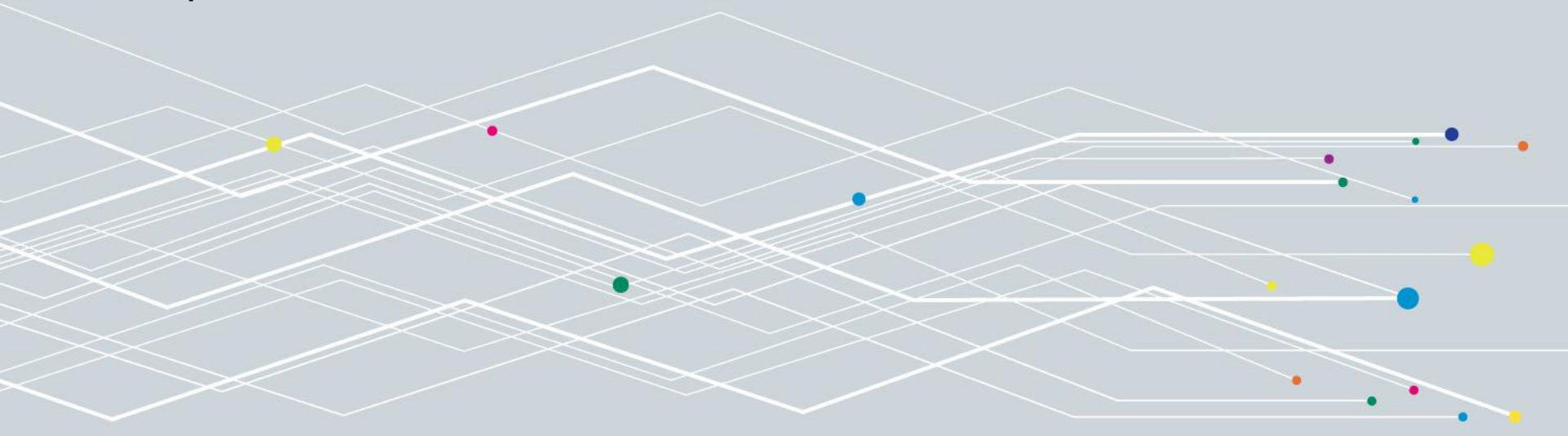


# Resource Sufficiency in the EIM

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# CAISO's EIM Resource Sufficiency Framework

The objectives and general structure of the Resource Sufficiency Framework are sound:

## A. Three Key Tests

1. **Energy** (*Balancing Test*)
2. **Capacity** (*Capacity Test*)
3. **Flexibility** (*Flexible Ramping Sufficiency Test\**)

## B. Defined Diversity Credit

- Reduces Resource Sufficiency requirements in a safe and equitable manner

## C. Defined Confidence Level (P95)

- Market operator is 95% confident for the applicable hour that the applicable BAA has sufficient energy, capacity and flexibility to serve load and meet its imbalances on a standalone basis, net of the diversity credit

## D. Failure Consequence is to Limit EIM Transfers

- Prevents leaning, sending critical signal that each BAA must take action ahead of hour

\*Powerex notes that intra-hour capacity requirements are currently covered by the Flexible Ramping Sufficiency Test, not the Capacity Test

# CAISO's EIM Resource Sufficiency Framework

CAISO's EIM Resource Sufficiency framework supports multiple, complementary objectives:

## 1. Promotes Reliability

- *Protects the broader EIM Area* from having insufficient energy, capacity, or flexibility to meet real-time needs (as a result of entities “going short” and leaning on the EIM)

## 2. Ensures Fairness

- Ensures that some BAAs are not able to *lean on investments in other BAAs* in capacity and flexibility (instead of making their own investments, and/or bilaterally contracting for supply)
- Ensures that all BAAs are also not held to a *higher standard than is necessary* to ensure reliability, unnecessarily increasing their costs of reliably serving load and meeting imbalances

## 3. Complements Resource Adequacy Activities

- Entities *continue to have appropriate incentives* to contract for sufficient energy, capacity and flexibility ahead of each hour (through bilateral transactions and other forward commercial activities)

# CAISO's EIM Resource Sufficiency Framework

Enhancements should not change the level of Resource Sufficiency required

## 1. Not all EIM BAAs are situated similarly

- Some BAAs are facing growing capacity and flexibility challenges
- Other BAAs may have surplus capacity and/or flexibility they are seeking to monetize

## 2. Raising or lowering the bar will create “winners and losers”

- “Increasing” Resource Sufficiency requirements may increase costs for entities that don't have surplus capacity/flexibility, while increasing opportunities for others to sell capacity/flexibility/energy
- “Decreasing” Resource Sufficiency requirements may reduce costs for some entities experiencing capacity/flexibility challenges, while reducing opportunities for others to sell capacity/flexibility/energy

## 3. Resource Sufficiency Enhancements should be focused on:

1. Improving “workability” of Resource Sufficiency Framework
2. Reducing “False positives” and “False negatives”
3. Providing additional transparency and metrics

# Potential EIM Resource Sufficiency Enhancements

## Examples of enhancements that may be worth exploring:

### 1. Improving workability of Resource Sufficiency Framework

- **Adjusting timelines** to ensure entities know their specific volumetric requirements to pass RS tests, prior to applicable deadlines to take action to secure additional capacity or flexibility (i.e. T-75 offer deadline)

### 2. Reducing “False positives” and “False negatives”

- **Are some BAAs failing the RS tests in hours where they should have passed?**
  - E.g., How accurate are CAISO’s calculated FRST volumetric requirements at establishing a P95 value for each BAA and for each hour of the day?
- **Are some BAAs passing the RS tests in hours where they should have failed?**
  - E.g., CAISO BAA has publicly reported very high import delivery failures through its inertia bidding framework in peak hours on high demand days (not covered by historic averages)
  - Should untagged, “system resource” import awards (where no physical supply may have yet been procured by the seller) perhaps be excluded from meeting the CAISO BAA RS tests?

### 3. Providing Additional Transparency and Metrics to Promote Further Improvements

- Should CAISO post **more granular data** on OASIS by BAA by hour?
- Can CAISO or DMM **provide historic analysis** on FRST volumetric requirements by BAA and hour of the day? Have these required quantities been consistent with actual demand and imbalance requirements for each BAA and each hour, at a P95 confidence level?