



Briefing on stepped constraint parameters

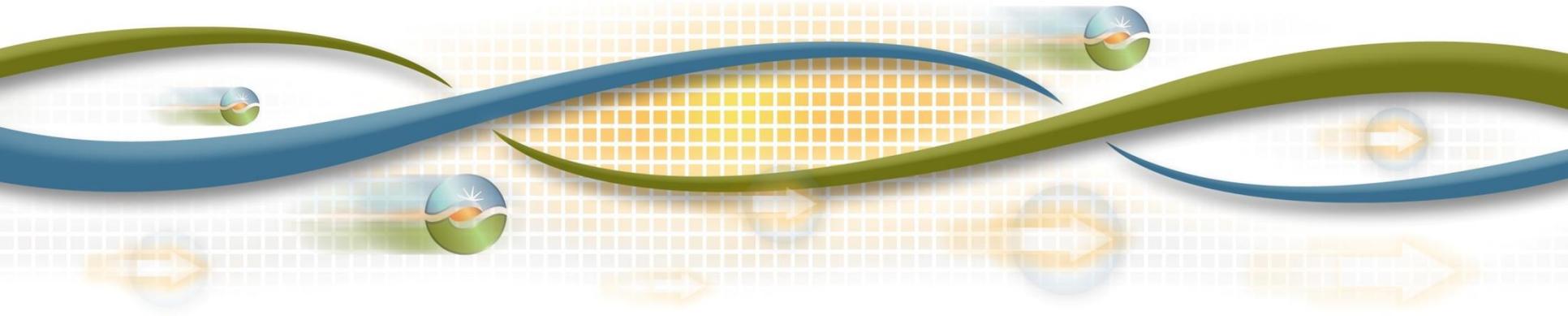
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Market Surveillance Committee Meeting

General Session

March 3, 2017



Agenda

- Changes from issue paper
- Transmission constraint parameter
- Power balance constraint
- FERC Order No. 831
- Next steps

Changes from issue paper

- Transmission constraint parameter (in)
- Shift factor effectiveness (out)
- Power balance constraint (in)
- EIM resources sufficiency evaluation (out)
- Lowering the energy bid floor (out)
- FERC Order No. 831 (new)

In light of Order 831 (new bid cap = \$2000 / MWh) propose to relax transmission constraint for low voltage violations

- Stakeholders did not support relaxation below bid cap, but in light of Order 831 ISO proposing a step above \$1000.
- \$2500 / MWh for 230kV and above, increased by \$1000 to reflect new bid cap
- In order for bids above \$1000 to set price, the bid must be validated prior to market run
- First step of \$1500 / MWh for 115kV and lower, in event original limit is exceeded by 2% or more then \$2500 / MWh

Adding a step to the power balance constraint to recognize that regulation can be used to balance supply and demand

- If sufficient regulation capacity headroom, then the price should to be set at the bid cap for small violations
- Current market software includes a step, but it is currently set at zero for the upward direction
- Operators will have the ability to set first step to 0 MW when concerned with AGC headroom

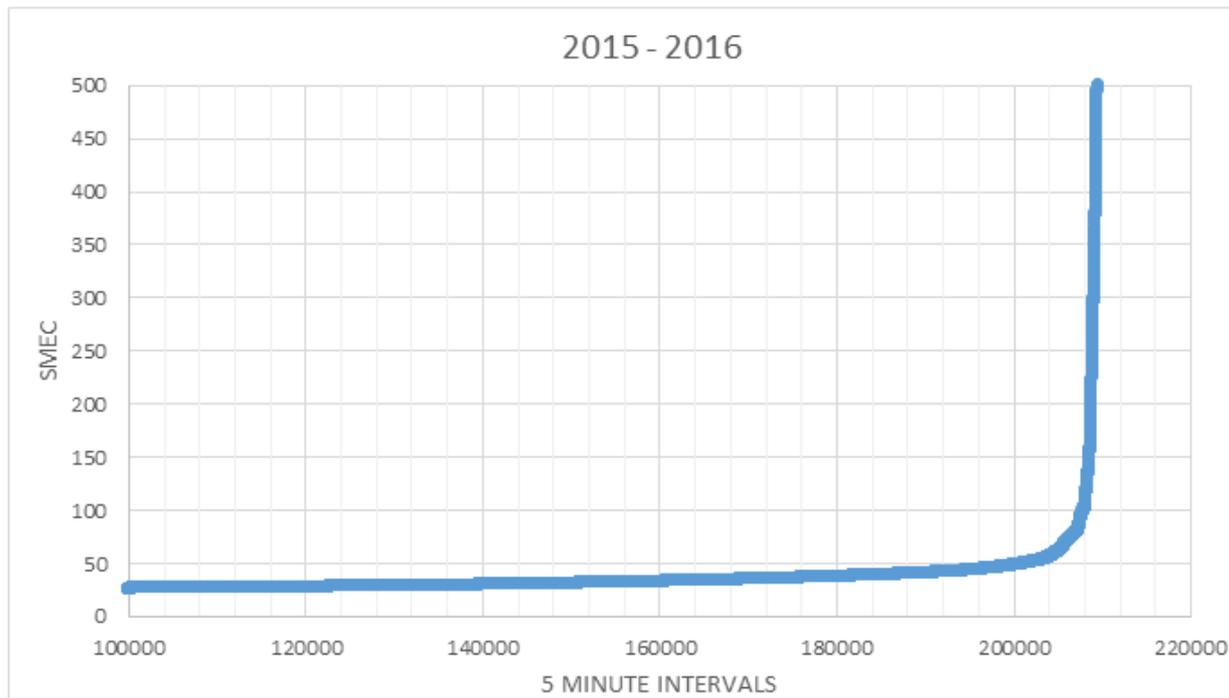
Proposing to set first power balance constraint step at 5% of hourly regulation up or upward available balancing capacity

- California ISO up to 10% regulation up procured
- EIM Entity up to 10% of submitted ABC up
- Actual amount used will be included in BPM



Proposing to price first PBC step above normal economic bids

- Price = \$155 /MWh, aligned with downward power balance constraint
- 99.15% of the time we are not passing over economic bids



Power balance constraint interaction with load conformance limiter

- Load conformance is a adjustment by operators to reflect actual system if different from load forecast
- Load conformance limiter prevents over adjustment caused by lumpy adjustments
- Limiter reduces the adjustment so that the adjustment is ramp feasible
- Then if bids exist above \$155, the market will relax the PBC and rely on AGC to balance supply and demand

Power balance constraint formulation in Energy Imbalance Market

- Power balance constraint for each EIM balancing authority, as well as a system power balance constraint
- Added a constraint to ensure available balancing capacity is used only to support local infeasibilities
- Same constraint ensures that relaxing the PBC is used only to support local infeasibilities

Power balance constraint interaction with available balancing capacity

- The first step of upward PBC is released at \$155 / MWh before releasing ABC
- If PBC violation exceeds the first step, then full ABC will be released
 - Resources identified as ABC are dispatch from telemetry
- Could result in PBC shortfall that is greater than ABC in a given interval before triggering penalty price at bid cap
 - Other resources will be used to balancing supply and demand
 - If PBC was relaxed in previous market interval and resources received AGC, this will reduce ABC in current market interval

Power balance constraint interaction with flexible ramping product

- FRP procures additional upward ramping capability through a demand curve
- Demand curve is capped at \$247 / MWh
- Could result in market relaxing PBC in current interval while holding ramping capability to meet future energy needs
- PBC step says we are comfortable using AGC to balance supply and demand in the current interval

Changes needed to comply with FERC Order No. 831

- Allow economic bids up to \$2000 / MWh
- Increased relevant penalty parameters by \$1000 / MWh to maintain priority order
- Will review changes to penalty prices to maintain relative priority and will include in draft final proposal

Next steps

Item	Date
Publish Straw Proposal	February 28, 2017
Stakeholder meeting	March 8, 2017
Stakeholder comments due	March 14, 2017
Publish Draft Final Proposal	March 28, 2017
Stakeholder call	April 4, 2017
Stakeholder comments due	April 11, 2017
EIM Governing Body Meeting	April 19, 2017
Board of Governors Meeting	May 1-2, 2017