



Briefing on stepped constraint parameters initiative

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Proposed scope of the stepped constraint parameters initiative

- Transmission constraint relaxation parameter
- Shift factor effectiveness threshold
- Power balance constraint relaxation parameter
- EIM transfer limit
- Lower energy bid floor

Recognize magnitude of transmission violation in transmission relaxation parameters (1 of 2)

- In 2013, parameter reduced from \$5000 to \$1500 to address high levels of real-time congestion offset
 - Higher relaxation parameter causes more re-dispatch to address congestion increasing RTCO
- In 2014, FMM introduced using the \$1500 parameter
 - 15-minute imbalance settlement further improved RTCO
- ISO proposing (?) to introduce a tier below the bid cap to relax the transmission constraint to minimize excessive re-dispatch

Recognize magnitude of transmission violation in transmission relaxation parameters (2 of 2)

- Propose to relax the transmission constraints based upon the magnitude of the violation and voltage level:
 - 230kV and above
 - \$750 parameter for below 2% in exceeding the original limit
 - \$1500 parameter for 2% or more in exceeding the original limit
 - Less than 230kV
 - \$500 parameter for below 2% in exceeding the original limit
 - \$1000 parameter for 2% or more in exceeding the original limit
- Balance minimizing excessive re-dispatch with appropriate levels of economic re-dispatch and reliability

Lower the shift factor effectiveness threshold from 2% to 0.1%

- 2% threshold ensures market solutions can be calculated and produce results supporting market timeline
- Computational power has increased since MRTU
- 0.1% improves market efficiency without negative impact to market timelines

Recognize that for intervals of small supply & demand differences scarcity pricing at the bid cap/floor not representative of system conditions (1 of 2)

- Other ISOs/RTO recognize that regulation or other reserves can be used for transient power balance violations
- Discussed during design of the EIM available balancing capacity proposal

Recognize that for intervals of small supply & demand differences scarcity pricing at the bid cap/floor not representative of system conditions (2 of 2)

- Define the appropriate MW quantity and price to be included in bid stack
 - For example, historical regulation MW and regulation cost
- Should address both positive and negative power balance constraint violations
- Need to consider interaction with flexible ramping product demand curve

Replace freezing of EIM transfers with a penalty mechanism to address “leaning” (1 of 2)

- Currently, if an EIM BAA fails the hourly resource sufficiency evaluation incremental transfers are not allowed
- This prevents resources in other EIM BAAs meeting imbalance needs
 - Could lead to triggering available balancing capacity or other constraint relaxation discussed above
- Penalty mechanism exists for under/over supply of load
 - The penalty does not impact the LMP

Replace freezing of EIM transfers with a penalty mechanism to address “leaning” (2 of 2)

- ISO believes the penalty approach may be more appropriate
 - Level of penalty determined by SMEC or LMP
 - Penalties collected are allocated to EIM BAAs that pass the hourly resource sufficiency evaluation
- Secondary allocation of costs/revenues is determined by EIM entity according to its OATT
- ISO needs to develop a secondary allocation or we could leverage existing approach for over/under scheduling

Lower bid floor to strengthen disincentive of self-scheduling

- Current floor is (\$150) with anticipation that price would be lowered to (\$300) in renewable integration: market and product review initiative
- Enhancements to the real-time market are addressing spurious price spikes
 - Flexible ramping down product will be implemented in Fall 2016
 - Stepped power balance constraint relaxation discussed earlier
- Given predicted over-supply and market enhancements is a (\$1000)/MWh bid floor achievable?