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Exh. IMRZ-1CT
Docket UE-230172
Witness: Isaiah M.R. Zacharia

**BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-230172
(Consolidated)

In the Matter of

ALLIANCE OF WESTERN ENERGY
CONSUMERS'

Petition for Order Approving Deferral of
Increased Fly Ash Revenues

Docket UE-210852
(Consolidated)

PACIFICORP

REDACTED REBUTTAL TESTIMONY OF ISAIAH M.R. ZACHARIA

October 2023

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1 **I. INTRODUCTION AND PURPOSE OF TESTIMONY**

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

4 A. My name is Isaiah M.R. Zacharia, and my business address is 825 NE Multnomah
5 Street, Suite 600, Portland, Oregon 97232. My title is Net Power Costs Analyst and
6 I am testifying on behalf of PacifiCorp.

7 **Q. Please describe your education and professional experience.**

8 A. I received a Bachelor of Science degree in Finance from Portland State University. I
9 have been employed by PacifiCorp since 2022 as a member of the net power costs
10 group.

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

12 A. I respond to the response testimony of witness Bradley G. Mullins, filed on behalf of
13 the Alliance of Western Energy Consumers (AWEC).¹ Specifically, I address
14 AWEC’s recommendation for Market Capacity Limits (also referred to as market
15 caps).²

16 **II. MARKET CAPS**

17 **Q. Please explain why Aurora requires market caps.**

18 A. Like the Company’s previous net power cost model, the Generation and Regulation
19 Initiative Decision Tools (GRID) model, the Aurora model operates with perfect
20 foresight and assumes unlimited market depth, and full liquidity for the markets in
21 which the Company makes off-system sales, unless informed otherwise. Aurora

¹ Unless personal pronouns are specified by a witness in their testimony, in my rebuttal testimony I use “they/them” when using a pronoun to refer to a witness.

² Mullins, Exh. BGM-1CT at 41-46.

1 would therefore allow unrealistic off-system sales at every market at any time of the
2 day or night—an assumption that is very different from the Company’s actual,
3 historic experience. In this proceeding, the Company proposed no changes to the
4 market cap methodology used in its 2021 Power Cost Only Rate Case (PCORC),
5 including the fact that market caps were applied to all market hubs at which the
6 Company transacts.

7 **Q. Please describe AWEC’s recommendation related to the Company’s modeling of**
8 **market caps.**

9 A. AWEC proposes to remove market caps from the Mid-Columbia (Mid-C), Palo
10 Verde, and Four Corners market hubs.³

11 **Q. What is the net power costs (NPC) impact of AWEC’s proposal?**

12 A. AWEC calculates an increase to Washington NPC of \$325,000.⁴

13 **Q. Was the Company able to reproduce AWEC’s results?**

14 A. No. When running the Aurora model provided by AWEC, the Company produced an
15 increase of \$474,000 to Washington NPC.⁵

16 **Q. Why was the Company unable to reproduce AWEC’s results?**

17 A. AWEC’s results were prepared using Aurora version 14.2.1052, which is not
18 consistent with the version used to create the Company’s base NPC in the Company’s
19 initial filing (version 14.2.1034). This means that when AWEC calculated the NPC
20 impact, they calculated not only the NPC impact of their market cap methodology,

³ *Id.*, at 44:10-14.

⁴ Mullins, Exh. BGM-3 at 6:24, Column “Pre-Tax Net Oper. Income”.

⁵ Calculated by taking the difference between Washington NPC in “230172-PAC-IMRZ-NPC-MktCap (C).xlsx” and “230172-PAC-IMRZ-NPC-Base (C).xlsx”.

1 but also the NPC impact of an Aurora version change. That is to say, AWEC’s NPC
2 impact represents two simultaneous changes and not just the market cap change.

3 **Q. Turning to the merits of AWEC’s adjustment, AWEC claims that “the**
4 **AURORA model lacks capability to evaluate off-system sales altogether” and it**
5 **is “only by means of modeling workarounds that PacifiCorp was able to**
6 **incorporate off-system sales[.]”⁶ Is this true?**

7 A. No. The functionality that enabled GRID to evaluate off-system sales is identical in
8 concept to the functionality that enables Aurora to evaluate off-system sales. The
9 difference between the two models is that GRID’s functionality was hidden in black-
10 box code, whereas Aurora’s functionality is modeled by the Company and visible to
11 the parties. Furthermore, Aurora offers more flexibility to evaluate off-system sales
12 because, unlike GRID, Aurora’s functionality can be edited by the user through a
13 graphical user interface.

14 The Company also disagrees with AWEC’s characterization of the method by
15 which Aurora evaluates off-system sales, which AWEC describes as “modeling
16 workarounds” because it is: (1) a modeling technique (not a workaround); and (2) an
17 accurate representation of the Company’s actual and historic experience with the
18 market. From the Company’s perspective, an electricity market *sale* at a trading hub
19 is mostly a large pool of unspecified load which is served when the Company’s
20 generation displaces another unspecified utility’s generation. That is to say, for the
21 majority of market *sales* made by the Company, the load(s) that those market sales
22 serve and the corresponding generator that the Company displaces is unknown at the

⁶ Mullins, Exh. BGM-1CT at 41:15-16, 18-19.

1 moment of transaction. What AWEC dismissively refers to as “displacement of
2 fictionalized loads”⁷ is more accurately described as “displacement of unknown load”
3 and is precisely what is being modeled in Aurora and is appropriate. Similarly, from
4 the Company’s perspective, an electricity market *purchase* at a trading hub is
5 essentially a large pool of unspecified generation from unknown utilities that serve
6 the Company’s load by displacing the Company’s own generators. That is to say, for
7 the majority of market purchases made by the Company, the generators from which
8 those market purchases are sourced are unknown at the moment of transaction.

9 **Q. AWEC references PacifiCorp’s 2014 Wyoming general rate case and claims that**
10 **the markets at Mid-C, Palo Verde and Four Corners are “liquid” markets and**
11 **therefore require no market caps.⁸ Please explain what a liquid market is in**
12 **today’s industry.**

13 A. From the perspective of market sales, a liquid market is a market where the Company
14 is able to find a buyer to take its excess energy at or above cost at almost all hours of
15 almost all days.

16 **Q. What then are market capacity limits?**

17 A. Market capacity limits refer to the amount of energy that other market counterparties
18 are willing to purchase in aggregate from the Company. More specifically, market
19 capacity limits represent a threshold above which no other purchasers of electricity
20 can be found in the bilateral electricity markets to purchase the Company’s energy at
21 or above its cost of producing that energy.

⁷ *Id.*, at 41:20.

⁸ *Id.*, at 43:3-18.

1 **Q. Is it true that the markets at Mid-C, Palo Verde and Four Corners are “liquid”**
2 **markets for the Company?**

3 A. No. Liquid market hubs no longer exist for an electric utility of PacifiCorp’s size. As
4 demonstrated in Confidential Figure CAPS-1 below, the volume of Company sales
5 have been in constant decline for over five years, and energy shortfalls have increased
6 across the region.⁹ This exacerbation of energy shortfalls is demonstrated by the
7 increased frequency of North American Electric Reliability Corporation (NERC)
8 reliability events. The number of reportable events by NERC increased in 2022 when
9 compared to 2020 or 2021 and the severity of such events has also increased over the
10 last four years.¹⁰ A subset of these reportable events are energy emergency alerts
11 (EEA). The average duration of the highest level of energy emergency alerts (EEA 3)
12 in 2022 was more than 200 minutes, exceeding the average duration for EEA alerts in
13 previous years by almost double.¹¹ The increase to the average duration of EEA 3
14 alerts in the western interconnection (West), combined with the overall increase in
15 reportable events, reveals that utilities within the West have less excess energy. This
16 is one indicator of less energy being available for sale in the day-ahead and real-time
17 markets, which translates to a lack of liquidity in those markets for PacifiCorp.

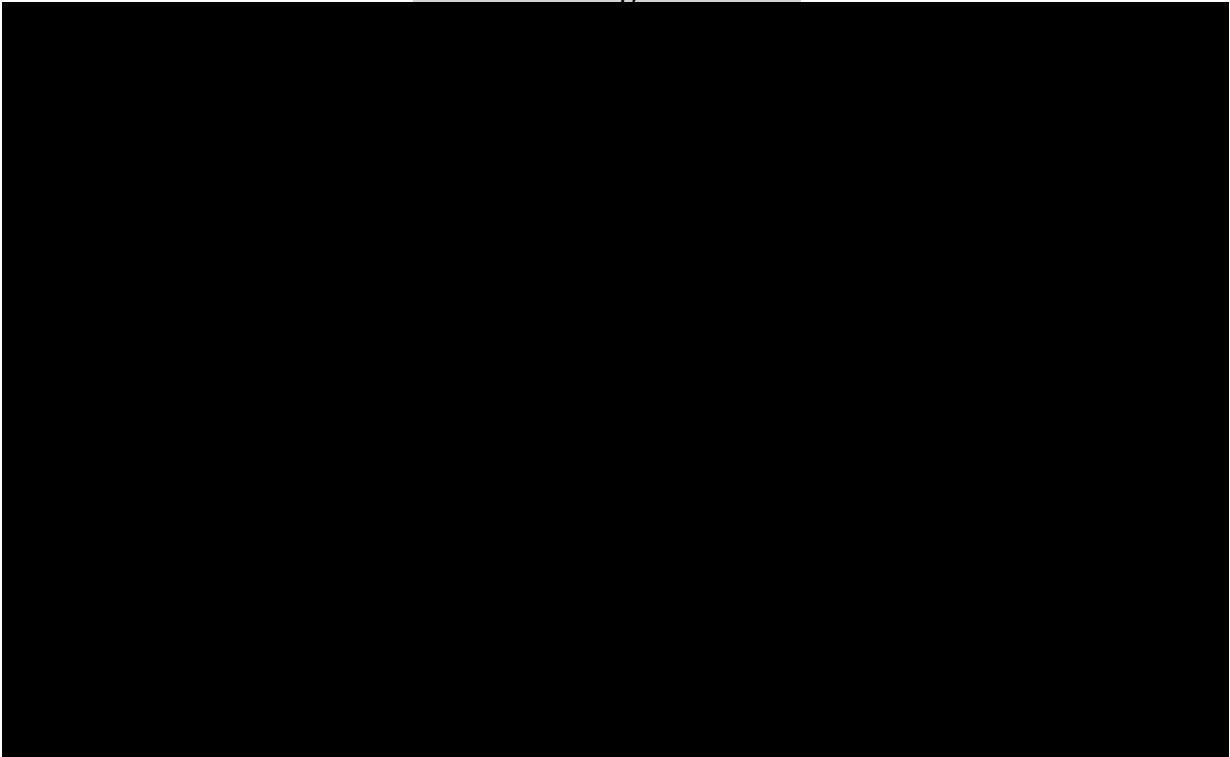
18 While it may have been the case that some market hubs were liquid a few
19 years ago, it is no longer the case now, as demonstrated below.

⁹ North American Electric Reliability Corporation, *2022 Long-Term Reliability Assessment* at 11 (Dec. 2022), available at https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2022.pdf.

¹⁰ Western Electricity Coordinating Council, *State of the Interconnection 2023* at 5 (Mar. 24, 2023), available at <https://www.wecc.org/Administrative/State%20of%20the%20Interconnection.pdf>.

¹¹ *See id.*

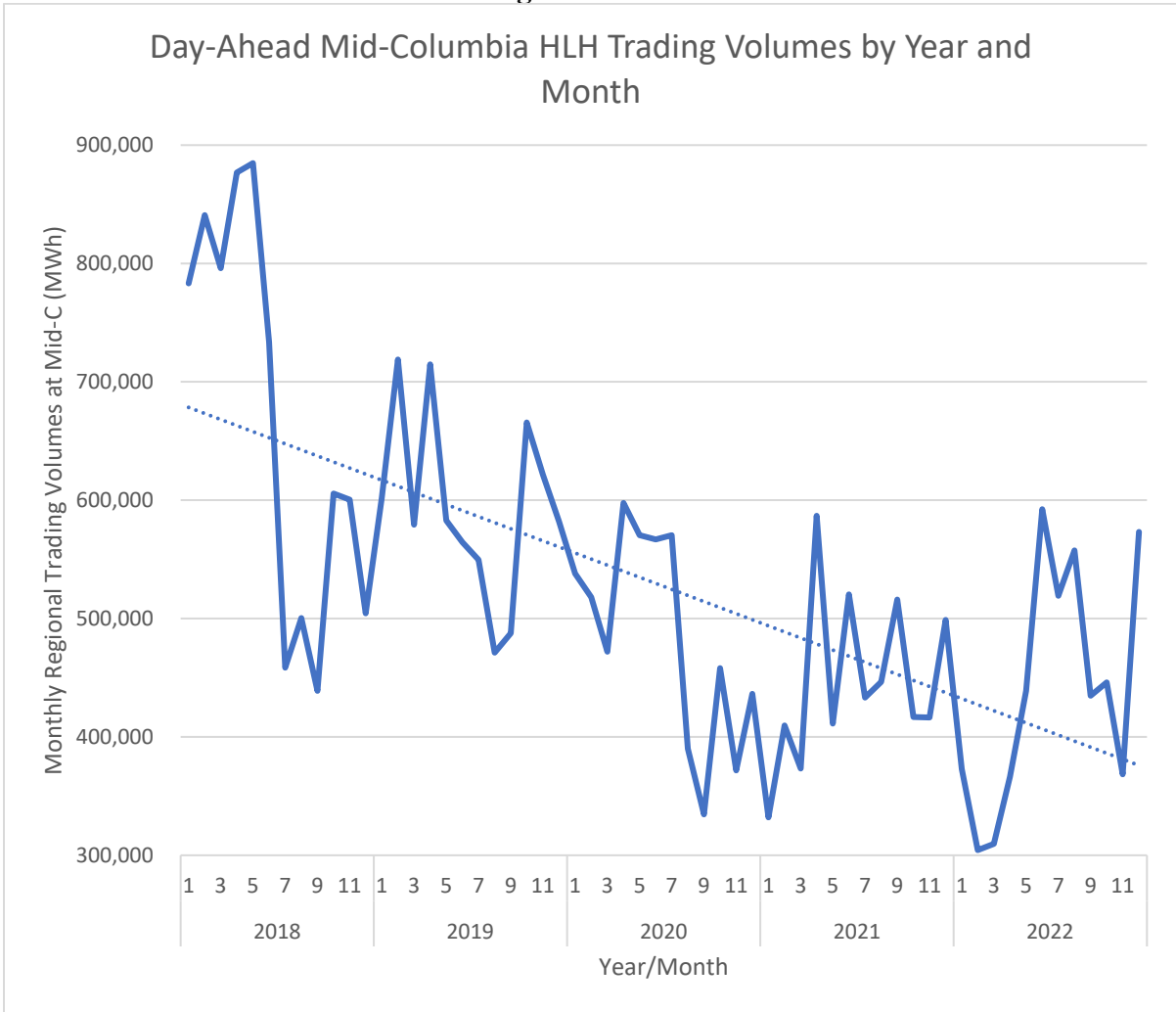
Confidential Figure CAPS-1



1 **Q. Is the Company's experience unique?**

2 A. No. The volume of transactions in regional, bilateral wholesale markets has steadily
3 declined in recent years. This decline is evident by examining data from the
4 Intercontinental Exchange (ICE), which is one of the primary platforms used to trade
5 energy on a day-ahead basis in the western interconnection. Data from ICE at the
6 Mid-C trading hub over the heavy load hours (HLH) show that trading volumes have
7 been consistently trending downwards over the past five years, from 2018 to 2022.
8 Because a trade requires at least two counterparties (a buyer and a seller), a decrease
9 in trading volumes year-over-year implies lower market sales volumes year-over-year
10 across the Mid-C region, [REDACTED]
11 [REDACTED]. This ICE data is illustrated in
12 Confidential Figure CAPS-2.

Figure CAPS-2



1 **Q. AWEC states that the Four Corners market hub is liquid and that in “12-**
2 **months ending June 2022, PacifiCorp made [REDACTED] of short-term sales**
3 **at the Four-Corners market, which was greater than any other market.”¹² Does**
4 **this isolated figure demonstrate that the Four Corners market is now a liquid**
5 **trading hub?**

6 **A. No.** When compared to PacifiCorp’s total retail sales volumes of [REDACTED] in
7 the 2024 forecast period, [REDACTED] of sales at Four Corners does not

¹² Mullins, Exh. BGM-1CT at 45:3-4.

1 demonstrate it is a liquid market. Moreover, the updated sales volumes for the 12
2 months ending June 2023 are [REDACTED], which shows that sales at Four
3 Corners are following the generally declining trend.

4 **Q. AWEC claims that PacifiCorp uses the average of only “four values” to calculate**
5 **the market capacity limits.¹³ Is this an accurate representation of the method?**

6 A. No. AWEC’s testimony is misleading—each of the “four values” referenced by
7 AWEC is calculated using 12 months of historical transactional data. In other words,
8 there are up to 8,760 hours of actual energy interchange underlying the data used to
9 calculate the market capacity limits.

10 III. CONCLUSION

11 **Q. What is your recommendation to the Commission?**

12 A. The decreases in the Company’s day-ahead and real-time sales volumes paired with
13 the decreases to overall day-ahead volumes at Mid-C, as well as the increase in the
14 duration of EEA 3 alerts, all suggest that market hubs are no longer liquid for the
15 Company. I recommend that the Commission reject AWEC’s proposal on market
16 capacity limits and support PacifiCorp’s modeling.

17 **Q. Does this conclude your rebuttal testimony?**

18 A. Yes.

¹³ *Id.*, at 42:9-11.