

MISO Investigation Report on the NERC TLR Level 5 Event
Manitoba Hydro
Flowgate 6002: MHEX_S Interface
April 12, 2010

Report submitted to NERC on: May 12, 2010

This report is submitted in accordance with the NERC Transmission Loading Relief (TLR) Investigation Procedure for the TLR events that occurred on Flowgate 6002 on April 12, 2010. This event resulted in curtailment of Firm transactions.

1. Description of purpose/cause of hold/curtailment:

The definition of flowgate 6002 is listed below.

Monitored Facilities: Dorsey-Roseau 500kV line
Glenboro-Rugby 230kV line
Richer-Roseau 230kV line
Letellier-Drayton 230kV line

2. Facility/Flow gate limitations and flow at the time the TLR was initiated:

Midwest ISO, along with Manitoba Hydro has developed a standing operating guide to provide guidance for operators to manage real time flow on the MHEX_S Interface.

On April 12, 2010, a TLR 5 was required to reduce the real-time south flows across the Dorsey-Forbes 500kV line (D602F). The Chisago Transformer 500/345kV TR10 was returning to service ahead-of-schedule and MHEB needed time to study affects on the MHEX_S interface. This is one element of the MHEX_S Interface into the USA.

At 14:20 EST, MHEB informed MISO that they needed TLR the MHEX_S flowgate 6002 to reduce the real-time schedules due to the return of the Chisago TR10 Xfmr 500/345kV to service. SOL limit = 985MW.

At 14:26 EST, MISO issued a TLR-5B for across 14:45 EST on the MHEX_S flowgate 6002 to reduce the real-time flows.

At 14:47 EST, MHEB defined new limits for FG6002; SOL = 1900MW, Scheduling = 1675MW.

At 14:52 EST, MISO issued a TLR-0 for across 15:15 EST on FG 6002 thus ending the TLR.

As the NERC IDC showed insufficient non-firm schedule curtailments to relieve flows to the necessary levels, TLR-5 was issued for 1 issuance over the duration of this event.

3. TLR Level 5 issuance information, timing (EST), firm tag information obtained for flow gate #6002 April 12, 2010:

TLR LEVEL	TIME (EST)	Firm Transaction / Curtailment Information	NNL Reduction Requirement
5B	14:45	11 tags of (7-F & 7-FN) = 531 MW schedules curtailed to provide 531 MW relief	None
0	15:15	Terminated TLR	None

NNL Mitigation:

- There were no NNL obligations for this TLR 5.

4. Transmission and generation outage or changes from prediction that may have contributed:

Significant Forced Transmission Outages:

Prairie-Winger 230kV

Significant Generator Outages:

Coal Creek 2	550
King 1	611
Sherburne County 2	769
Laramie River 1	585
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	2515

System Condition Summary:

Chisago 500/3345kV TR10 transformer was returning to service. Heavy North-South flows on the MHEX_S interface.

5. Procedures implemented prior to hold/curtailment:

None – this issue is covered by the Standing op-guide

6. Compare Complete Transaction Curtailment List with the Whole Transaction List as generated by the IDC, before and after curtailments:

Firm transactions impacting the flow gate by 5% or greater were partially curtailed and reloaded.

7. Known Transactions not in the IDC and actions taken:

There were no known transactions not in the IDC at the time this TLR was in effect that were impacting this flow gate.

8. RCIS or other system messages:

Information was provided to NERC Reliability Coordinators via the NERC IDC. The IDC automatically sends TLR Level information to the RCIS. Curtailment information was communicated to the MISO control areas via the MISO MCN and ICCS messaging systems.

9. State estimator snapshots and security analysis including contingency analysis or stability analysis along with any other recorded data indicating the need for TLR:

None – this issue is covered by the Standing op-guide

10. ATC Limitations before, during, and after the event:

None – this issue is covered by the Standing op-guide

11. Description of actions taken to avoid future hold/curtailments:

None – this issue is covered by the Standing op-guide

12. Re-dispatch actions taken:

None – this issue is covered by the Standing op-guide

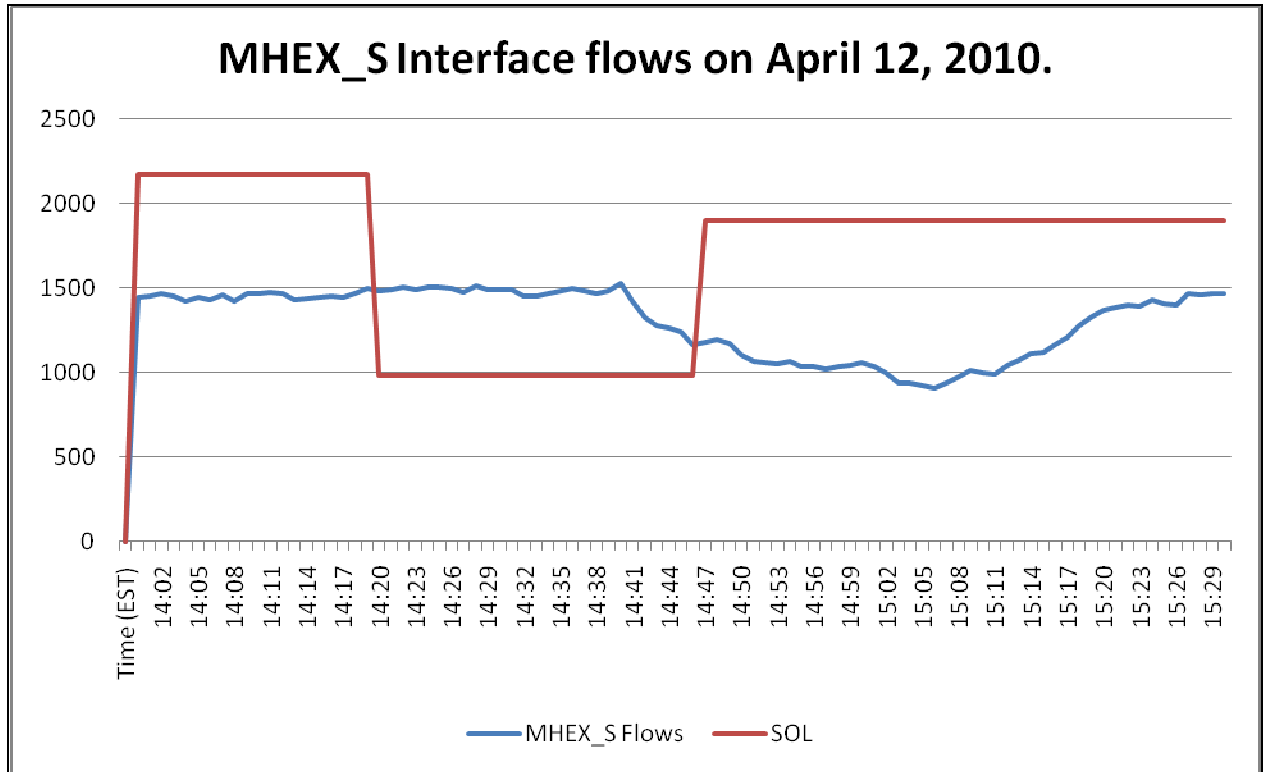
13. If Firm transaction curtailments took place, description of Transactional Contribution Factor calculation and results as well as how necessary relief was obtained through network service and native load contributions:

Firm schedules were curtailed as detailed in section 3 above.

14. Other options considered before/during to avoid hold/curtailment:

None – this issue is covered by the Standing op-guide

15. The following chart identifies the flowgate loading for the TLR level 5 event:



Note: No SOL violation due to the limit being more conservative than needed as shown by the increase of the limit after the studies were completed.

16. Lessons Learned

The MHEB and MISO Operators reacted appropriately to the transformer returning early by taking a more conservative approach with the Interface limit until Studies could be completed to determine the actual limits. TLR could have been started sooner than across 14:45 EST to reduce flows quicker.

MHEB and MISO will continue to work closely to ensure the Interface limits are respected.