

**MISO Investigation Report on the NERC TLR Level 5 Event
Manitoba Hydro
Flowgate 6002: MHEX_S Interface
August 30, 2010 (III)**

Report submitted to NERC on: September 27, 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 August 30, 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 August 30, 2010, a TLR 5 was required to reduce the scheduled and real-time south flows across flowgate 6002 due to the previous forced outage of the Forbes Caps. Interface FG 6002 must be operated to the most restrictive scheduling limit of 1455MW until the situation can be diagnosed and studied. SOL limit = 1680MW. The FG was overscheduled.

At 15:45 EST, MHEB informed MISO that they needed TLR on the MHEX_S flowgate 6002 to reduce the scheduled and real-time flows to 1455MW on FG 6002 due to the forced outage of the Forbes SVC.

At 17:42 EST, MISO re-issued the TLR-5A as a TLR-0 for across 18:00 EST on FG 6002 thus ending the TLR. A study was completed that raised the scheduling limit to 1775MW and the SOL limit to 2000MW at 1730 EST.

At 22:10 EST, MISO issued a TLR-5B for across 22:15 EST on the MHEX_S flowgate 6002 to reduce the schedules below the limit of 1455MW. This is an overscheduled event.

At 22:32 EST, MISO re-issued the TLR-5B as a TLR-3A for across 23:00 EST on FG 6002.

At 23:11 EST, MISO re-issued the TLR-3A as a TLR-0 for across 23:15 EST on FG 6002 thus ending the TLR. Limits back to normal 1950MW scheduling and 2175 SOL.

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 August 30, 2010:

TLR LEVEL	TIME (EST)	Firm Transaction / Curtailment Information	NNL Reduction Requirement
5B	22:15	13 tags of (7-F and 7-FN) = 18 MW schedules curtailed to provide 18 MW relief	None
3A	23:00	No Firm Curtailments	None
0	23:15	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:

Forbes Caps 30K and 31K
Forbes SVC

Significant Generator Outages:

None

System Condition Summary:

Forced outage on the Forbes Caps, Forbes SVC, along with the scheduled maintenance of Jamestown-Pickert 230kV resulted in a lower limit on the MHEX_S interface. This was an overscheduled event.

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:

A temporary operating guide has been issued which provides additional limits for 19 scenarios with the Forbes (MSC) out of service so that default limits do not have to be implemented upon identified double forced outage scenarios.

12. Re-dispatch actions taken:

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

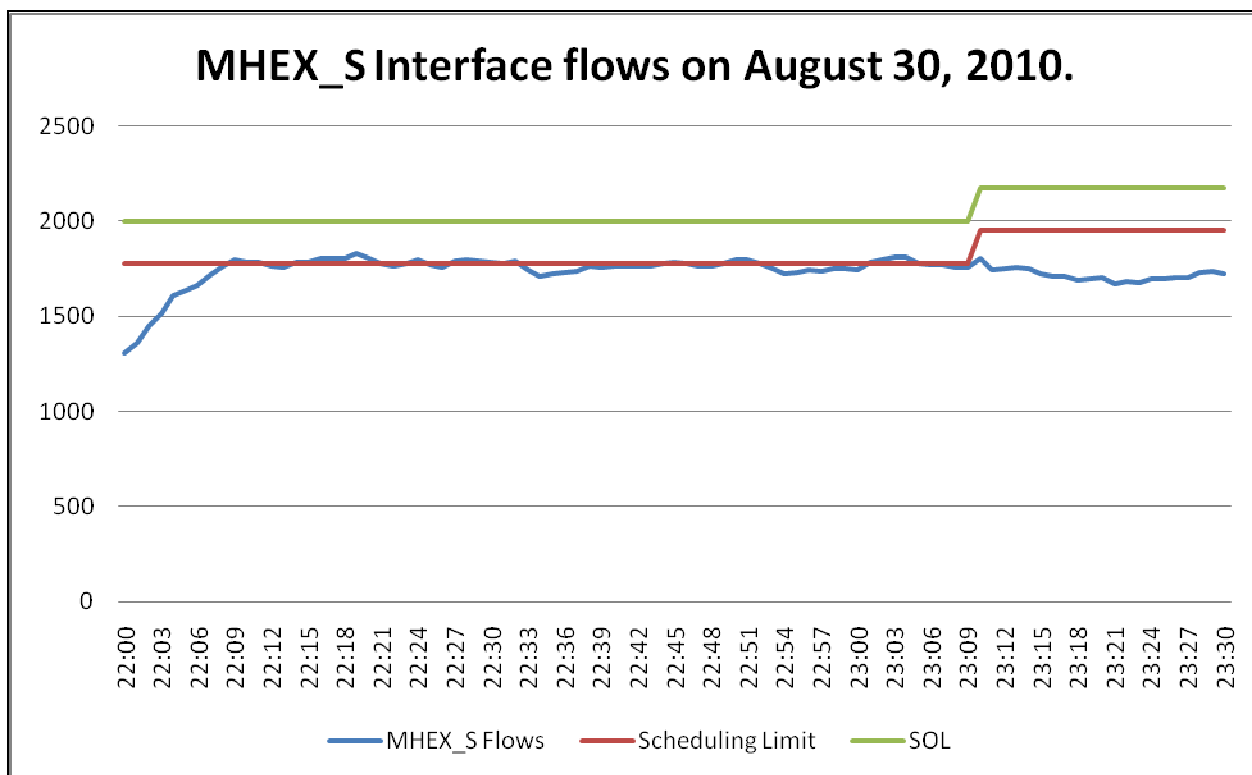
13. If Firm transaction curtailments took place, description of Transactional Contribution Factor calculation and results as well as how necessary relief was obtained through network service and native load contributions:

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:



16. Lessons Learned

The MHEB and MISO Operators reacted appropriately to the forced outage of the Forbes Caps, Forbes SVC along with the scheduled maintenance of Jamestown-Pickert 230kV that resulted in a lower limit on the MHEX_S interface. This was an overscheduled event.

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