

WESTERN ENERGY IMBALANCE MARKET (WEIM)

Western Energy Imbalance Market Benefits and Market Update Q1 2024

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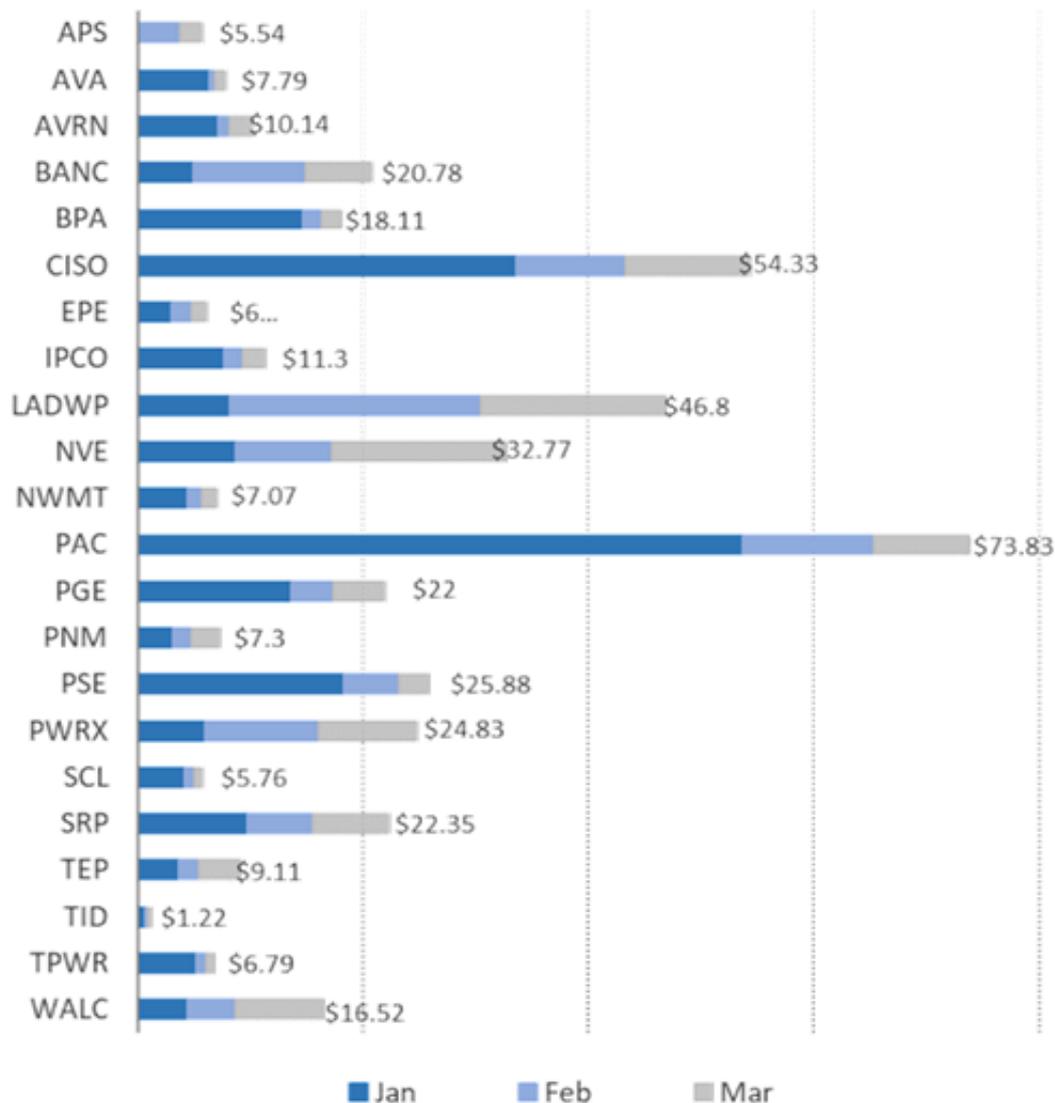
WEIM Governing Body Meeting

General Session

May 21, 2024



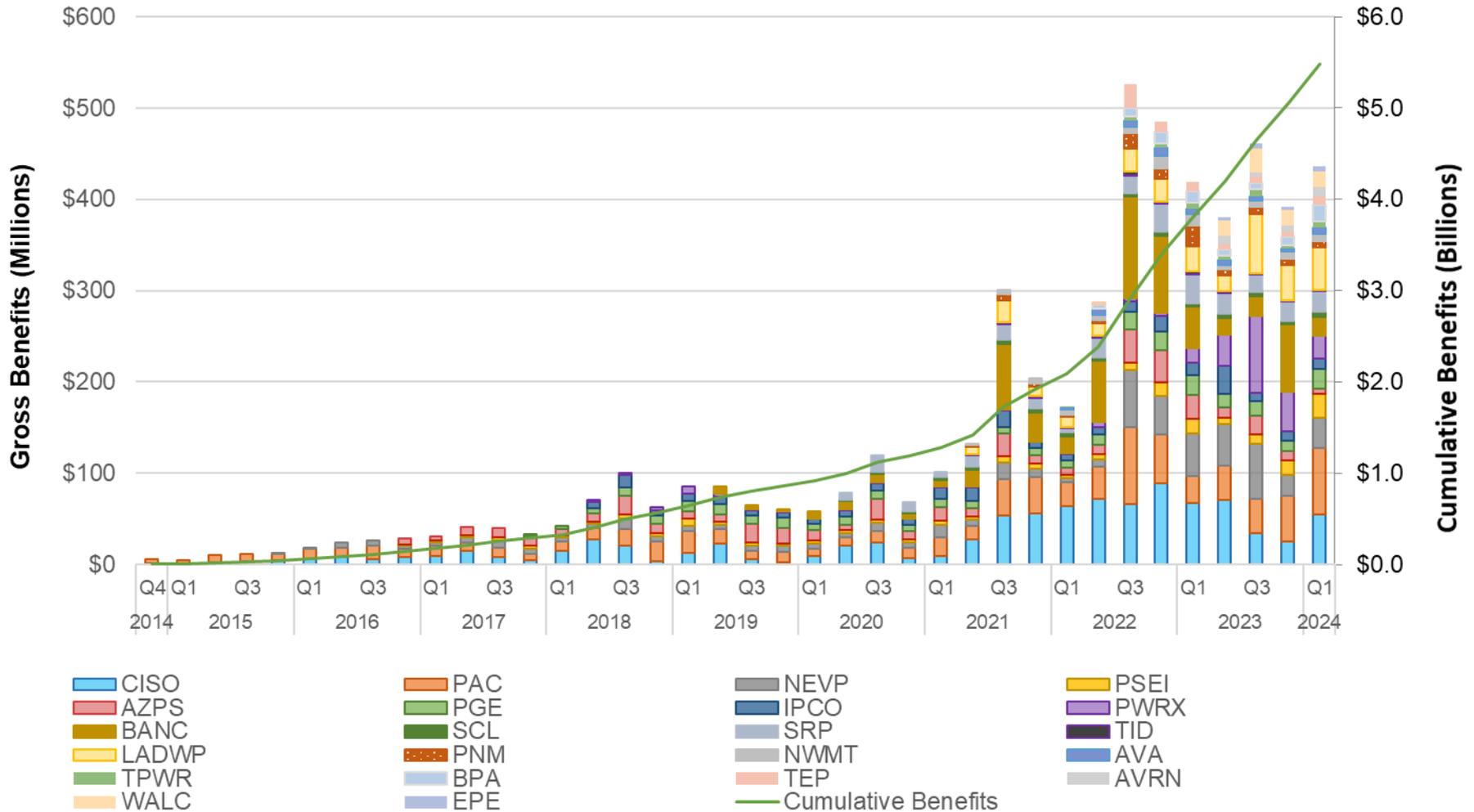
Economic benefits total \$436.3 million in Q1 2024



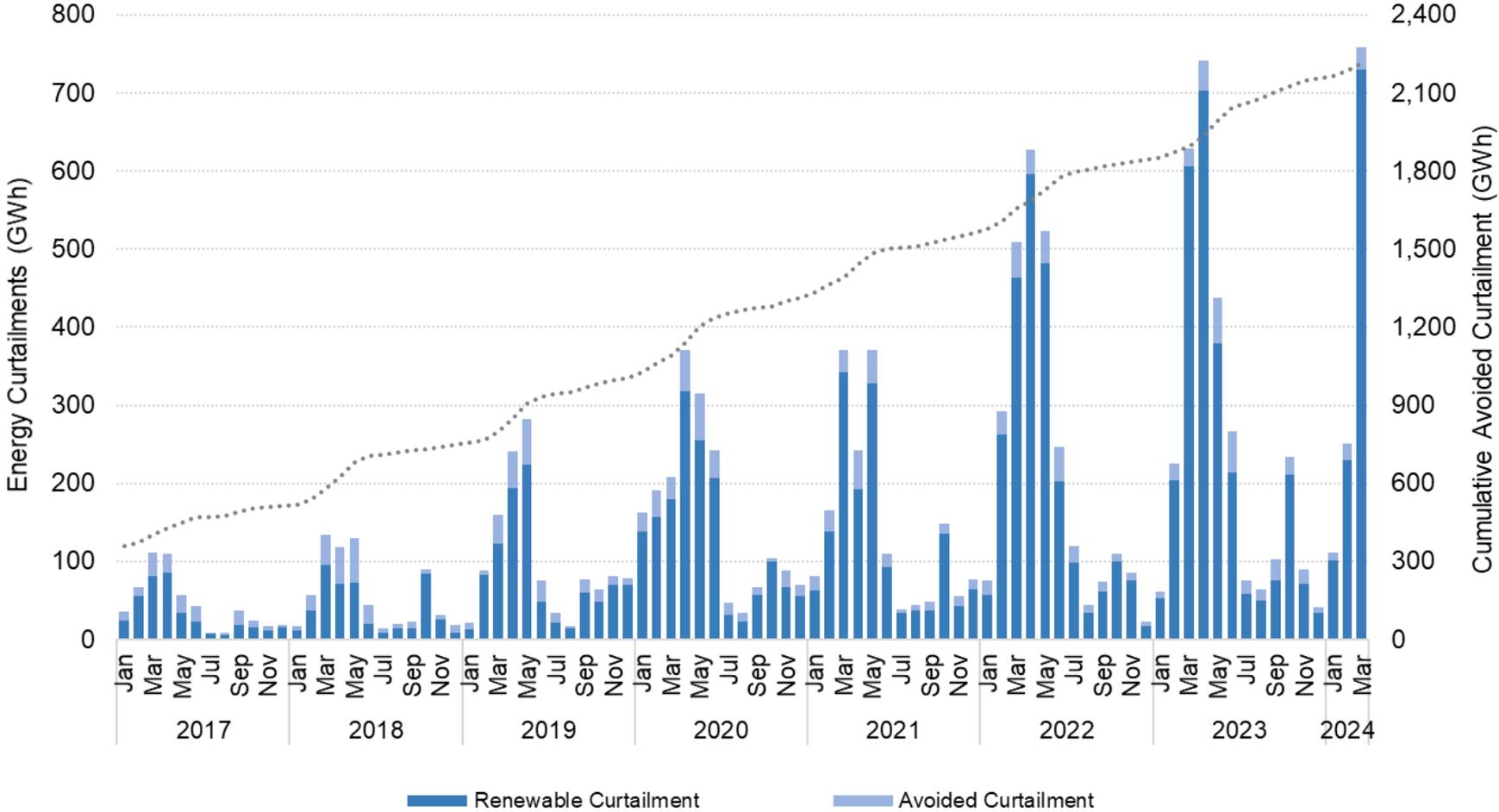
Gross economic benefits driven by:

- Wide footprint consisting of 22 balancing areas
- Economic transfers among areas
- Energy prices and economic displacement of high-value energy

\$5.49 billion cumulative benefits through Q1 2024

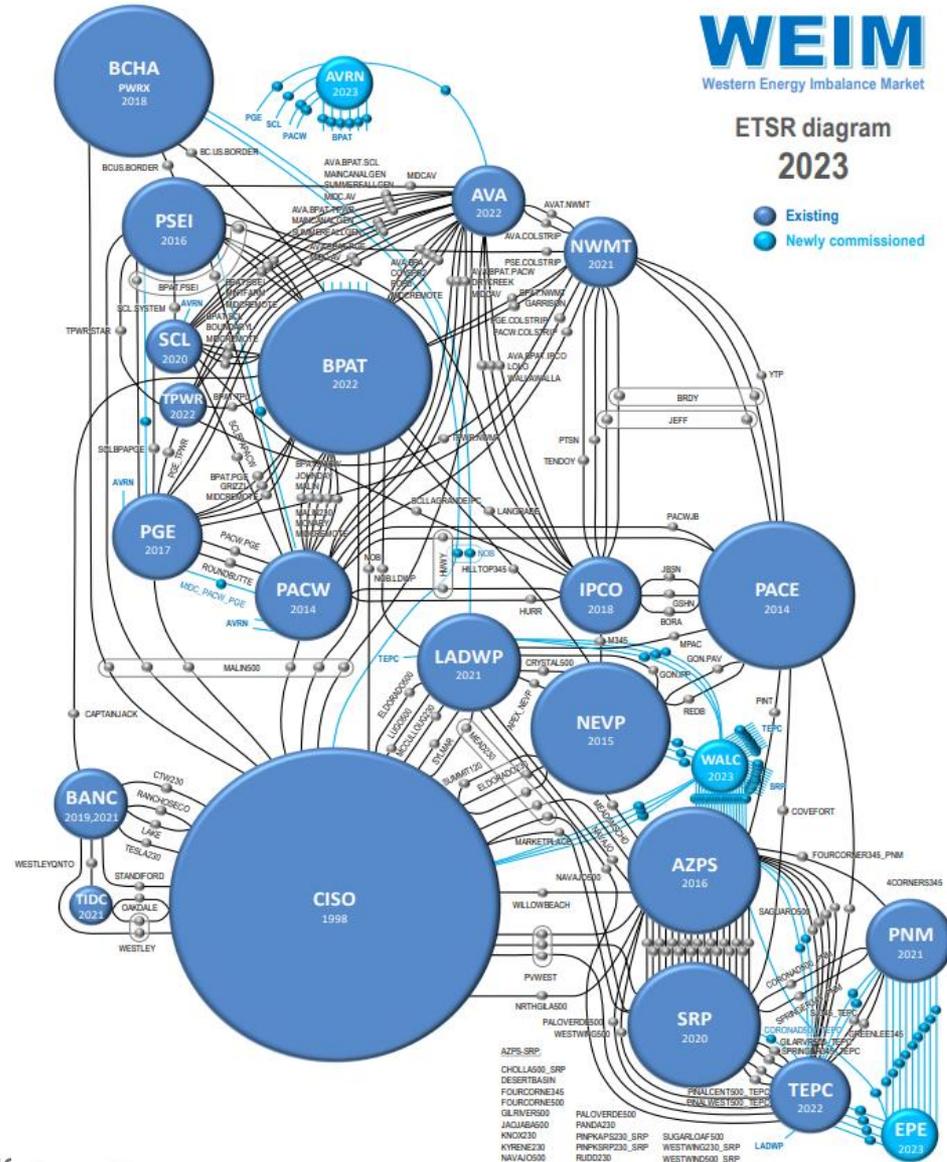


WEIM continues to reduce a portion of renewable curtailment

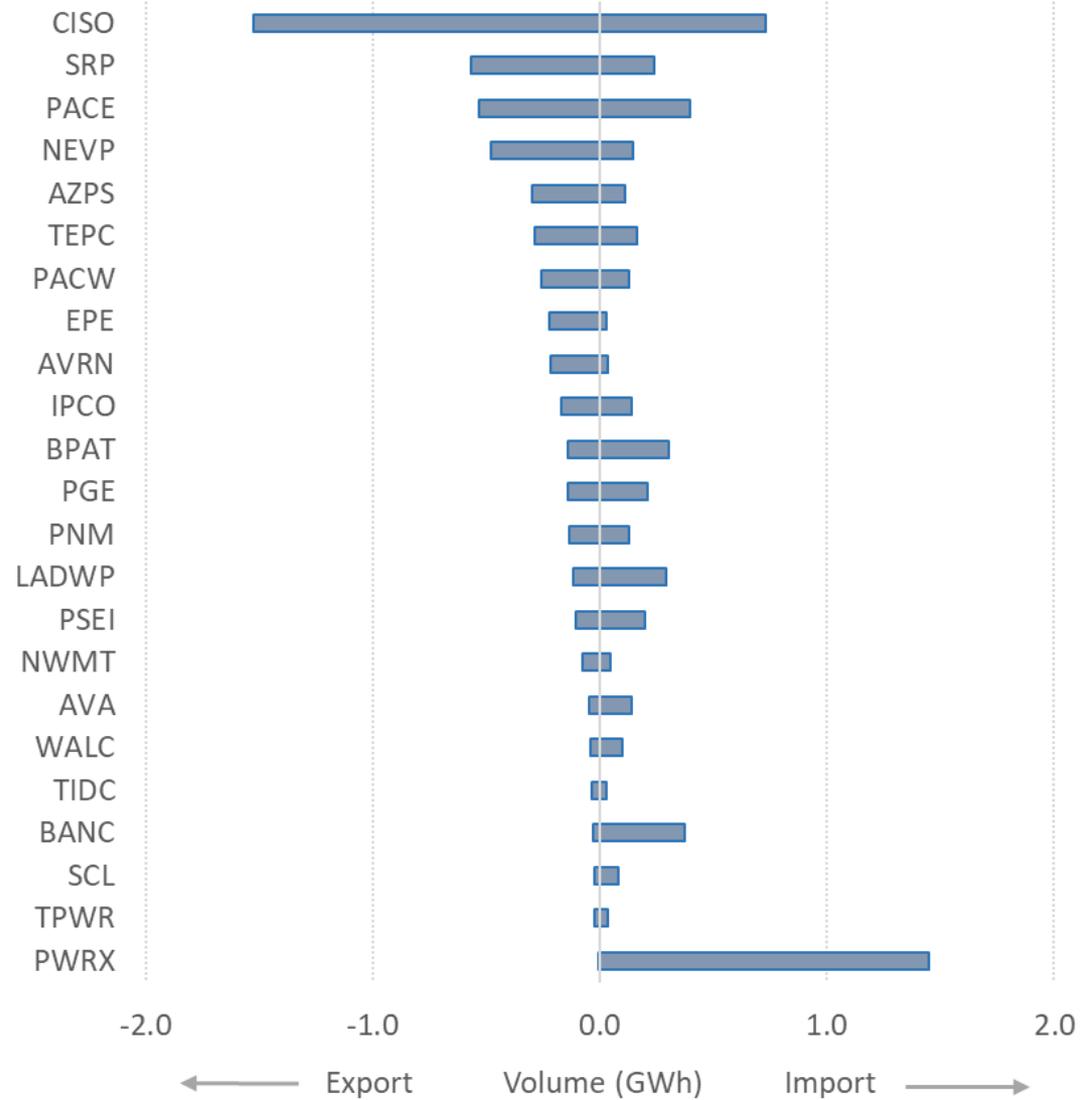
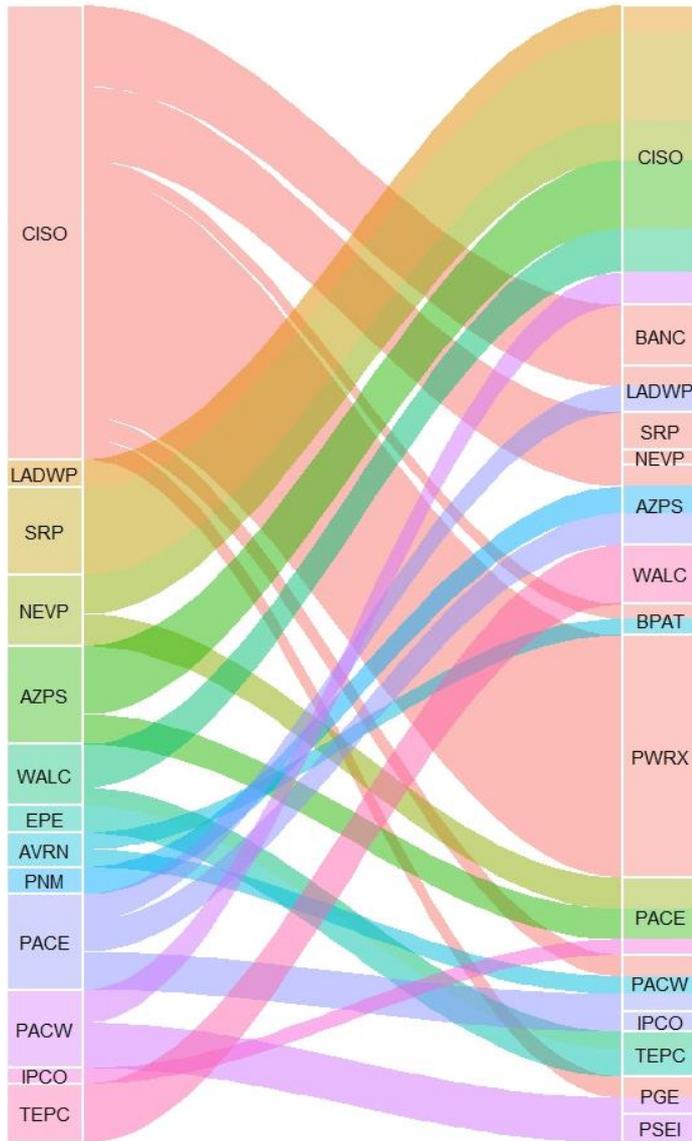


Avoided curtailment since 2015 represent a reduction of 925,568 equivalent tons CO₂

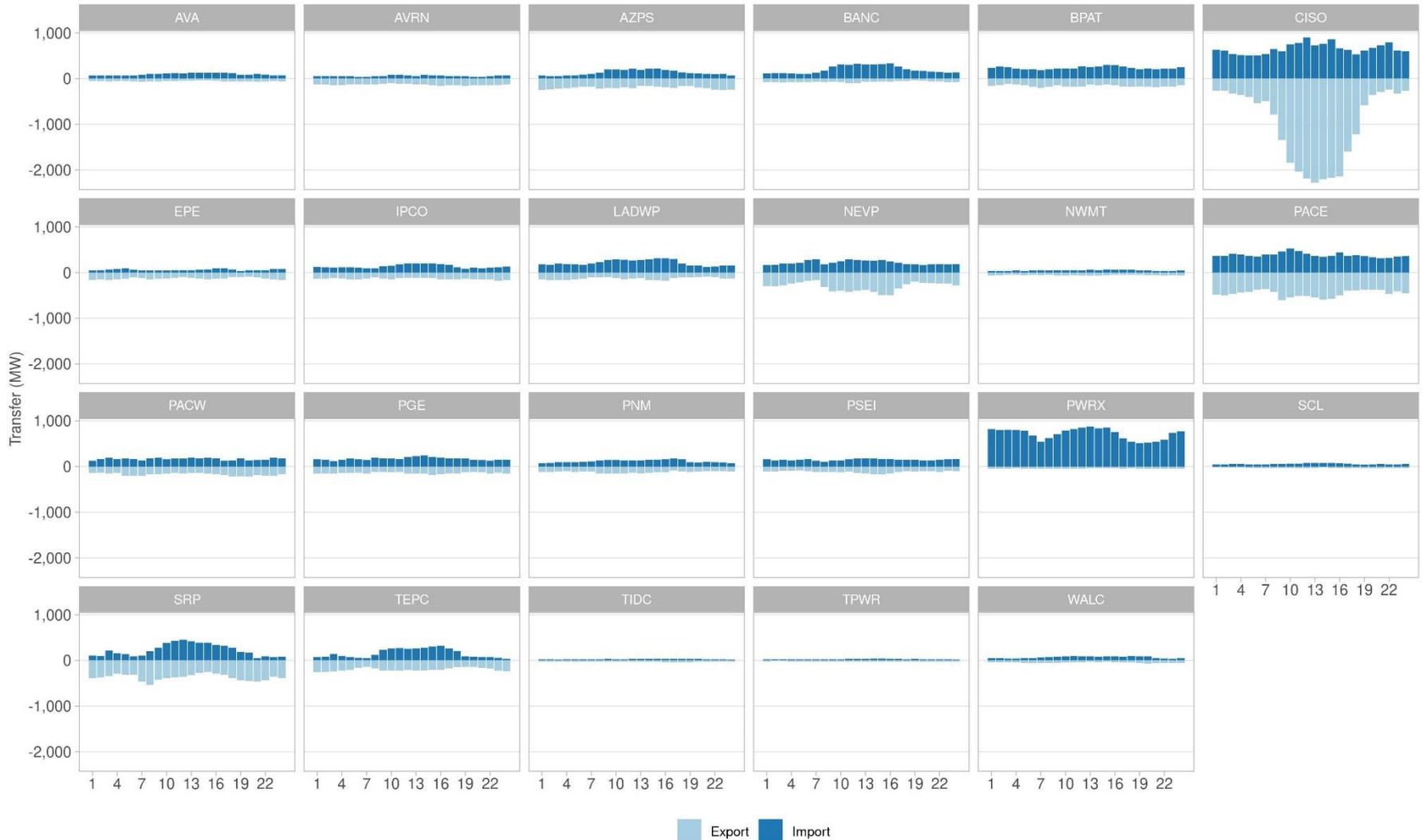
Onboarding new entities added transfer capacity



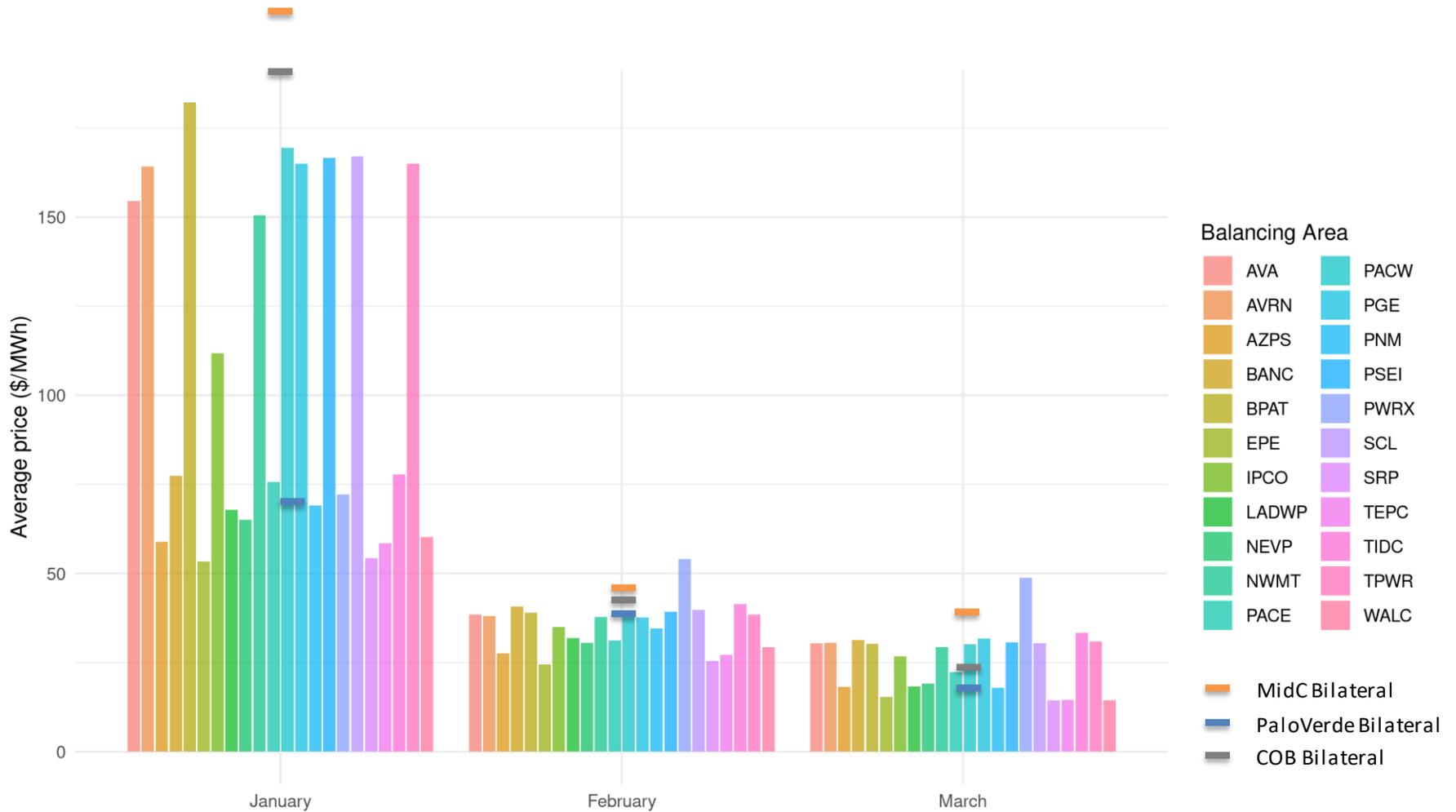
WEIM transfers were substantial in Q1 2024



WEIM transfers in Q1 2024 tracked solar production



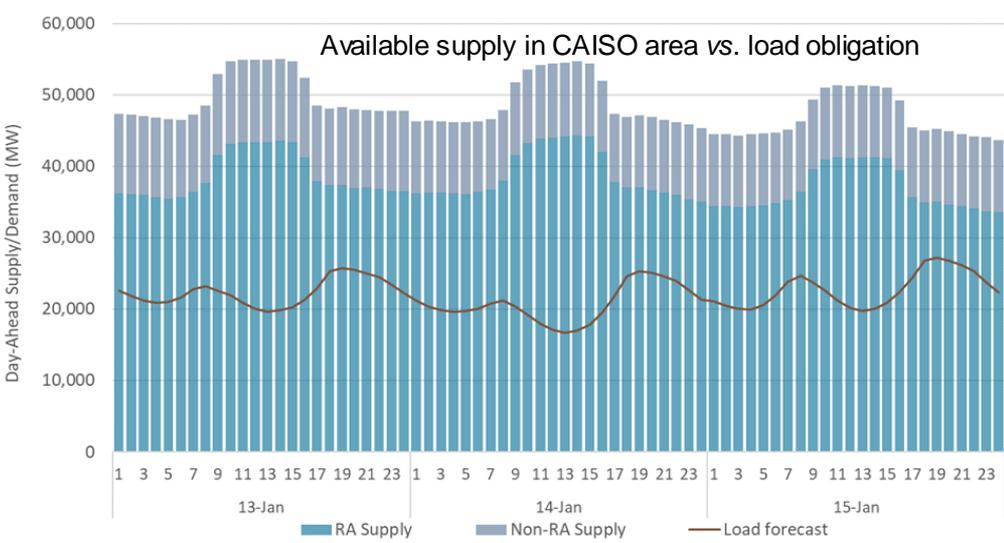
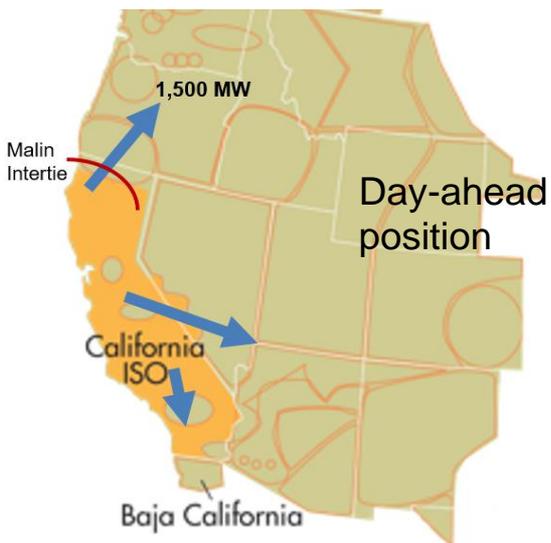
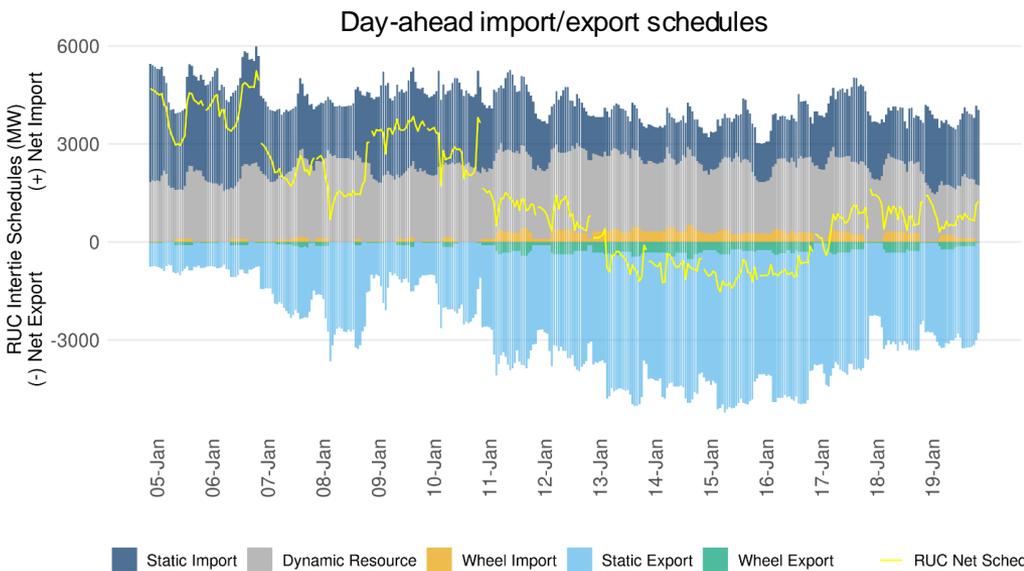
Prices spiked during January cold-weather event in the Pacific Northwest



Bilateral prices diverged in January from WEIM prices

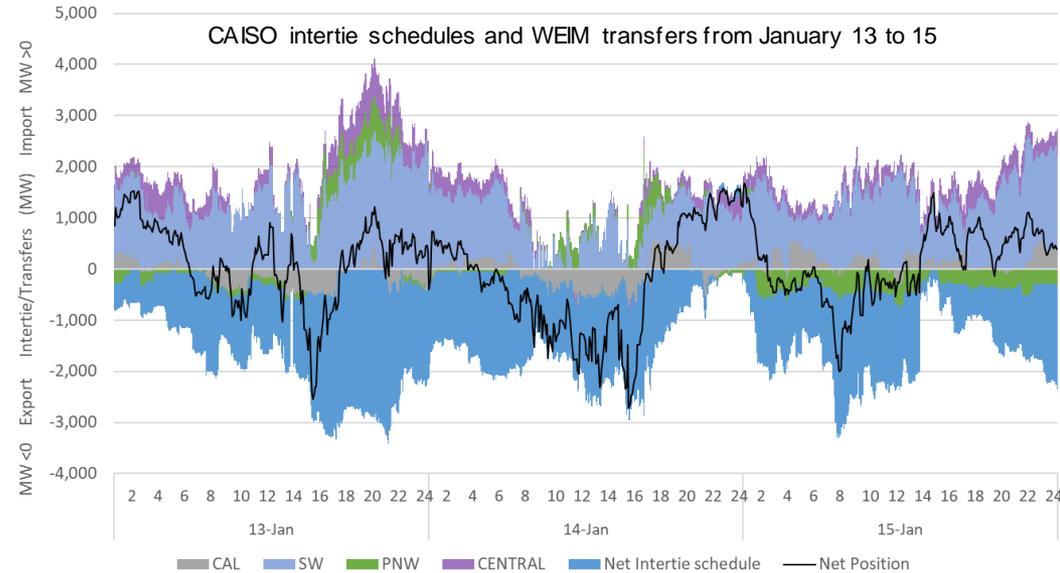
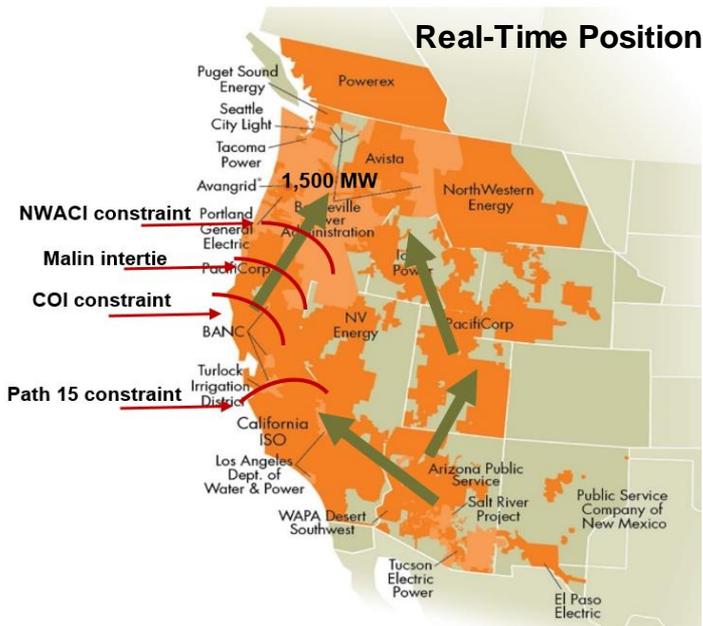
The day-ahead market cleared over 6 GW of exports during the long weekend

- ISO area had sufficient supply available to meet its own demand needs and support exports
- Exports were greater than imports in the day-ahead market
- ISO was a net exporter for all hours of the long weekend in the day-ahead market



The real-time market economically rebalanced supply across the wider footprint to meet demand and manage congestion

From day-ahead to real-time, WEIM transfers economically displaced ISO generation to meet exports while managing congestion on key south to north transmission elements



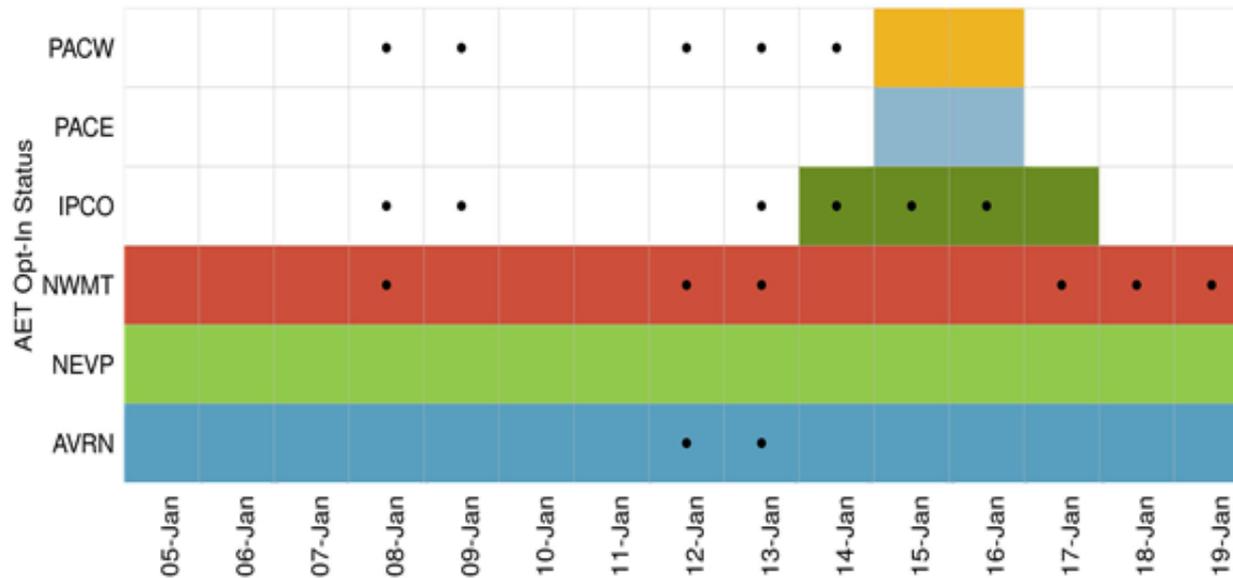
What supply is used to meet demand and where it's located matters for congestion management

As conditions evolved in real time, ISO area was net exporting through hour 16 to then start net importing

All available power that could flow from ISO to Northwest was used as much as the markets could clear

The WEIM facilitated Northwest balancing areas to access assistance energy transfers, providing operational benefits

- Six WEIM balancing areas opted into the assistance energy transfer (AET) program
- This allowed them to receive energy transfers when they could not meet resource sufficiency requirements or when in Emergency Energy Alert
- Two Pacific Northwest areas received as much as 176 MW of AETs
- This energy would not have been available without the AET program



• RSE Failure