



Stability Limitations Process and Challenges

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Special MIC, Stability Limits

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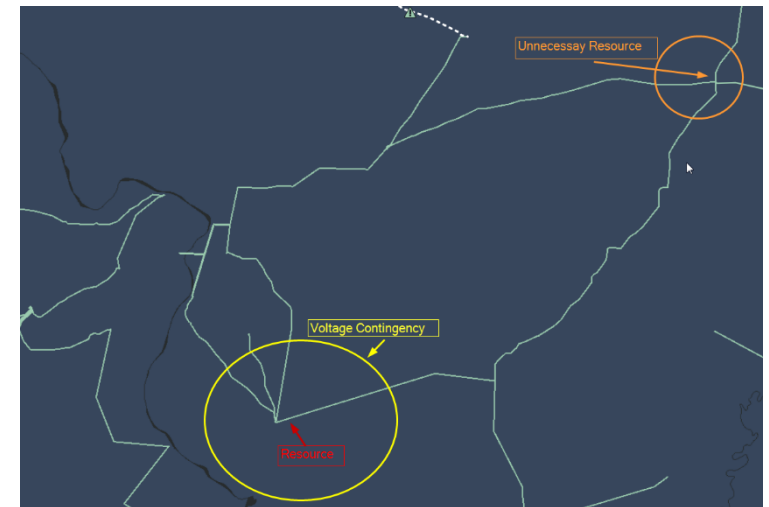
- Process [M-03 Section 3.9.1](#)
 - Identify limitation
 - Usually in the near term studies (2-3 day, monthly study)
 - Calculate stability limit and communicate to generation owner
 - Identify interface (surrogate)
 - If generator reduces Economic Max do not bind (i.e. set price)
 - If constraint binds handle similar to other constraints
 - Previously identified and documented stability constraints
 - Generation owner may have agreed to reductions ensuring stability

- Day-Ahead Binding
 - Reliability Engineer or support staff identify a surrogate
 - Stability Limit is established by Reliability Engineers running Transient Stability Analysis Tool (TSA) studies
 - TSA Studies can take 10-15 minutes to run
 - Limited number of studies can be run before the DA run
 - The Reliability Engineers communicate the Stability Limit and Surrogate to the Day-Ahead Market

- Real Time Binding
 - TSA identifies units
 - Increase MVAR output
 - Decrease MW output
 - Units are given manual instruction on MW & MVAR outputs
 - Surrogate is used to match MW adjustment with unit schedule increment
- Surrogate
 - Thermal constraint that is a proxy for the MW adjustments
 - Can be an actual overload or contingency overload
 - Reduced unit(s) has 100% dfax

- Bind Flag Logic
 - Logic sets the limit on the surrogate facility = SE flow on the facility
 - Fluctuations in unit output, SE timing and case execution
 - can cause surrogate to unbind or bind with high marginal value

- Marginal Value Adjustments
 - Raise is to set LMP for a resource with a higher effective cost (\$/MW), not relative to this discussion
 - Lower is to contain LMP to effective units
 - Occasionally the solution will reach out for small amount of additional relief
 - No additional relief is needed
 - Ineffective resource may set LMP



- M-03 Section 3.9
 - <https://pjm.com/-/media/documents/manuals/m03.ashx>

- Marginal Value Adjustments
 - Guidelines
 - <https://pjm.com/~-/media/committees-groups/committees/mic/20180627-special/20180627-item-02a-marginal-value-limit-manual-adjustment-guidelines.ashx>
 - Presentation
 - <https://pjm.com/~-/media/committees-groups/committees/mic/20180627-special/20180627-item-02-marginal-value-limit-adjustments-presentation.ashx>