Stability Limits

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Stability Limits

- Stability limits are required when the output of one or multiple units must stay below a certain level to maintain voltage stability.
- This is a reliability issue that is not solved by the economic dispatch problem using thermal constraints.



Problems with Surrogate Constraints

- Surrogate constraints are not modelled consistently in the day-ahead and real-time markets.
- In the real-time market, surrogate constraints only bind when the state estimator resource output is exactly equal to the constraint limit.
 - Resource output fluctuates
 - Constraint may not bind
 - Constraint easily violates
- Modelling differences are easily identifiable to market participants.
- Virtuals can take advantage of these differences.



Problems with Derates

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- PJM requests outages submitted by generator when no physical problems exist.
- Not meeting must offer requirements
- Not meeting maximum emergency requirements





Proposed Capacity Constraints

- Capacity constraints are the best option
 - Limits the maximum dispatch output of one of multiple units
 - Consistent in day-ahead and real-time models
 - Allows for an economic dispatch of multiple units



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