Methodology (WIJAM) since its inception in 2021 shows a trend of the actual NPC being greater than forecast NPC as discussed in the Company’s response to subpart (c) above.

PREPARER: Jack Painter

SPONSOR: Jack Painter