### WESTERN ENERGY IMBALANCE MARKET

### Briefing on System Market Power Assessment

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#### Background

- The ISO balancing authority area has in the past been assumed to be competitive at a system-level
- Management committed to analyzing system-level market competiveness and addressing identified issues after DMM raised concerns in its 2017 annual report
- Management recently published analysis results and has begun discussing the appropriate next steps with stakeholders and the Market Surveillance Committee

#### Background

- The ISO analysis indicated potential uncompetitive conditions at a system-level in the ISO balancing area when supply is tight
- The ISO is evaluating whether it is appropriate to apply system-level market power mitigation to its balancing area
- Potential policy development would not change the existing EIM market power mitigation design

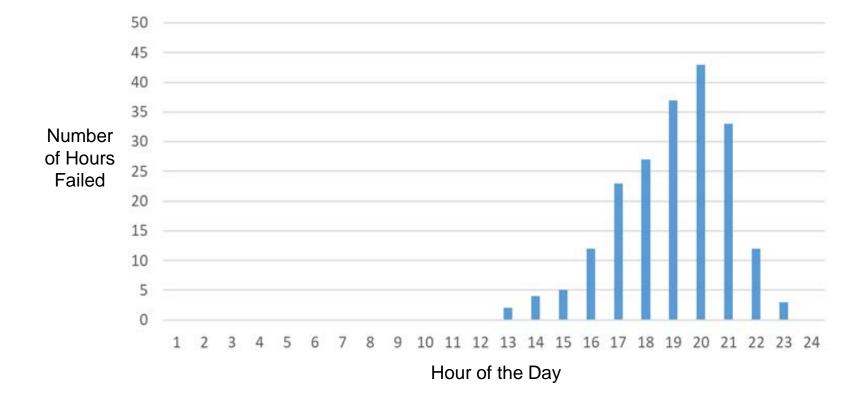
#### Background

- Energy imbalance market balancing areas outside the ISO are already subject to system-level market power screens
- EIM market power screens assume the ISO energy price is competitive
  - When an EIM balancing area is import constrained, system-level market power mitigation is applied to the EIM balancing area
  - Resources are mitigated to the greater of their default energy bid or the ISO competitive energy price

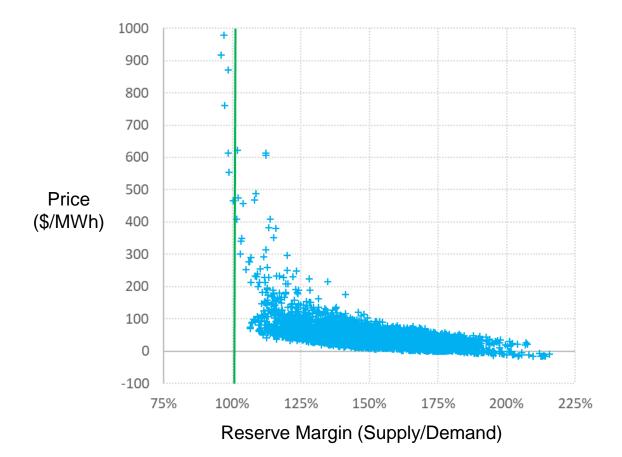
ISO's analysis shows a relatively small number of hours that the ISO balancing area fails a structural test for competitive conditions

- Analysis uses "residual supply index" test to evaluate competiveness
  - Evaluates whether load can be met without the three largest suppliers
- The ISO balancing area failed the test at the system level in about 2% of hours in 2018
- These failures generally occur during the net load peak hours when supply is tight
- Department of Market Monitoring metrics show increased price-cost markup in these same peak hours

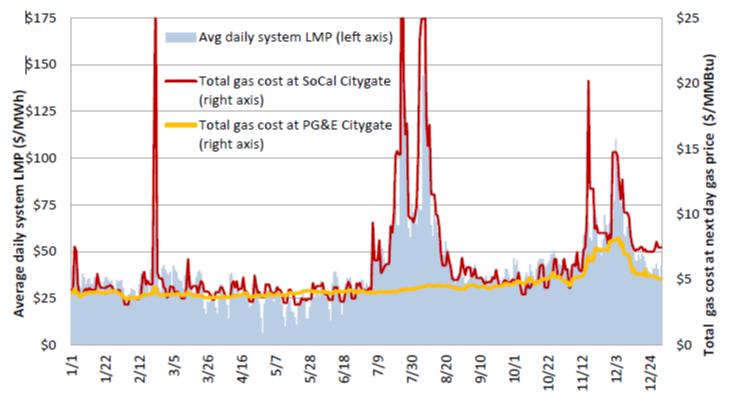
## Residual supply index test failures mostly occur in the net load peak hours as solar output decreases



# High ISO day-ahead market prices typically occur when supply is tight



### High day-ahead market prices occur when natural gas prices are high



DMM Annual Report on Market Issues & Performance, 2018

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A number of measures could address increased pricecost markup during times of tight supply

- Load-serving entity forward energy contracting
  - Hedges load, reduces incentives for supply to bid high
- Bilateral procurement of additional resources to increase supply during net load peak
  - Additional energy storage could add supply during net load peak as solar output decreases
- Enhanced ISO market scarcity pricing provisions
- System-level market power mitigation in ISO market
  - Would address increased price-cost markups but could reduce import supply
  - Difficult to estimate costs of import supply

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#### Next steps

- Continue discussions on the appropriate response with stakeholders and Market Surveillance Committee
  - September stakeholder working group meeting
  - October Market Surveillance Committee meeting
- Plan to brief the Board of Governors in November on determination of appropriate measures to address system market power concerns
  - Market Surveillance Committee will provide a written opinion on what measures should be taken to address system market power