

Day-Ahead Markets

An Overview

Agenda

What is a day-ahead market?

What is the California Independent System Operator (CAISO) Extended Day-Ahead Market (EDAM)?

What is the Southwest Power Pool (SPP) Markets+?

What are some of the considerations for a day-ahead market?

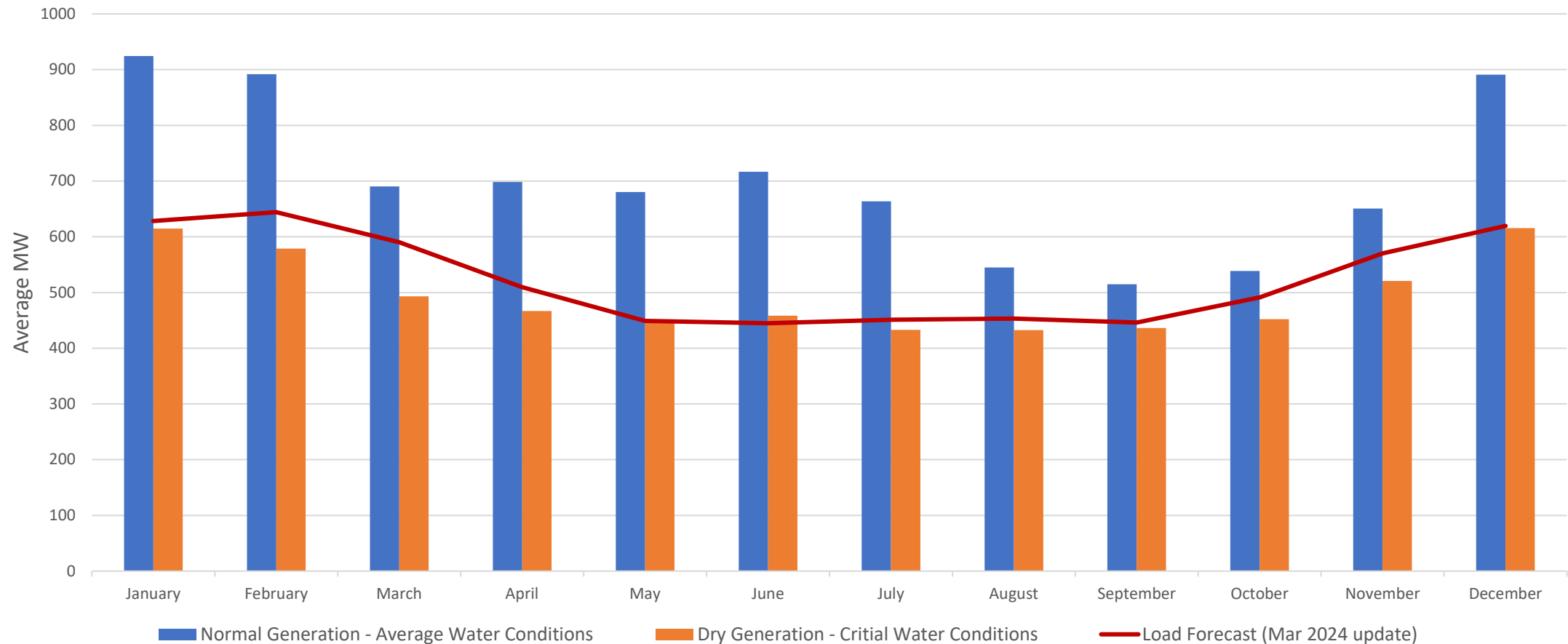
What are the timelines and next steps for a day-ahead market?

What is a day-ahead market?



Why Tacoma Power trades energy: balance.

Tacoma Power Forecast 2025 Load-Resource Balance

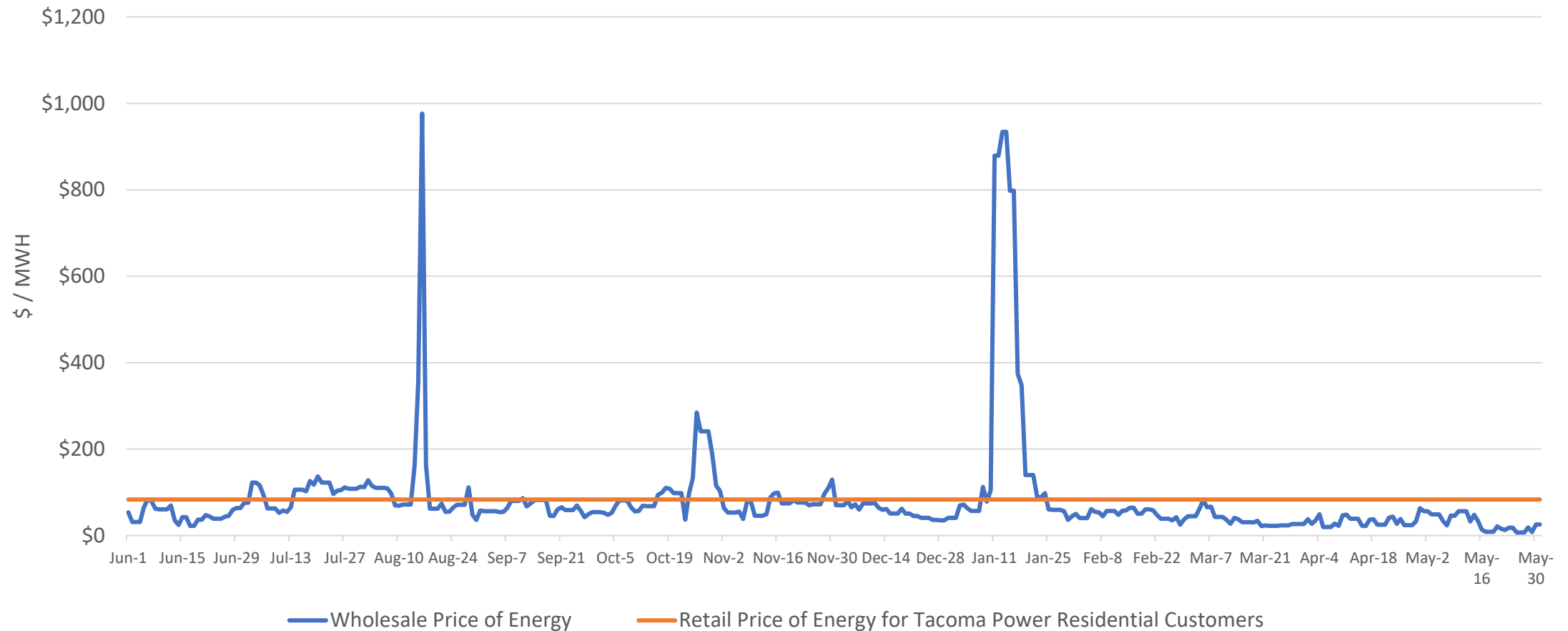


What is a day-ahead market?



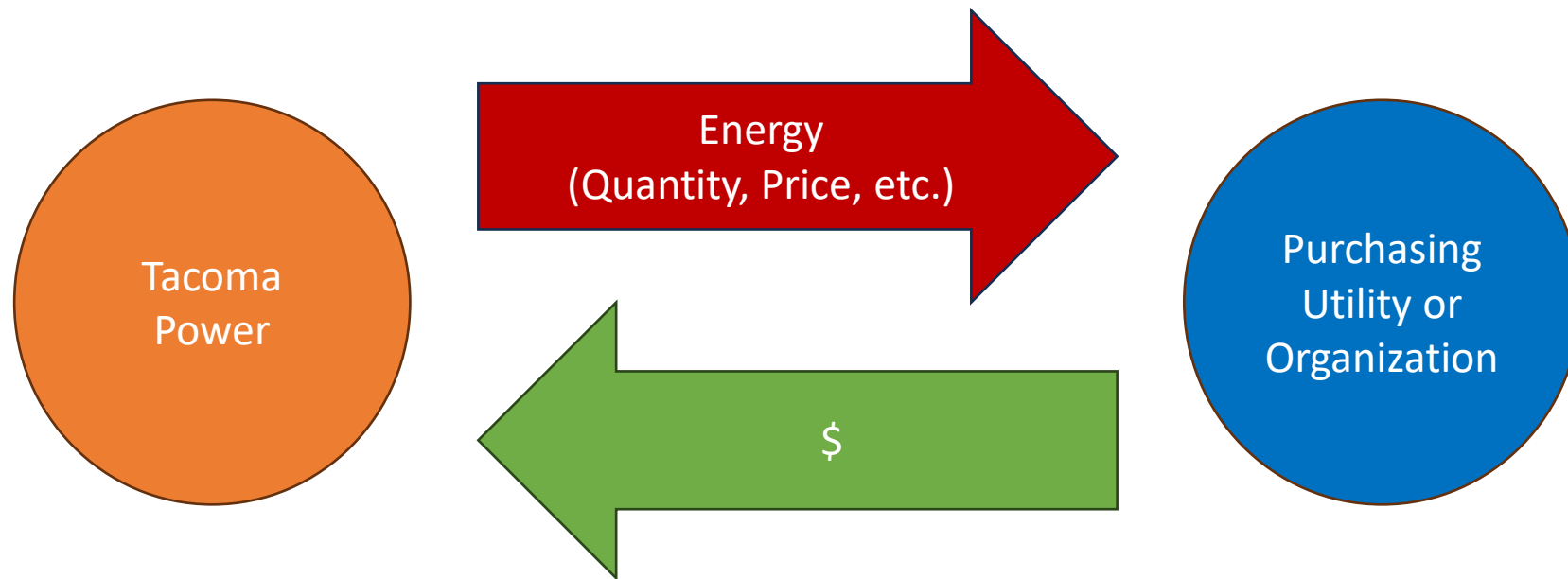
Why Tacoma Power trades energy: price.

Energy prices of the last 12-months



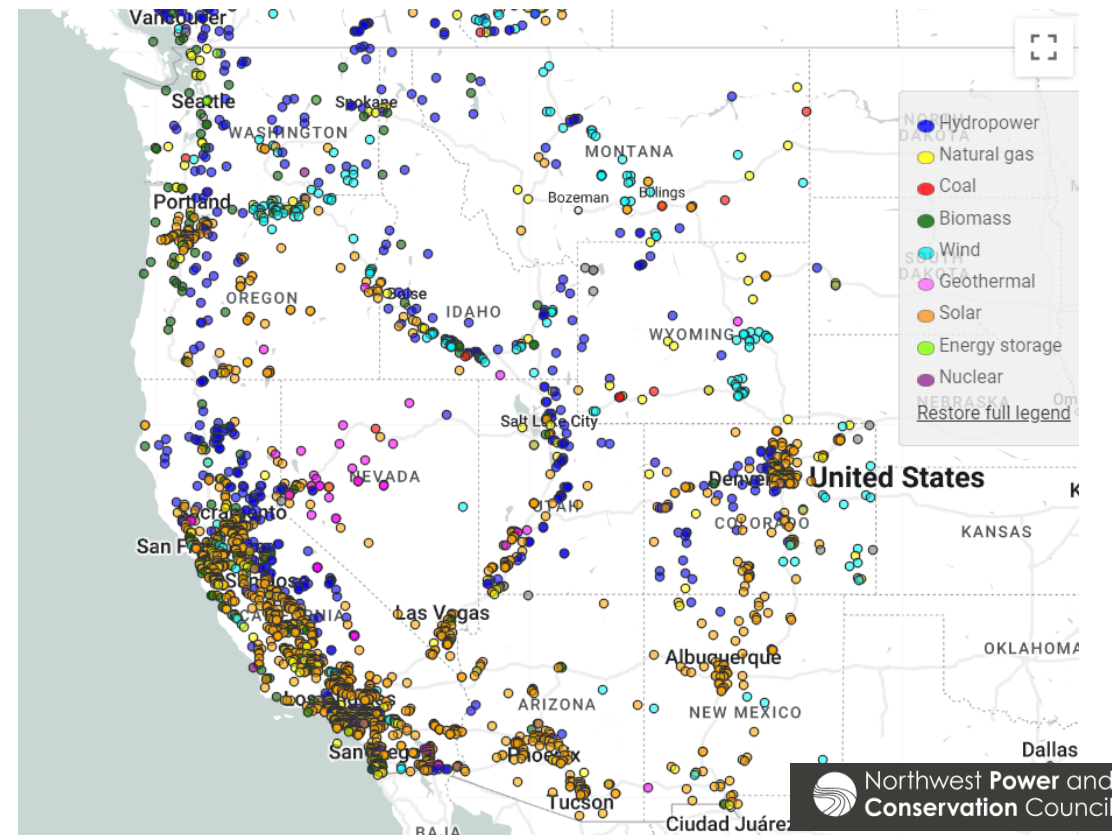
What is a day-ahead market?

Basic bilateral energy transaction



What is a day-ahead market?

A centralized market coordinates across a regional footprint by having all participating resources economically compete to serve aggregate customer load.



What is a day-ahead market?

Two processes of a centralized market

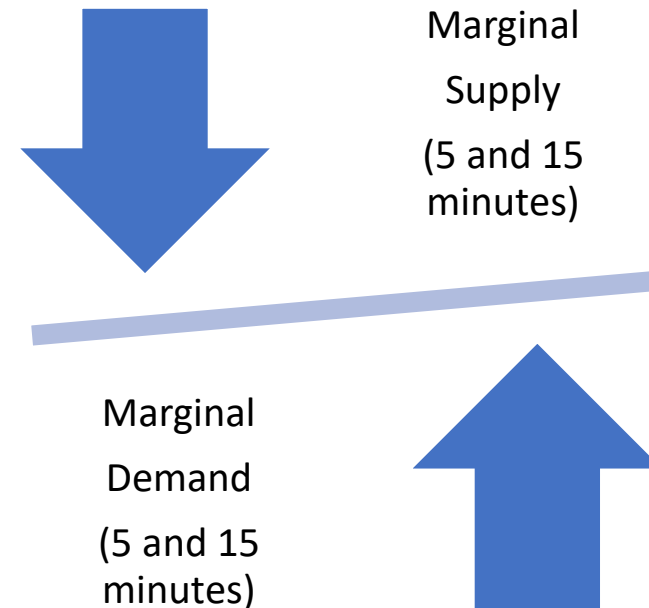
Day-ahead market

Planning

Commitment

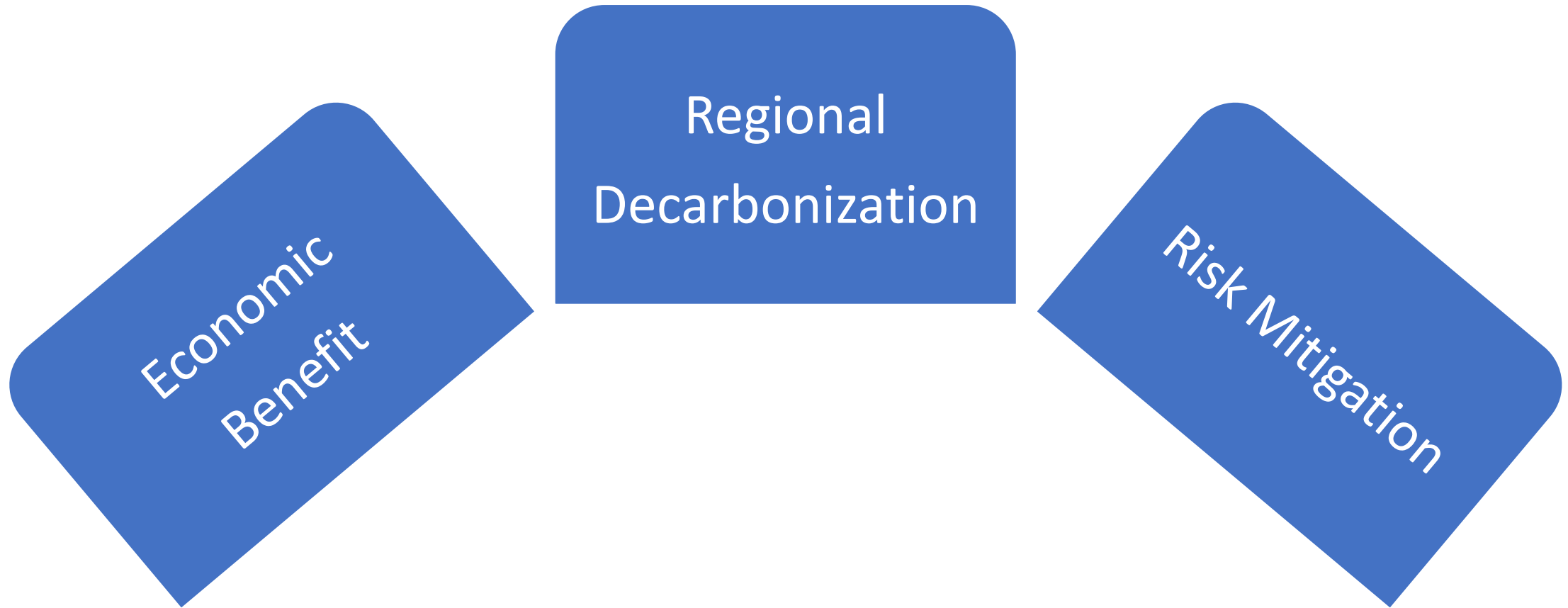
Dispatch

Real-time market



Why join a day-ahead market?

Reasons for a centralized market vs trading only bilaterally



What is the California ISO?

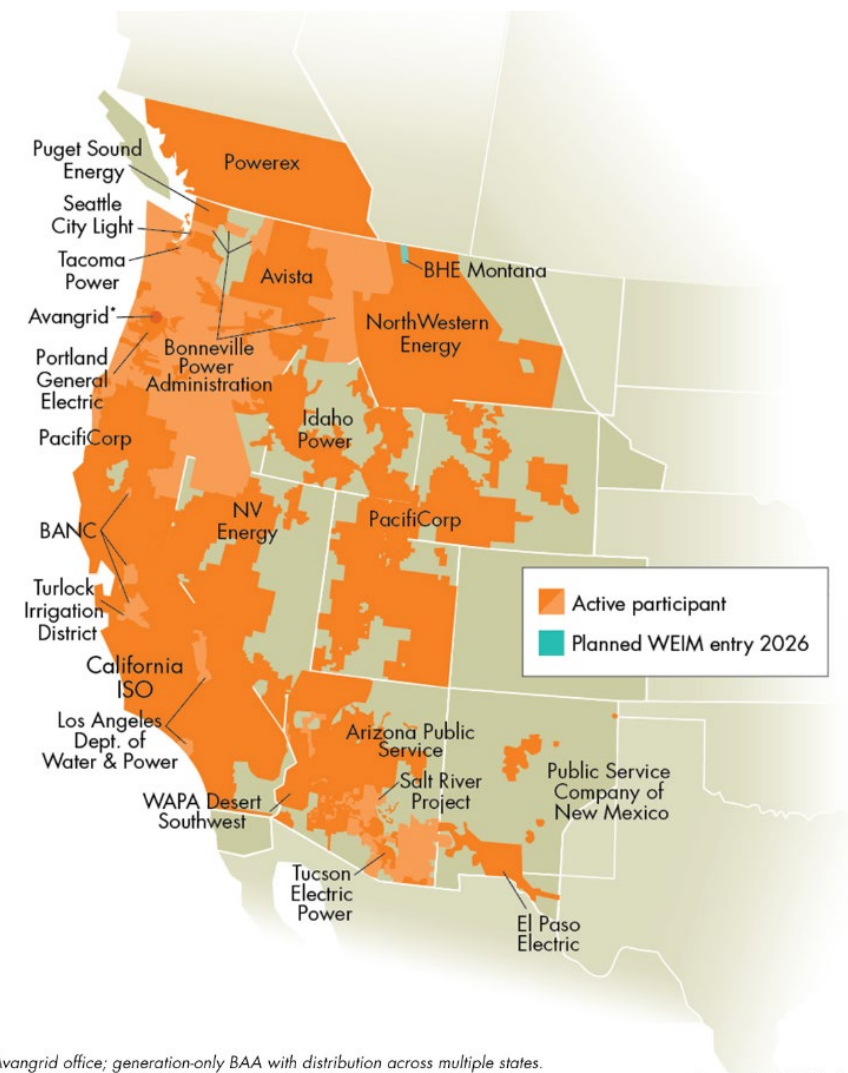
CAISO is the Independent System Operator (ISO) for much of the state of California.



What is CAISO's WEIM?

The Western Energy Imbalance Market (WEIM) is an extension of the CAISO real-time market to areas outside of the ISO.

Tacoma Power joined CAISO's WEIM in the Spring 2022.

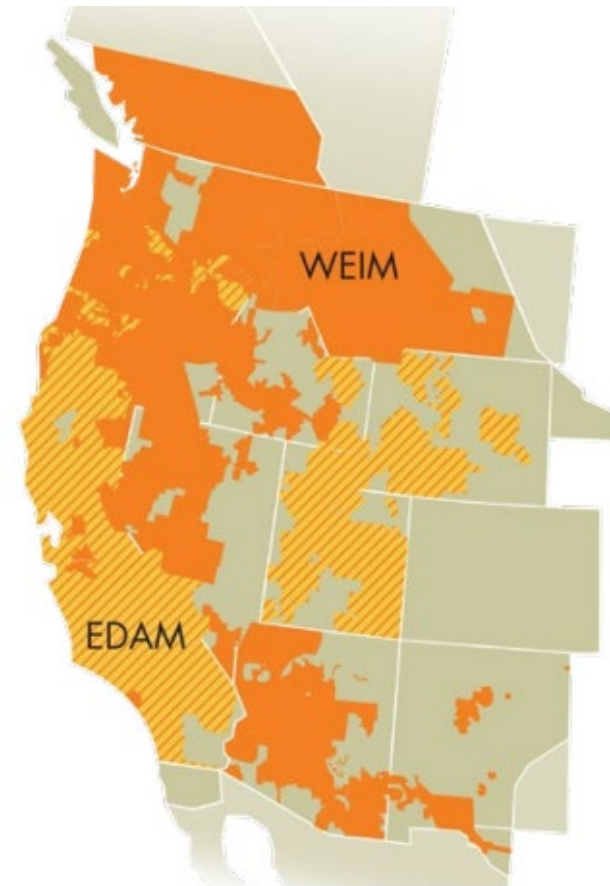


**Avangrid office; generation-only BAA with distribution across multiple states.
Map boundaries are approximate and for illustrative purposes only.*

What is CAISO's EDAM?

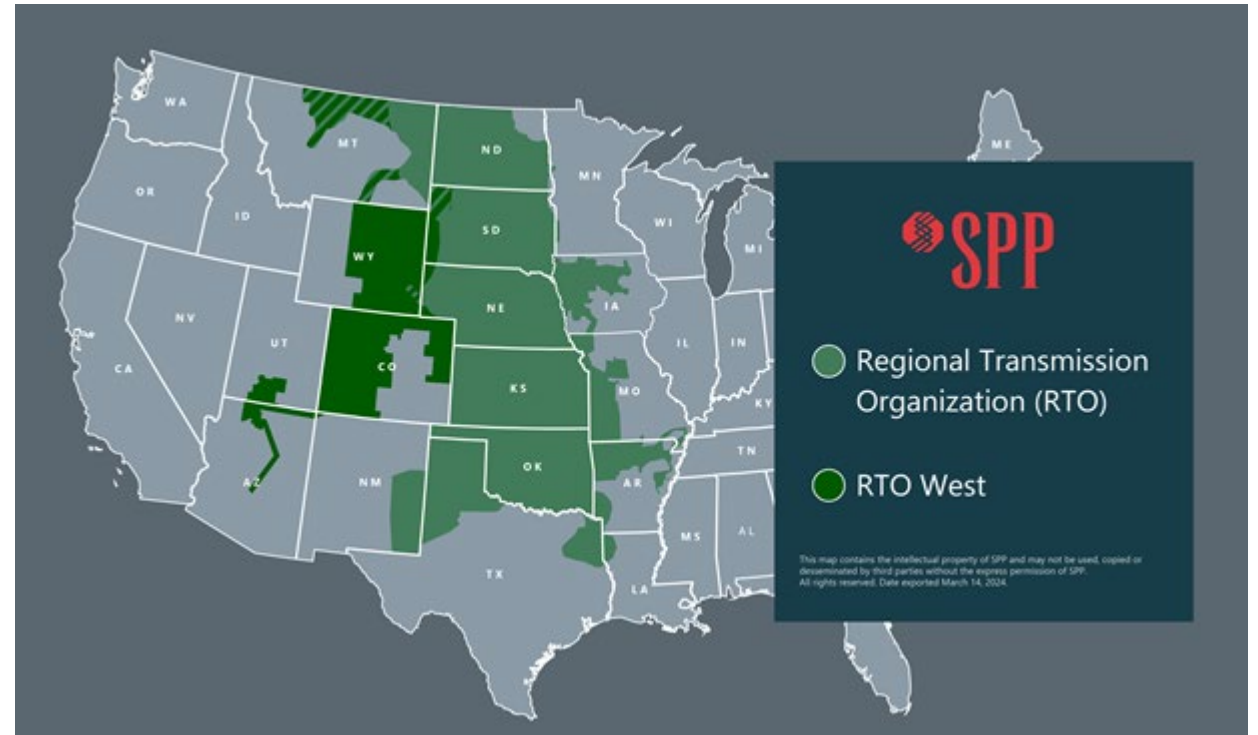
Like the WEIM, CAISO's Extended Day-Ahead Market (EDAM) enables loads and resources outside of CAISO's ISO footprint to participate in CAISO's day-ahead market.

In December 2023, the Federal Energy Regulatory Commission (FERC) accepted CAISO's EDAM tariff changes. Entities are likely to begin implementing EDAM in 2026 in an incremental fashion, with PacifiCorp being among the first likely entrants.



What is SPP's Markets+?

The Southwest Power Pool is the Regional Transmission Organization (RTO) for much of the central part of the United States.



What is SPP's Markets+?

Markets+ is a new and alternative centralized day-ahead and real-time market for the west that would be operated by SPP.

The Markets+ Tariff was developed through a participant stakeholder process in 2023 and early 2024. The Tariff was filed with FERC on March 29th, and we anticipate a decision by FERC by the end of July.



What are some considerations?



Key considerations for those evaluating market options:

- **Governance**
- **Market design**
- **Footprint and transmission connectivity**
- **The Bonneville Power Administration (BPA)**

What are the next steps?

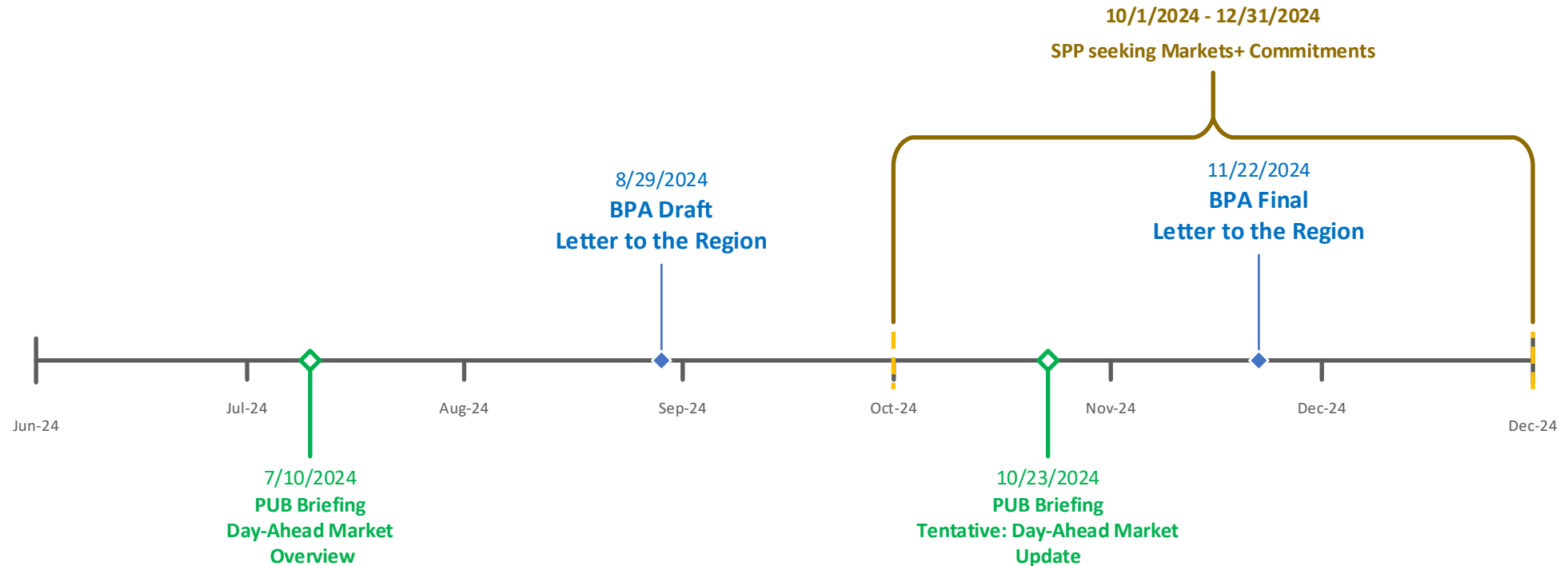


Implementation requirements for Tacoma Power:

- **Agreement with the market operator**
- **New systems (will vary depending on market)**
- **New business processes supported by FTEs**

Tacoma Power has contracted for a study of likely implementation activities and costs. We expect implementation of a centralized-day ahead market to cost between \$5 million and \$11 million, similar to the amount spent to implement the WEIM.

What are the next steps?



Summary



A centralized day-ahead market coordinates load service and generation resources across a broad regional footprint.

CAISO's EDAM and SPP's Markets+ represent centralized day-ahead market options for Tacoma Power.

Tacoma Power can benefit from participation in a day-ahead market, and ramifications of the two options may become clearer over the coming months. A decision to join a market would require Public Utility Board authorization to execute a service agreement with a market operator, as well as additional resources to implement and sustain participation in a centralized day-ahead market.



Thank you