

**MISO Investigation Report on the NERC TLR Level 5 Event  
Manitoba Hydro  
Flowgate 6002: MHEX\_S Interface  
April 30, 2010**

Report submitted to NERC on: June 01, 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 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. There was also a special op-guide in effect for this testing.

On April 30, 2010, a TLR 5 was required to reduce the scheduled south flows across flowgate 6002 due to the extension of testing on the Roseau Cap Bank. Schedules were to increase from 400MW to 1100MW but must remain at 400MW until testing is completed.

At 03:10 EST, MHEB informed MISO that they needed TLR-1 the MHEX\_S flowgate 6002 to notify the Eastern Interconnection of a reduce limit on the FG caused by the testing of the Roseau Cap Bank. MISO issued the TLR-1 on FG 6002 at 03:10 EST for across 03:15 EST.

At 03:30 EST, MHEB notified MISO that the testing would not be completed on time and they requested a TLR-5 to reduce the schedules to the stated limit of 400MW.

At 03:52 EST, MISO issued a TLR-5A for across 04:00 EST on the MHEX\_S flowgate 6002 to reduce the scheduled flows below the limit of 400MW.

At 04:30 EST, MHEB notified that the Roseau Cap Bank testing was completed and requested a TLR-0 on Interface FG 6002 MHEX\_S.

At 04:30 EST, MISO re-issued the TLR-5A to a TLR-0 for across 14:45 EST on flowgate 6002 thus ending the TLR

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

**3. TLR Level 5 issuance information, timing (EST), firm tag information obtained for flow gate #6002 April 30, 2010:**

<b>TLR LEVEL</b>	<b>TIME (EST)</b>	<b>Firm Transaction / Curtailment Information</b>	<b>NNL Reduction Requirement</b>
1	03:15	No Curtailments	None
5A	04:00	12 tags of (7-F & 7-FN) = 770 MW schedules curtailed to provide 770 MW relief	None
5A	04:00	12 tags of (7-F & 7-FN) = 1026 MW schedules curtailed to provide 1026 MW relief	None
0	04:30	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
Boswell 4	563
Coal Creek 2	550
Council Bluffs 4	800
Gentleman 2	732
Prairie Island 2	563
Sherburne County 2	769
Nebraska City 2	670
Antelope Valley 1	480
Antelope Valley 2	480
Laramie River 1	585
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**System Condition Summary:**

Reduced MHEX\_S limit caused by a schedule outage that needed to be extended to allow for completion.

**5. Procedures implemented prior to hold/curtailment:**

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

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

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

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

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

**12. Re-dispatch actions taken:**

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

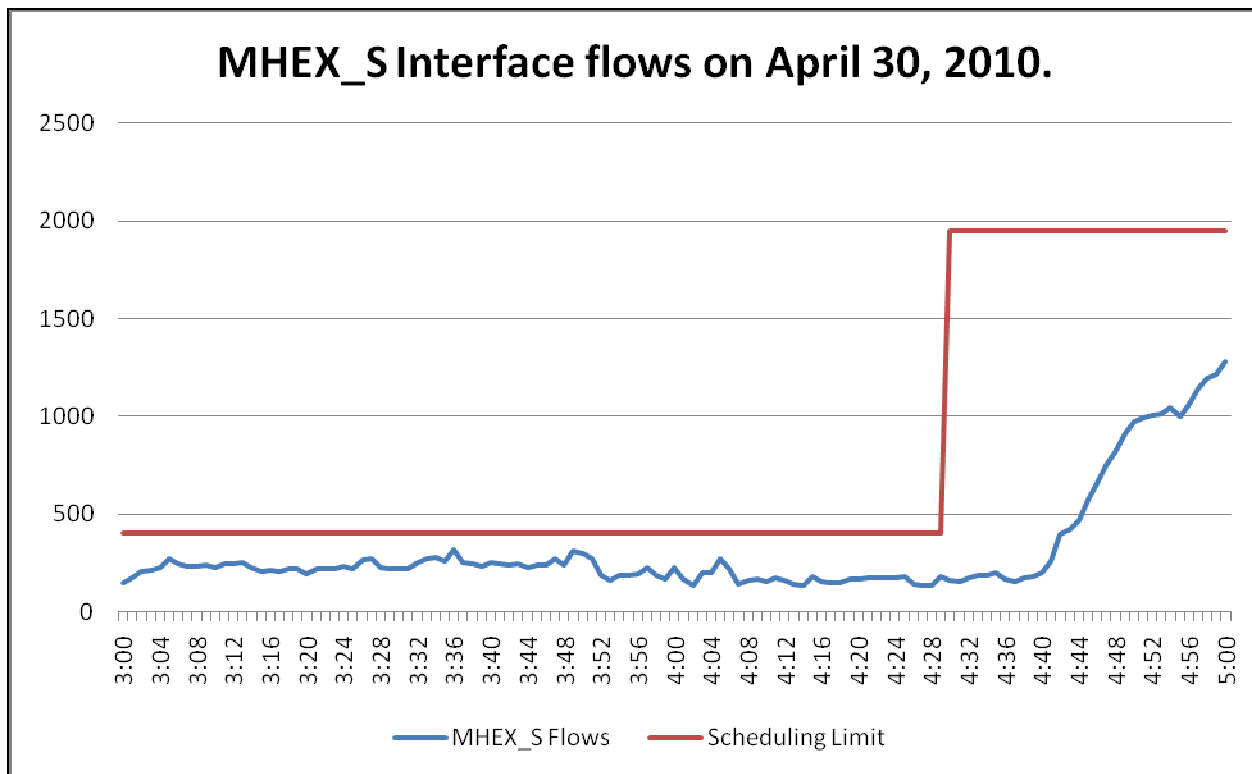
**13. If Firm transaction curtailments took place, description of Transactional Contribution Factor calculation and results as well as how necessary relief was obtained through network service and native load contributions:**

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 Special & 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 extended testing on the Roseau Cap Bank.

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