



# Generation Stability Limits in MISO's Real-Time and Forward Processes

Reliability Subcommittee (RSC)

January 28, 2022

# Purpose & Key Takeaways



**Purpose:** Review Real-Time and Day-Ahead Solutions for Generation Stability limitations along with Proposed Tariff Updates

## Key Takeaways:

- Generation Stability Issues are increasing
- Generation Stability Limits Procedure defines the Day-Ahead (DA) and Real-Time (RT) processes to limit generation for system stability issues
- Proposed Tariff language changes align the Tariff with the Generation Stability Limits Procedure
- Feedback Requested for Proposed Tariff Language

# Generation Stability Issues

- TOP studies are showing an increased amount of stability issues due to the changing generation landscape
  - Frequency stability
  - Transient stability
  - Voltage stability
- ROWG-Closed Ad Hoc Group Created to address system stability
  - Develop Solutions for Stability Issues

# Generation Stability Limits Procedure (applies to DA and RT)

- Generation Stability Limits public procedure SO-P-NOP-00-497
- 2 options in the procedure for limiting generation due to system stability issues
  - Option 1
    - Transmission Operator (TOP) communicates the limitations to the Generator Operator (GOP)
    - GOP does not offer above limitations in the DA and RT
    - Valid for Planned Outages, Forced Outages, Provision/Conditional Limitations
  - Option 2
    - MISO creates a thermal interface or low impedance line to allow DA and RT to limit generation through binding
    - Operating guide is required
    - Thermal interfaces can only be created during a quarterly model update and are not RT solutions
    - Valid for Planned and Forced Outages

# Generation Stability Issues – Proposed Tariff Changes

- MISO's proposed Tariff changes are intended to align the tariff with the procedure and address two concerns:
  - Relieve Generator Operators concerns that following stability limitations could put them at compliance risk for Physical Withholding or Must Offer requirements
  - Protect the reliability of the system

# Examples of Proposed Tariff Changes

- Module C
  - Day-Ahead sections related to “Values in Offers” Section 39.2.5B (Sections 39.2.5, 39.2.5C, and 39.2.5D have similar tariff language updates)
    - c. Values in Offers. The values in Offers representing the non-price information identified in Section 39.2.5B.b shall reflect the actual known physical capabilities and characteristics of the External Asynchronous Resource on which the Offer is based. **Notwithstanding the foregoing, the values in Offers representing the non-price information identified in Section 39.2.5B.b shall reflect any limitation provided by the Transmission Provider or Transmission Operator, if lower than the actual physical capabilities and characteristics of the External Asynchronous Resource on which the Offer is based.**

# Examples of Proposed Tariff Changes

- Module C
  - Real Time sections related to “Values in Offers” – Section 40.2.5.e (Sections 40.2.6, 40.2.7, 40.2.7A, 40.2.7B, and 40.2.8 have similar Tariff language updates)
    - e. Values in Offers. ... Notwithstanding the foregoing, the values in Offers representing the non-price information identified in Section 40.2.5.b shall reflect any limitation provided by the Transmission Provider or Transmission Operator, if lower than the actual physical capabilities and characteristics of the Generation Resource, Demand Response Resource– Type II and/or Stored Energy Resource – Type II on which the Offer is based.

# Examples of Proposed Tariff Changes

- Module C
  - Rationale for DAMAP Section 40.3.6.1
    - If a Resource's Day-Ahead Offer does not reflect any limitation provided by the Transmission Provider or Transmission Operator, the Resource shall be ineligible for DAMAP. However, if a Resource is dispatched below its Day-Ahead Schedule due to a limitation provided by the Transmission Provider or Operator that was not known before the applicable Day-Ahead Offer, the Resource shall retain its eligibility for DAMAP.



# Examples of Proposed Tariff Changes

- Module D
  - Thresholds for Identifying Physical Withholding Section 64.1.1.b
    - However, the amounts considered withheld shall not include any amount not scheduled or Offered reflecting any limitation provided by the Transmission Provider or Transmission Operator for the duration of such limitation.

# Examples of Proposed Tariff Changes

- Module E-1
  - Capacity Resource Must Offer and Performance Requirements – Section 69.A.5.a
    - Additionally, this must offer obligation is modified to the extent the Capacity Resource is provided a limitation identified by the Transmission Provider or Transmission Operator for the duration of such limitation.

# Stakeholder Feedback Request

- MISO is requesting feedback on **Proposed Tariff Changes for Generation Limitations** that are provided by the **Transmission Provider (TP)** or **Transmission Operator (TOP)** by February 18, 2022.
- Feedback requests and responses are managed through MISO's Feedback Tool on the MISO website and may be accessed by the URL below:

<https://www.misoenergy.org/stakeholder-engagement/stakeholder-feedback/>

# Contact Information

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# Questions?