



# System market power mitigation discussion

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Market Surveillance Committee Meeting

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# Background

- CAISO analysis shows that the CAISO balancing area was structurally uncompetitive at the system-level in 201 hours in 2018
- The Market Surveillance Committee is expected to present an opinion to the Board in November discussing the potential costs and benefits of system market power mitigation
- CAISO staff are developing a straw system market power mitigation design to be a base for potential further policy development after November

# Design elements to consider

- Screen for uncompetitive conditions
  - Which market(s) to apply screens?
  - How to determine if the CAISO is import constrained?
  - How to calculate the residual supply index?
  - Under what condition is mitigation acceptable?
- Determine resources to mitigate
  - Is it appropriate to mitigate voluntary supply?
- CAISO estimate of resource costs
  - How do we create a reasonable estimate of import resource costs?

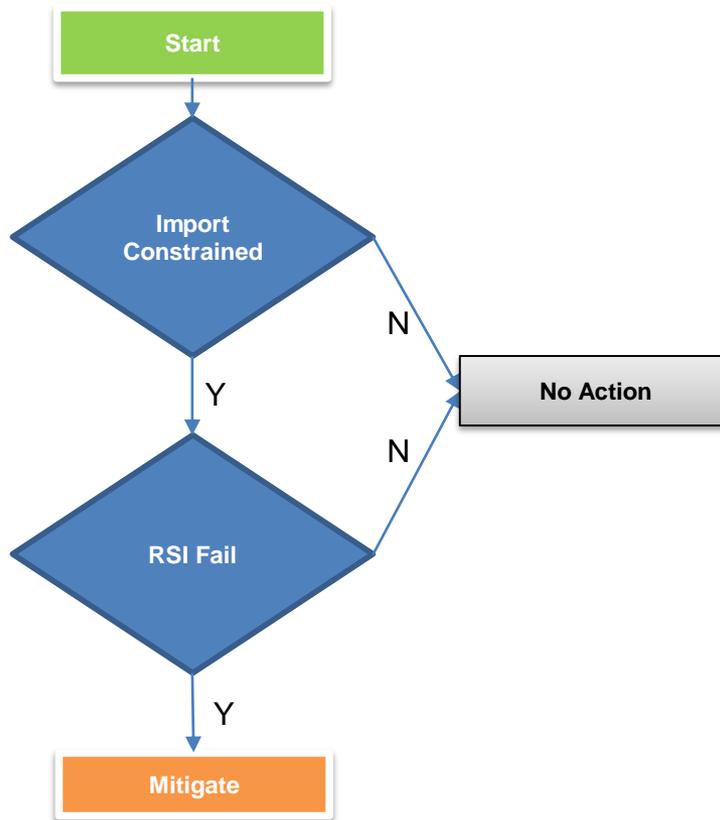
# Screen for uncompetitive conditions

## *Determine which market(s) to apply screens*

- Screen in the real-time market only
  - Ensure real-time market results are competitive
  - Rely on bid-in demand and convergence bids in the day-ahead market to mitigate potential day-ahead market power
- Screen in the day-ahead market and real-time market
  - Day-ahead market mitigation process will be different than real-time screen due to lack of EIM transfers

# Screen for uncompetitive conditions

*Determine how to apply various screens*



# Screen for uncompetitive conditions

## *Is the CAISO import constrained?*

- In what ways can the CAISO be import constrained?
  - CAISO is potentially import constrained at its interties
    - All intertie constraints are binding in the import direction
  - CAISO is potentially import constrained due to internal constraints
    - Internal transmission preventing delivery of external supply to demand
  - CAISO is potentially import constrained due to external constraints
    - External transmission preventing delivery of external supply to demand
    - External resource constraints (e.g. ramp capability)
    - Lack of supply bids
- Test if the CAISO balancing area is import constrained
  - If the CAISO balancing area power balance constraint shadow cost is higher than all other EIM balancing area shadow costs
  - Leverage existing LMPM run to avoid additional computational passes

# Screen for uncompetitive conditions

## *Can non-pivotal supply serve demand?*

- Calculate residual supply index for CAISO balancing area removing three pivotal suppliers
  - **Non-pivotal internal supply**
    - Sum of supply offers from non-pivotal suppliers at each internal generator limited by Pmax and ramp rate of that generator
  - **Non-pivotal import supply**
    - Sum of supply offers from non-pivotal suppliers offered at each import location limited by the transfer capability at that import location
  - **Demand**
    - Real-time market demand forecast

$$\frac{\text{NonPivotal Internal Supply} + \text{NonPivotal Import Supply}}{\text{Demand}}$$

# Screen for uncompetitive conditions

## *Determine when it is acceptable to trigger mitigation*

Import Constrained?	RSI failed?	Action
N	N	<b>Do not mitigate.</b> CAISO demand has access to competitive west-wide supply and internal conditions are competitive.
N	Y	<b>Mitigate?</b> CAISO demand has access to competitive west-wide supply, but internal conditions are potentially uncompetitive.
Y	N	<b>Do not mitigate.</b> CAISO demand does not have access to competitive west-wide supply, but internal conditions are otherwise competitive.
Y	Y	<b>Mitigate.</b> CAISO demand does not have access to competitive west-wide supply and internal conditions are potentially uncompetitive.

## Determine resources to mitigate

- CAISO could mitigate all resource offers
  - Internal, imports, voluntary, non-voluntary
- CAISO could mitigate internal resource offers only
  - Import offers may be extremely difficult for the CAISO to estimate costs
- CAISO could mitigate all resources that are obligated to bid into its market
  - Mitigate internal resources with resource adequacy contracts
  - Mitigate import resources with resource adequacy contracts
  - Do not mitigate any resource voluntarily participating in the market

# CAISO estimate of resource costs

- CAISO already has cost estimates or negotiated costs for internal resources
- CAISO could use an import bid safe-harbor threshold, based on potential import costs as its estimate for import costs
- Lacking a reasonable way to estimate costs that would apply to all import resources, the CAISO could require resource adequacy imports to negotiate costs
  - Requiring voluntary importers to negotiate costs may lead to less import participation, exacerbating structural conditions