

MISO Investigation Report on the NERC TLR Level 5 Event
Manitoba Hydro
Flowgate 6002: MHEX_S Interface
April 27, 2010

Report submitted to NERC on: May 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 April 27, 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 27, 2010, a TLR 5 was required to reduce the real-time & scheduled south flows across flowgate 6002 due to pre-planning for the scheduled outage of the Forbes SVC. This outage also made the Forbes Cap Banks 30k & 31k unavailable for the duration of the outage. Scheduling limit was lowered to 985MW. This is one element of the MHEX_S Interface into the USA.

At 08:50 EST, MHEB informed MISO that they needed TLR the MHEX_S flowgate 6002 to reduce the schedules on FG 6002 due to the Forbes SVC outage.

At 08:52 EST, MISO issued a TLR-5A for across 09:05 EST on the MHEX_S flowgate 6002 to reduce the schedules & real-time flows below the scheduling limit. At this same time the MHEB-MISO EAR was curtailed to a cap of 213mws per MHEB request.

At 09:37 EST, MISO re-issued the TLR-5A to a TLR-3A for across 10:00 EST on flowgate 6002 when MHEB informed MISO of the new scheduling limit of 1525MW..

At 14:09 EST, MHEB requested to a TLR-0 on FG 6002 due to the Forbes SVC being returned to service at 14:15 EST, thus ending the TLR. The TLR-0 was issued at 14:09 EST for across 14:30 EST.

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

3. TLR Level 5 issuance information, timing (EST), firm tag information obtained for flow gate #6002 April 27, 2010:

TLR LEVEL	TIME (EST)	Firm Transaction / Curtailment Information	NNL Reduction Requirement
5A	09:05	15 tags of (7-F & 7-FN) = 334 MW schedules curtailed to provide 334 MW relief	None
3A	10:00	No Firm Curtailments	None
0	14:30	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:

Duane Arnold	640
JP Madgett	412
Coal Creek 2	550
Council Bluffs 4	800
Prairie Island 2	563
Antelope Valley 2	480
	=====
	3445

System Condition Summary:

The scheduled outage of the Forbes SVC made the Forbes Cap banks 30k & 31k unavailable, this reduced the scheduling limit on the 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

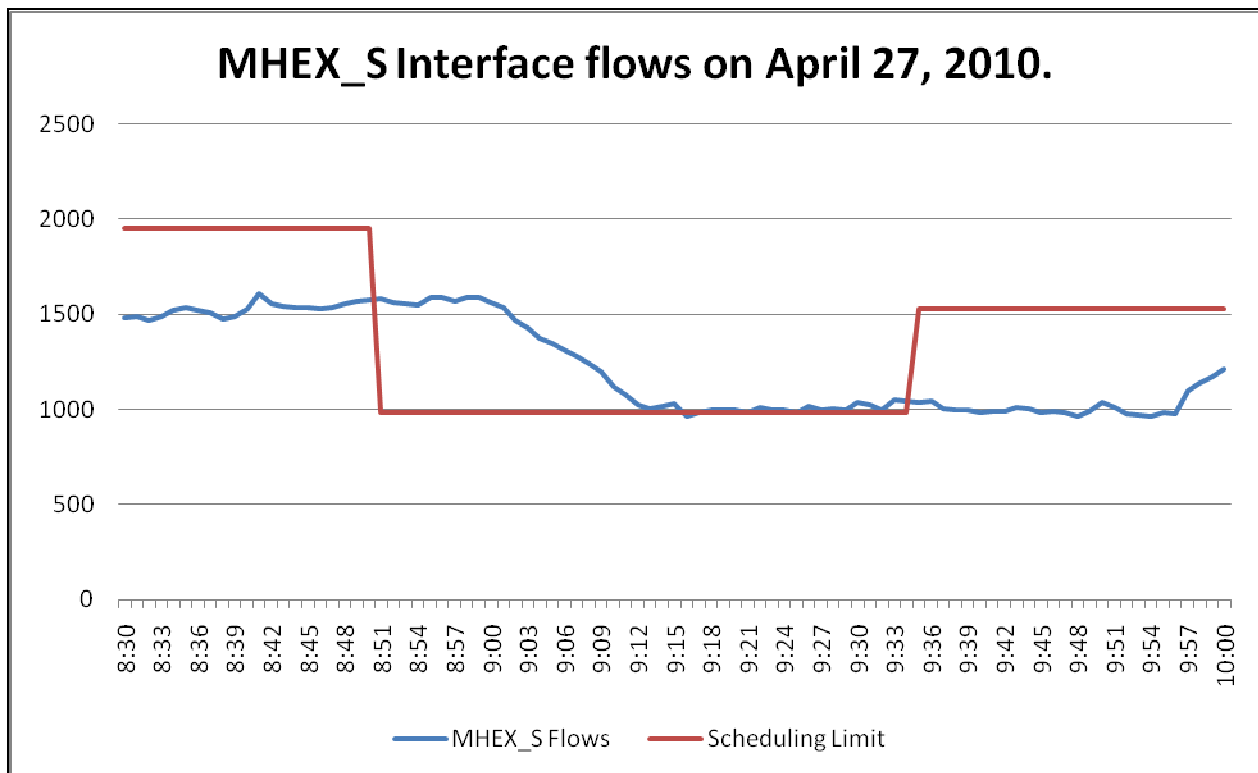
13. If Firm transaction curtailments took place, description of Transactional Contribution Factor calculation and results as well as how necessary relief was obtained through network service and native load contributions:

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:



16. Lessons Learned

The MHEB and MISO Operators reacted appropriately to the outage of the Forbes SVC & Caps 30k & 31k and their impact on the MHEX_S Interface.

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