Exh. MGW-5CT
Docket UE-250224
Witness: Michael G. Wilding

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

REDACTED REBUTTAL TESTIMONY OF MICHAEL G. WILDING

September 2025

TABLE OF CONTENTS

ATTACHED EXHIBIT

Q. Are you the same Michael G. Wilding that previously provided direct testimony in this case on behalf of PacifiCorp d/b/a Pacific Power & Light Company (PacifiCorp or Company)?

A. Yes.

I. PURPOSE OF TESTIMONY

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

A. The purpose of my testimony is to respond to various issues raised in the testimonies of the Alliance of Western Energy Coalition (AWEC) witness Bradley G. Mullins and the Public Counsel Unit of the Washington State Attorney General's Office (Public Counsel) witness Dr. Robert L. Earle.

Q. Please summarize your surrebuttal testimony.

A. My testimony evaluates the resource adequacy and system operations impacts of Public Counsel witness Dr. Earle's proposal to reduce Washington's coal and gas allocation to zero and allocate an additional slice of owned wind. My testimony also responds to AWEC witness Mr. Mullins' recommendation that the Washington allocation of Jim Bridger Gas Units be reduced to zero. Further, my testimony responds in part to Public Counsel witness Earle's concerns regarding the allocation of Rolling Hills wind facility and PacifiCorp's recovery of Extended Day Ahead Market (EDAM) implementation costs. Finally, my testimony addresses AWEC witness Mullins' recommendation of disallowance of two industrial curtailment contracts.

II. PUBLIC COUNSEL'S RESOURCE ALLOCATION PROPOSAL

Q. Please describe Public Counsel's proposal for gas and wind allocation.

A. Public Counsel proposes to reduce the Washington allocation of all coal and natural gas fired plants to zero and allocate an additional 32 percent of all PacifiCorp-owned wind generation, for a total of roughly 40 percent.[1]

Q. Do you agree with Public Counsel's proposal?

A. No. Public Counsel's proposal is not in the best interest of Washington customers because it would reduce resource adequacy for Washington and increase market exposure. The proposal is also unworkable from a system operations standpoint. Removing all natural gas resources would leave Washington with a high share of variable energy resources and with very little dispatchable capacity to regulate system changes. Public Counsel also failed to recognize that all coal already has been removed from Washington's resource allocation under the Washington 2026 Protocol[2] and recommended that coal be reduced to zero.[3]

Q. Did you evaluate the resource adequacy of Washington under Public Counsel's proposal?

A. Yes. I used the Western Resource Adequacy Program (WRAP) methodology to evaluate the resource adequacy of Washington under Public Counsel's proposal, just as I did previously when evaluating the resource adequacy of the Washington 2026 Protocol and the Washington Inter-Jurisdictional Allocation Methodology.[4] In this evaluation, all inputs remain unchanged from the Washington 2026 Protocol, except I

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[1] Earle, Exh. RLE-1CT at 14:21-15:4.
[2] Link, Exh. RTL-2 at 2.
[3] Earle, Exh. RLE-1CT at 14:17-18.
[4] Wilding, Exh. MGW-1CT at 6, Confidential Figures 1 and 2.

have reduced all gas to zero percent and increased the wind generation allocated by an additional 32 percent, per Public Counsel's proposal.[5] I then compared the resource adequacy from Public Counsel's proposal against the resource adequacy under the Washington 2026 Protocol.

Q. Please provide again your analysis of Washington's resource adequacy under the Washington 2026 Protocol.

A. Confidential Figure 1, as provided in my direct testimony,[6] below provides the resource adequacy look using the Washington generation portfolio under the Washington 2026 Protocol. The total generation capacity is on average 9 percent less than the peak load and planning reserve margin (PRM) for each month.

Confidential Figure 1: Resource Adequacy under the Washington 2026 Protocol

[redacted]

[5] Earle, Exh. RLE-1CT at 14:21-15:4.
[6] Wilding, Exh. MGW-1CT at 6.

Q. What is Washington's resource adequacy position under Public Counsel's proposal?

A. Confidential Figure 2 below provides a resource adequacy look using the same WRAP methodology and the generation allocations under Public Counsel's proposal. The total generation capacity is on average 22 percent less than the peak load and PRM for each month. During the months of June – September, the total generation capacity is on average 45 percent less than the peak load and PRM.

Confidential Figure 2: Washington WRAP Position
Under Public Counsel's Proposed Allocation

[redacted]

Q. What are the results of your new resource adequacy analysis?

A. Confidential Figure 3 below shows the comparison of the resource adequacy under Public Counsel's proposal and the Washington 2026 Protocol. On average, total generation is 114 megawatts (MW) less under Public Counsel's proposal compared to the Washington 2026 Protocol. The difference is especially stark during the months of June – September, when the WRAP-qualified capacity contribution factors for wind resources are lower. On average, total generation is 317 MW less from June –

September under Public Counsel's proposal. The results show that a reliance on wind for such a large portion of Washington's resource mix leads to a significant reduction in resource adequacy under the Public Counsel's proposal. The Washington 2026 Protocol features a more diverse resource mix, and the presence of dispatchable natural gas in the mix provides dependable generation during the summer months when wind generation is lowest.

Confidential Figure 3: Comparison of WRAP Positions of Public Counsel's Recommendation and Washington 2026 Protocol

[redacted]

Q. Is Public Counsel's proposal a workable solution from a system operations standpoint?

A. No. Allocating such a large share of renewables to a state without any dispatchable gas generation is infeasible from a system operations standpoint. PacifiCorp has a large array of wind and solar capacity on its system, and the output of these variable energy resources can be highly volatile at times. Such a high quantity of variable energy resources requires dispatchable generation like natural gas to regulate up and down as the wind and solar output changes, to always maintain a balance of generation and load. To allocate such a high proportion of variable energy resources to Washington without any natural gas would ignore the system reliability requirements that are fulfilled by dispatchable natural gas and therefore would be an unrealistic resource allocation. Public Counsel's proposal completely ignores the physical realities of operating the electrical grid, and in doing so, would shift unfairly the costs associated with reliably operating a system with high renewable penetration to the other states in PacifiCorp's jurisdiction.

III. JIM BRIDGER 1 & 2 ALLOCATION

Q. Please explain AWEC's recommendation for the allocation of Jim Bridger Gas Units.

A. AWEC recommends that Jim Bridger Gas Units 1 & 2 be removed from rates due to emissions concerns.[7]

Q. Do you agree with AWEC's recommendation for the removal of Jim Bridger Gas Units from Washington's allocation?

A. No. Under the Washington 2026 Protocol, the allocation of Jim Bridger Gas Units 1 & 2 has been reduced to a system generation (SG) factor of roughly 7.9 percent.[8] However, I disagree with AWEC's recommendation to remove the units completely because of the impacts on Washington's resource adequacy position. Confidential Figure 1 above, as in my direct testimony, shows that Washington is on average deficient from a resource adequacy standpoint, and therefore, removing any more dispatchable generation would be detrimental to Washington customers, increasing their reliance on market purchases. Additionally, removing the Jim Bridger Gas Units

[7] Mullins, Exh. BGM-1CT at 68:2-4.
[8] Link, Exh. RTL-2 at 2.

1 & 2 completely would be inappropriate due to the reliability benefits the units provide to the PacifiCorp West (PACW) Balancing Authority Area (BAA) and therefore Washington customers.

Q. Please explain how Jim Bridger Units 1 & 2 support reliability in PACW. In addition, please explain the connection between reliability and renewable energy integration.

A. Dispatchable natural gas generation units play a critical role in the integration of renewable energy onto the PacifiCorp system. PacifiCorp operates a system with a vast array of renewable generation, which can be highly volatile. It is not uncommon for wind and solar resources on the PacifiCorp system to change their output by hundreds of MW within a matter of minutes. To maintain a constant balance of generation and load on the system, dispatchable generation resources like Jim Bridger Units 1 & 2 ramp up and down as the wind and solar fluctuates. In addition, the Jim Bridger transmission system supports the transfer of energy from the PacifiCorp East (PACE) Balancing Authority Area to PACW, allowing renewable generation to be delivered to PACW. As wind output in Wyoming fluctuates throughout the day, Jim Bridger Units 1 & 2 respond accordingly, reducing their output when the wind is blowing, and increasing their output as needed to support reliable energy delivery to PACW. As PacifiCorp brings more renewable resources online to meet its numerous clean energy targets and mandates among its different states, Jim Bridger Units 1 & 2 will play a critical role in maintaining reliable system operations, allowing renewable energy to flow from PACE to PACW.

IV. ROLLING HILLS ALLOCATION

Q. Please explain Public Counsel's position on the allocation of Rolling Hills under the Washington 2026 Protocol.

A. Public Counsel witness Dr. Earle objects to the increased allocation of Rolling Hills due to cost concerns. Staff recommends that the additional 27 MW of Rolling Hills be allocated to Washington customers but reduce the charges to Washington customers by 60.1 percent to reflect the "outsized cost" of Rolling Hills.[9]

Q. What is the cost of Clean Energy Transformation Act (CETA) compliant energy comparable to Rolling Hills' additional 27 MW allocation?

A. At Staff's request, PacifiCorp provided an estimate of the cost premium associated with CETA-compliant products in the Company's response to Staff Data Request 20.[10] [redacted].

Q. How did PacifiCorp prepare its estimate of CETA-compliant products?

A. PacifiCorp Energy Supply Management conducted a near-term request for proposals (RFP), which included requests for CETA-compliant energy.[11] [redacted].

[9] Earle, Exh. RLE-1CT at 22:18-23:2.
[10] Earle, Exh. RLE-9C at 2 (PacifiCorp's Response to Staff Data Request No. 20).
[11] Earle, Exh. RLE-9C at 2 (PacifiCorp's Response to Staff Data Request No. 20).

Q. Did PacifiCorp provide this estimate to parties in this docket?

A. Yes. PacifiCorp provided this estimate to all parties in response to Staff's Data Request No. 20.[12]

Q. Did Public Counsel consider PacifiCorp's estimated premium for CETA-compliant products in Public Counsel's estimate of CETA-compliant products?

A. No. While Public Counsel included a copy of PacifiCorp's response to Staff's Data Request No. 20 as an exhibit to witness Earle's testimony,[13] Public Counsel did not consider the results of PacifiCorp's RFP when comparing the cost of Rolling Hills to the costs of CETA-compliant alternatives. Public Counsel instead compared the costs of Rolling Hills to Public Counsel's estimated cost of building a new wind facility.[14] Company witness Rick T. Link responds to Public Counsel's comparison in greater detail in his rebuttal testimony.

Q. How does the cost estimate of CETA-compliant energy compare to the cost of Rolling Hills?

A. Public Counsel calculated the cost of additional allocation of Rolling Hills to Washington customers as \$102.29/MWh based on a 31 percent capacity factor,[15] whereas the estimated cost of CETA-compliant energy ranges from [redacted]. Therefore, Rolling Hills is between [redacted] per MWh than what PacifiCorp would expect to pay on the bilateral market to replace this CETA-compliant energy.

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[12] Earle, Exh. RLE-9C.
[13] *Id.*
[14] Earle, Exh. RLE-1CT at 22:13-16.
[15] Earle, Exh. RLE-1CT at 22:10-12.

Q. Do you agree with Staff's assessment that the costs of Rolling Hills are "outsized"?[16]

A. No. Based on the CETA-compliant cost estimate above, the cost of Rolling Hills is less expensive than what PacifiCorp expects to pay to procure additional CETA-compliant energy for Washington customers. Therefore, it is inaccurate to characterize the cost of Rolling Hills as outsized.

V. ORGANIZED MARKET DAY-AHEAD PARTICIPATION

Q. Please explain Public Counsel's position on PacifiCorp's proposal to include EDAM-related costs.

A. Public Counsel asserts that PacifiCorp did not do its due diligence in assessing whether it should join the California Independent System Operator's (CAISO) EDAM or the Southwest Power Pool's (SPP) Markets+.[17] Public Counsel recommends a disallowance of $437,000 in EDAM-related costs.[18]

Q. Do you agree with Public Counsel's assessment?

A. No, I do not agree with Public Counsel's assessment. PacifiCorp participated in both the Markets+ and the EDAM stakeholder events in addition to contracting with the Brattle Group to perform a comparative analysis of the EDAM and Markets+ market design features.[19] There have been numerous presentations, which highlight the market benefits of joining EDAM over Markets+, such as the one prepared for NV Energy's joining of EDAM which compared the benefits derived from different footprint due to varying participation. I believe that the EDAM market design builds

[16] Earle, Exh. RLE-1CT at 22:18-23:2.
[17] Earle, Exh. RLE-1CT at 28:11-16.
[18] Earle, Exh. RLE-1CT at 31:11-12.
[19] Wilding, Exh. MGW-6.

on a proven design and is the natural next step for PacifiCorp's participation in a day ahead market.

Q. What have you observed to be the key drivers of market benefits?

A. Market benefits are driven by the market footprint, or transmission connectivity and load and generation diversity. Load drives price signals, transmission flows, and generation dispatch instructions. Therefore, the key drivers of market benefits are derived from the volume and distribution of load across a market footprint along with the resources available for dispatch. Today, the CAISO's Western Energy Imbalance Market (WEIM) encompasses nearly 80 percent of load within the Western Electricity Coordinating Council (WECC) footprint, which has provided reliability, operational, and economic benefits.

Q. If load is a key driver of market benefits, and load is leaving to join Markets+, are market benefits going to be diminished?

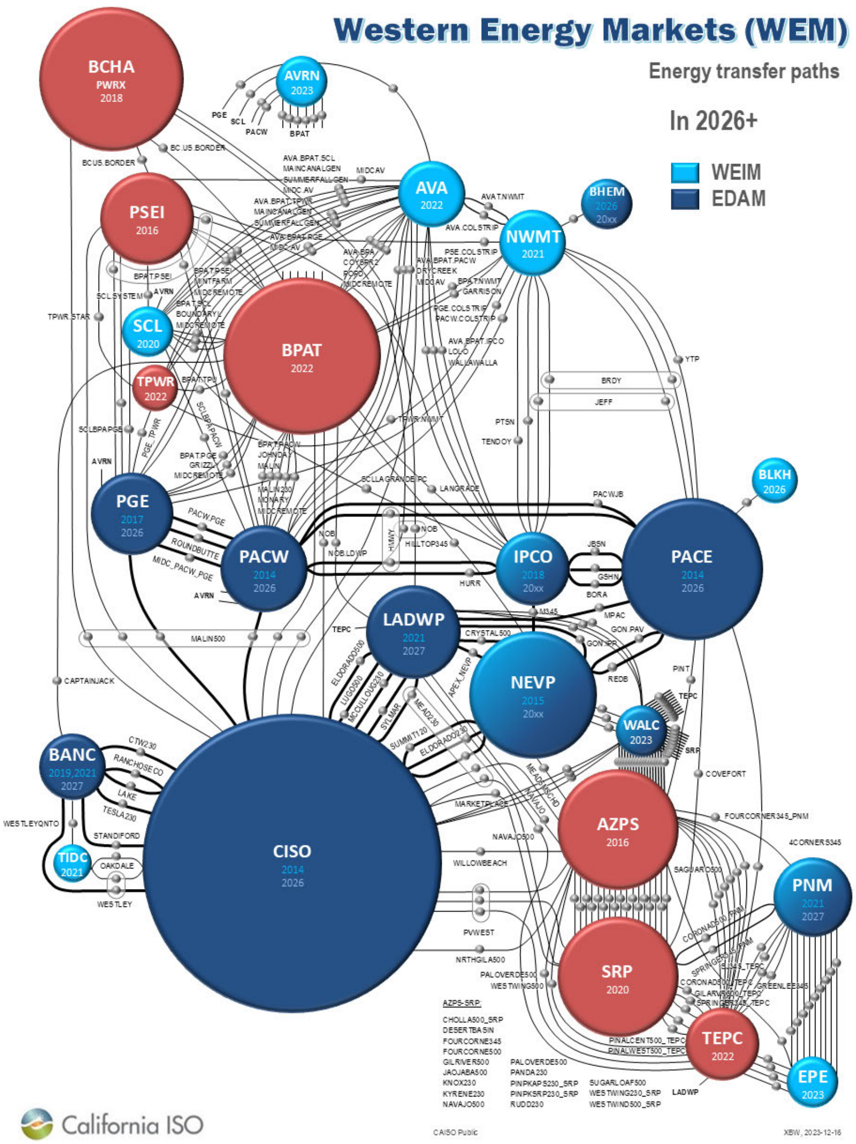
A. When comparing the load from market participants who have not yet made a day-ahead commitment – *i.e.*, remaining in the WEIM – with the future EDAM footprint, the load actuals from the month of July 2025 show that 70 percent of the total market load remains within the CAISO EDAM and EIM footprint, while 30 percent of load is expected to join Markets+.[20] Although there are WEIM participants leaving, three other market participants have signed implementation agreements to join either WEIM or both WEIM and EDAM (Black Hills, PowerWatch, and Imperial Irrigation District). The generation and load from the additional participants will help offset the market participants who are transitioning to SPP.

[20] PacifiCorp provided the data of demand actuals in July 2025 as a workbook.

Q. How does transmission connectivity interact with market benefits?

A. The transmission connectivity between adjacent balancing authority areas (BAA) allows the market to optimally schedule resources across the interties. Figure 4 shows the interregional connectivity of the WEIM and the anticipated EDAM footprint and denotes Markets+ in red. The transmission connectivity and resource diversity between adjacent BAAs are used to offset load needs from one BAA to another. PACE and PACW are physically located to allow for optimal transfers between the Desert Southwest and Pacific Northwest entities. As seen in Figure 4, EDAM participants are directly connected to one another, more so than Markets+ participants. PacifiCorp and the CAISO have designated workstreams to establish an additional transfer point at Four Corners and the Mid-Columbia. The creation of new transfer points will unlock additional energy flows between the PACE, PACW, and other market participants that can be used in either the WEIM or EDAM for market transfers.

Figure 4. Energy Transfer paths within the Western Energy Markets



Q. Have you analyzed WEIM transfers between PacifiCorp and other market participants?

A. Yes, I exported data from the CAISO's Open Access Same-Time Information System (OASIS), grouped each PacifiCorp trading partner based on their participation in the WEIM and their day-ahead decision or leaning (EDAM or Markets+), and concluded that the EDAM and the WEIM BAAs make up the majority of the trading partners.

Q. Which market participant does PacifiCorp transfer energy with the most?

A. Figure 5 and Figure 6 below illustrate the WEIM transfers between PacifiCorp and other market participants. Energy transfers in both PACE and PACW are dominant between EDAM and WEIM participants rather than anticipated Markets+ participants.

Figure 5. PACW EIM Transfers (in MWh): July 2024 to July 2025

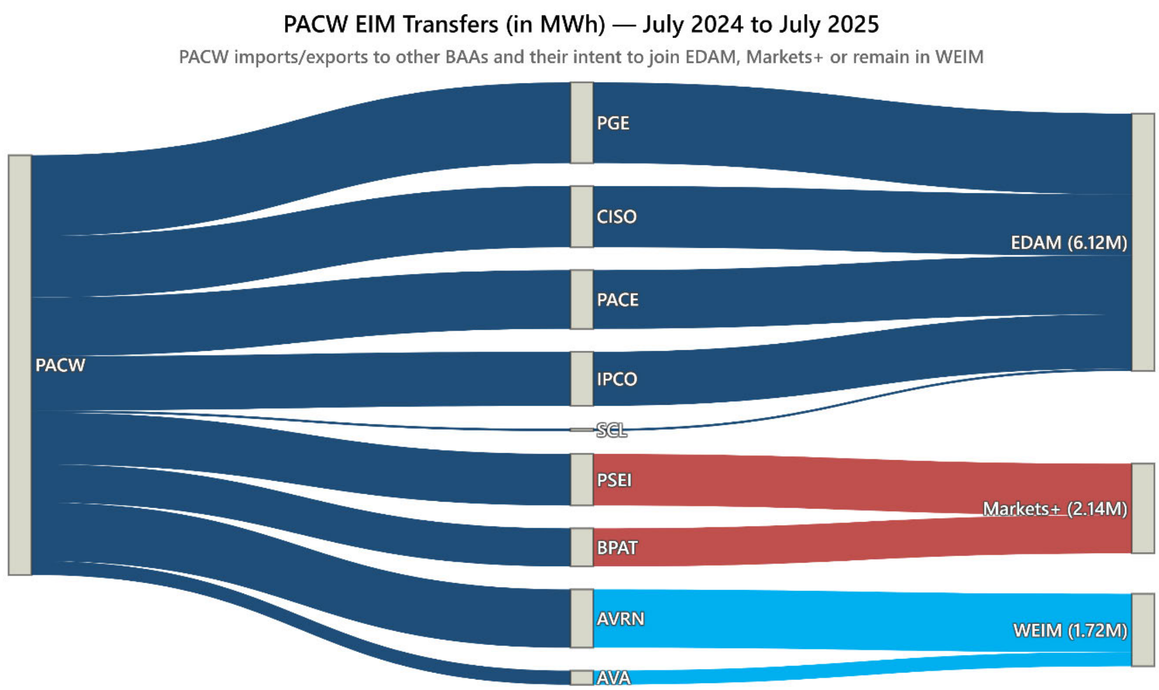
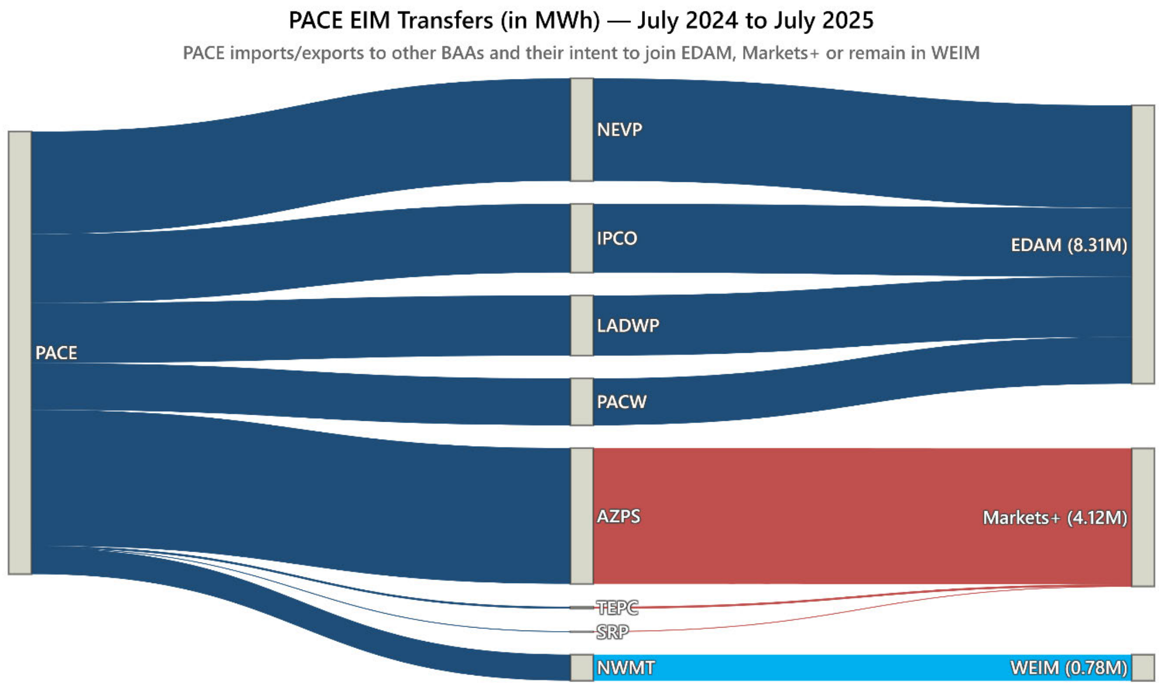


Figure 6. PACE EIM Transfers (in MWh): July 2024 to July 2025



Q. Public Counsel raises a concern that other market participants, such as the Bonneville Power Administration, have decided to join Markets+.[21] How does PacifiCorp expect to retain market benefits from joining EDAM when there are market participants exiting to join Markets+?

A. Apart from Arizona Public Service, Tucson Electric Power, Salt River Project, BPAT, and Puget Sound Energy, the entities that PacifiCorp transacts most frequently have either signed EDAM implementation agreements, expressed leaning to join EDAM, or are remaining in the WEIM. The largest trading volumes were between BAAs that are joining the EDAM, approximately 61 percent for PACW and 63 percent for PACE. The entities that PacifiCorp transfers energy with make up approximately 21 percent to 31 percent for PACW and PACE, respectively. The

[21] Earle, Exh. RLE-1CT at 28:12-14.

aggregation of WEIM and EDAM trading partners is larger than the entities joining Markets+.

Q. How do you expect the generation fleet to shift as market participants transition to SPP and more entities sign implementation agreements for EDAM?

A. There are studies that show how generation shifts depending on the day-ahead decisions of entities, one of which was presented by the Brattle Group during a workshop to the Public Utilities Commission of Nevada. Brattle presented a footprint called "Middle View 1",[22] which I believe is the most accurate footprint based on the western utilities who already have signed implementation agreements or have indicated their leaning in one market or another. The results showed that EDAM will contain the most solar, wind, and battery storage in WECC. I find this to be consistent with the data that was pulled off OASIS in my previous answer.

VI. INDUSTRIAL CURTAILMENT CONTRACTS

Q. Please explain AWEC's position on the inclusion of industrial curtailment contracts in Washington allocated costs.

A. AWEC recommends that the $2,271,196 in costs allocated to Washington for industrial curtailment contracts be removed from Washington rates.[23] AWEC witness Mullins recommends that because Washington did not approve the rates for these contracts and because there is no clear way to allocate the costs and benefits of these contracts to Washington rates, they should be excluded.[24]

[22] Wilding, Exh. MGW-6 at 9.
[23] Mullins, Exh. BGM-1CT at 73:12-18.
[24] Mullins, Exh. BGM-1CT at 73:14-18.

Q. Please explain the purpose and use of the industrial curtailment contracts.

A. The industrial curtailment contracts allow PacifiCorp Generation Operations to direct industrial customers to curtail their load within a few moments notice under certain conditions specified in the contract. PacifiCorp is required by North American Electric Reliability Corporation standards to hold sufficient contingency reserves for each BAA (PACE and PACW) to be able to recover from disturbances to the system that can affect reliability, such as the loss of a coal plant. These industrial curtailment contracts fulfill a significant portion of this requirement and free up other generating resources that would otherwise have to hold this reserve capacity, which results in reduced reliance on market purchases and increased market sales.

Q. How do industrial curtailment contracts in other states benefit Washington customers?

A. PacifiCorp's diverse transmission system between the PACE and PACW BAAs allow for energy transfers from East to West in real-time. Accordingly, a portion of the PACW contingency reserve requirement can be fulfilled by resources in PACE, including the industrial curtailment contracts. When a contingency event occurs in the PACW BAA, like a unit tripping offline unexpectedly, PacifiCorp Generation Operators curtail the industrial load in the PACE BAA, and transfer energy to the PACW BAA to recover from the disturbance.

Q. Do you agree with AWEC that there is no clear way to allocate the costs and benefits of these contracts?[25]

A. No. Allocating the costs and benefits of the industrial curtailment contracts is no

[25] Mullins, Exh. BGM-1CT at 73:16-17.

different than allocating the costs and benefits of a Wyoming wind resource or a Utah solar resource. These wind and solar resources benefit Washington customers by helping to serve Washington customer load, utilizing transmission between the two PacifiCorp BAAs. Similarly, the industrial curtailment contracts benefit Washington customers by helping to meet contingency reserve requirements for the PACW BAA, freeing up other resources in PACW to serve load, and reducing reliance on market purchases for Washington customers. Because the benefits of the industrial curtailment contracts are realized by all six states, it is reasonable that the costs should be allocated among the six states.

Q. Does this conclude your rebuttal testimony?

A. Yes.