



California ISO

Western Energy Imbalance Market Regional Issues Forum June 20, 2024

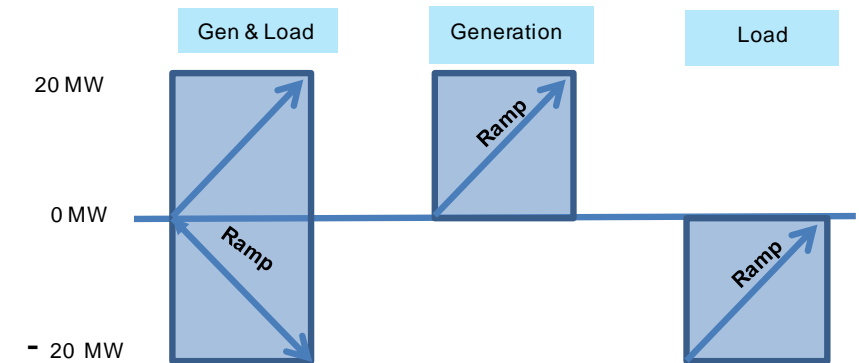
Unlocking Value: The Economic and Operational Benefits of Virtual Power Plants in Western Markets

Jill Powers Market Policy Development, DR & DER Sector Manager

The ISO's market participation models are technology neutral and focus on resource capabilities to provide wholesale market services

Three major categories for distributed energy resource (DER) participation:

- Generates only
 - Examples include: stand-alone distribution-connected generators or aggregated at one point of distribution interconnection
- Reduces load only
 - Examples include: “traditional” load drop, various demand response DR programs, storage-backed demand response, load only VPP
- Reduces load and generates
 - Examples include: storage resources, aggregation of distributed energy resources, combination VPPs

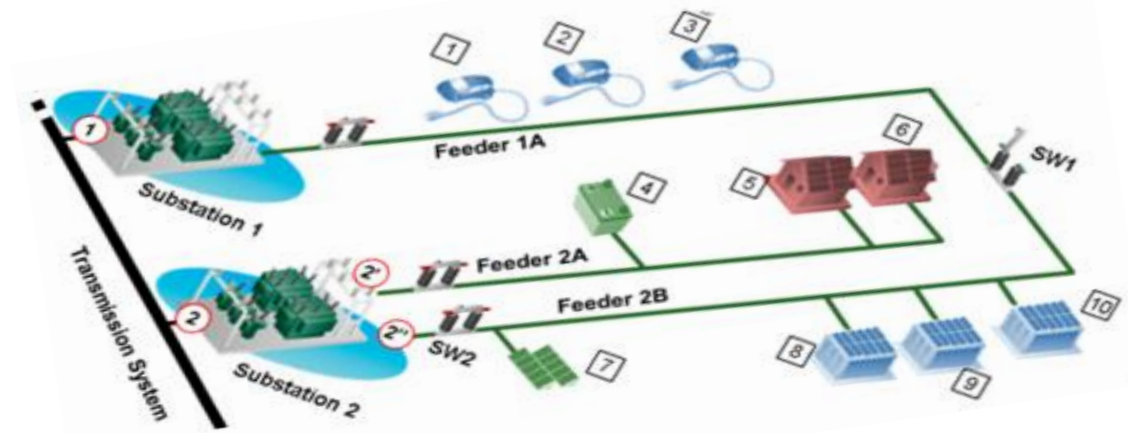


The ISO is an early mover to integrate DERs into wholesale markets

Supply side participation models allow for a variety of services from DERs

- 1) Stand-alone DERs
 - 500+ new DERs (2.2 GW) since 2005
- 2) Demand response (2010)
 - 1.7 GW in CAISO markets
- 3) Distribution Energy Resource Aggregations (2016)
 - Allows DERs less than 1 MW in size to participate in aggregation
 - Distribution interconnection required for individual DERs

FERC Order 2222 was largely modeled on the DER provider policy



On May 18, 2023, FERC accepted the CAISOs compliance filing making it the first ISO/RTO to fully comply

By November 1, 2024 the CAISO will align its tariff with the final order and implement changes needed including:

- Lowering the DERA minimum capacity requirement from 500 kW to 100 kW;
- Creating a heterogeneous DERA model that can include demand response; **(biggest implementation lift)**
- Clarifying that a DERA may not receive “double” compensation (retail program + wholesale participation) for capacity, energy, or other services and requiring the distribution company to confer regarding any double-counting concerns; and
- Requiring DERAs to notify the CAISO when their information changes due to the removal, addition, or modification of a DER within the DERA.

Demand-Side option available recognizes DR participation in the WEIM

Demand-Side DR reduces entities baseload forecast into the real-time market through a short term **load forecast adjustment**

- Reduces shown capacity needed to support that load and pass RSE.
- Required to reduce that load, implicitly valued as a self-schedule.
- DR deployment is expected and forecasted load reduction show up

Key Differences

Load Forecast Adjustment

- Full control of dispatch & scheduling by EIM entity
- Not directly EIM market price-responsive

Supply Side

- Dispatch determined by real-time market prices/conditions
- Bid in, price-responsive