RDT Limit Change Process Review

Reliability Subcommittee
October 3, 2023
Purpose:
Review the RDT limit change process

Key Takeaways:

• RDT refers to an agreement between MISO, SPP, and the Joint Parties that governs flows across the Sub-Regions

• The Regional Transfer Operations Procedure contains the process for making RDT Limit changes

• RDT Limit changes are implemented in UDS for the real-time market
What is RDT?

- Regional Directional Transfer (RDT) refers to an agreement* (i.e., the "RDT Agreement") involving the North / South flows across MISO's footprint and their effects on neighboring grid operators' systems.
- These neighboring grid operators include and are commonly referred to as "SPP and the Joint Parties**"
- The RDT agreement includes Megawatt (MW) transfer limits for MISO’s North / South flows that are defined and managed in the Regional Transfer Operations Procedure (RTOP)

*https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20151013-5444
**Joint Parties include: TVA, AECI, LG&E/KU, Southern Company, and PowerSouth
Regional Transfer Operations Procedure (RTOP)

• The RTOP, as approved by the parties, outlines operator actions required to implement the provisions of the RDT Agreement in terms of:
  • Monitoring power transfers between the MISO South & MISO North regions
  • Maintaining power transfer within applicable RDT Limits
  • Managing congestion seen on neighboring systems caused by RDT
  • Managing emergency operations
RDT Limits (RDTL)

- RDT Limits are defined with a combination of firm and non-firm transmission capacity
- Firm transmission capacity:
  - North → South: 1,000 MWs
  - South → North: 1,000 MWs
- RDT Limits:
  - North → South: 3,000 MWs (1,000 firm + 2,000 non-firm)
  - South → North: 2,500 MWs (1,000 firm + 1,500 non-firm)
Changing RDT Limits (RDTL)

RDT Limits (RDTL) may be temporarily increased or decreased to avoid a system emergency*, or during emerging or actual system emergencies, provided doing so will not cause a system emergency in another entity

- What triggers a RDTL change request? Some examples:
  - MISO requests to raise the RDTL when more power is needed across the N/S interface to avoid an emergency
  - SPP & JPs request to lower the RDTL once completing RTOP congestion management steps (see appendix for details) and conditions worsen (i.e., there’s a major transmission outage)

- Temporary limit adjustments require:
  - Requested amount of the adjustment and expected duration of the adjustment

- Assessment of adjustment should be completed timely and less than 30 minutes
  - To evaluate the request, MISO compares the reduction MW amount to available system capacity and reserve margins to ensure that there is enough supply to meet demand

- RDTL adjustments are communicated between all Parties, including:
  - Reason for the RDTL change
  - Value of the adjusted RDTL

- MISO RC modifies limit in UDS

- RDTL shall be returned to normal as soon as system conditions warrant

*As used herein, “system emergency” refers to operational circumstances that directly impact transmission system reliability and shall not include circumstances or factors related to cost of generation, congestion pricing or other such economic considerations.
Scenario: Conditions are tight across parts of the Southern/Midwest eastern interconnect and MISO is flowing 3,000 MWs North → South. One of the Joint Parties experiences a sudden transmission outage and resulting system conditions reveal that a RDTL change may help relieve resulting transmission constraints.
Example RDTL Change (Continued)

• A Joint Party requests elimination of all non-firm RDT flows for 2 hours. Since MISO is flowing 3,000 MWs N/S, this would cut 2,000 MWs of flow and reduce the RDTL to 1,000 MWs.
• MISO determines the RDTL change won’t cause a system emergency since there is enough available capacity and reserve margins.
• RDTL adjustments are communicated between all Parties:
  • Reason for the RDTL change: transmission outage
  • Value of the adjusted RDTL: 1,000 MWs
• MISO modifies the RDTL in UDS accordingly
  • This would typically result in re-dispatch of resources to account for transfer changes
• Parties continuously monitor and communicate throughout the duration of RDTL change.
• As conditions improve, parties re-assess the need for the RDTL change.
• Once conditions warrant, the RDTL is re-adjusted to normal: 3,000 MWs N/S.
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Appendix: Monitoring and Controlling to Limits

- The MISO RC, SPP RC, TVA RC, and Southeastern RC continuously monitor the RDT in real time compared to the RDT Limits
- Parties use congestion management actions to manage transmission constraints, including redispatch or reduction of RDT Limits
- The general order of normal congestion management is as follows:
  - Dynamic and emergency ratings, as applicable
  - Market-to-Market redispatch (MISO and SPP only)
  - TLR 3 (if a study TLR indicates available relief)
  - Utilize RDT specific IDC tool to obtain non-firm RDT relief
  - MISO will implement curtailments as instructed by the IDC tool
  - TLR 4 (Transmission reconfiguration)
  - Load modifying resources where applicable
  - TLR 5 (generation dispatch via GTL)