

MISO Investigation Report on the NERC TLR Level 5 Event
Manitoba Hydro
Flowgate 6061: R50M 230kV
April 9, 2010

Report submitted to NERC on: May 3, 2010

This report is submitted in accordance with the NERC Transmission Loading Relief (TLR) Investigation Procedure for the TLR events that occurred on Flowgate 6061 on April 9, 2010. This event resulted in curtailment of Firm transactions.

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

The definition of flowgate 6061 is listed below.

Monitored Facilities: Richer-Roseau 230kV line
Roseau-Moranville 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 with the Dorsey-Forbes 500kV line out of service.

On April 9, 2010, a TLR 5 was required to reduce the real-time south flows across the Richer-Moranville 230kV line (R50M). This is one element of the MHEX_S Interface into the USA.

At 14:08 EST, MHEB informed MISO that they needed TLR on the MHEX_S flowgate 6002 due to the real-time flows on the R50M circuit. The heavy flows were due to outage of the Dorsey-Forbes 500kV line (D602F) and the previously forced outage of Prairie-Winger 230kV. Limit on the line is 230MVA.

At 14:11 EST, MISO issued a TLR-5B for across 14:20 EST on R50M flowgate 6061 to maintain real-time flows below the limit.

At 15:34 EST, MISO issued a TLR-5A for across 16:00 EST on R50M flowgate 6061 to maintain real-time flows below the limit.

At 18:41 EST, MISO issued a TLR-0 for across 19:00 EST on FG 6061 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 4 continuous issuances over the duration of this event.

3. TLR Level 5 issuance information, timing (EST), firm tag information obtained for flow gate #6002 April 9, 2010:

TLR LEVEL	TIME (EST)	Firm Transaction / Curtailment Information	NNL Reduction Requirement
5B	14:20	6 tags of (7-F & 7-FN) = 60 MW schedules curtailed to provide 15.3 MW relief	MP = 3.5 MWs; OTP = 2.1 MWs
5A	16:00	5 tags of (7-F & 7-FN) = 24 MW schedules curtailed to provide 6.1 MW relief	MP = 1.1 MWs; OTP = 0.6 MWs
5A	17:00	0 tags of (7-F & 7-FN) = 00 MW schedules curtailed to provide 0 MW relief	None
5A	18:00	0 tags of (7-F & 7-FN) = 0 MW schedules curtailed to provide 0 MW relief	None
0	19:00	Terminated TLR	None

NNL Mitigation:

- MP had NNL obligation for this TLR 5. MP's NNL was mitigated through binding on the constraint in the MISO market. Oliver wind was also reduced from 69 MWs to 0 MWs and had a 6.2% GSF to give 4.2 MWs of relief on the flowgate.
- OTP had NNL obligation for this TLR 5. OTP's NNL was mitigated through binding on the constraint in the MISO market. Langdon wind was also reduced from 74 MWs to 0 MWs and had a 12.5% GSF to give 9.25 MWs of relief on the flowgate.

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

Significant Transmission Outages:

Dorsey-Forbes 500kV – Planned
 Prairie-Winger 230kV – continued Forced

Significant Generator Outages:

Coal Creek 2	550
King 1	611
Sherburne County 2	769
	====
	1930

System Condition Summary:

Heavy South-North flows across the interface resulted from the outages above as well as high wind production from North Dakota.

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:

Wind curtailments were in place as prescribed by the Op-guide in affect at the time.

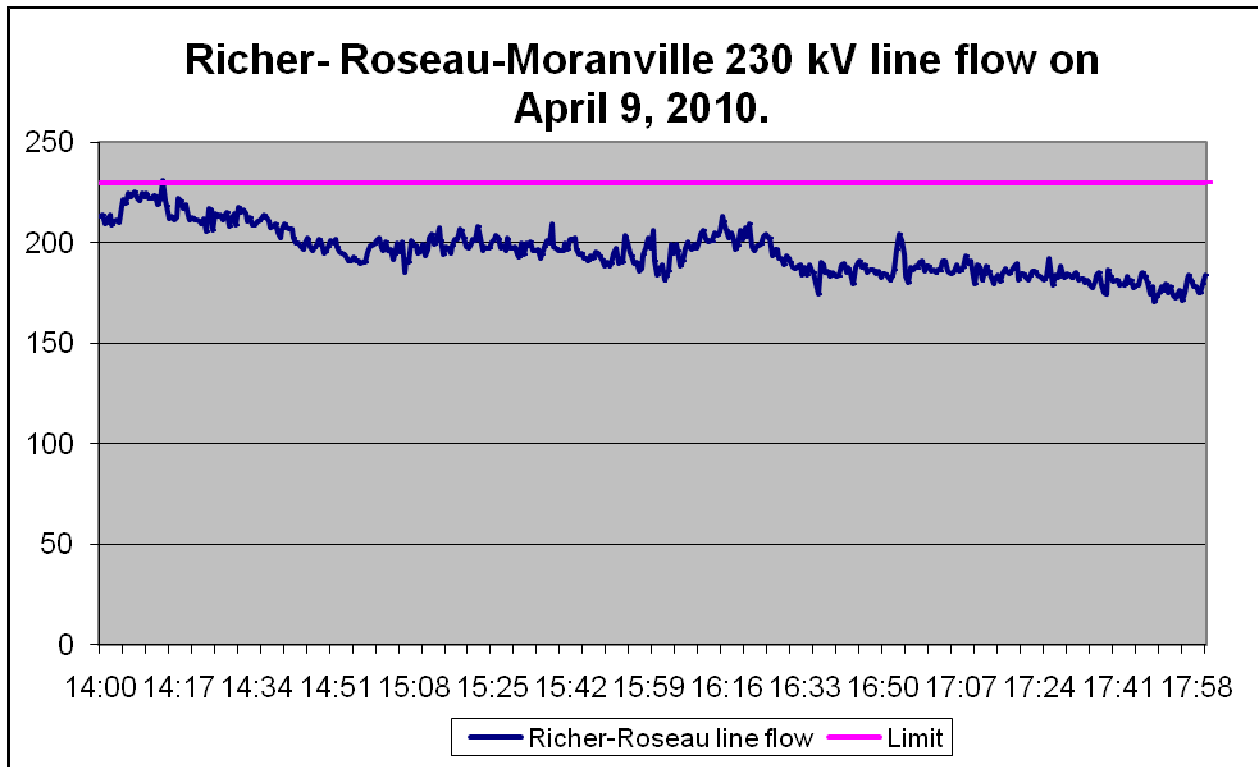
13. If Firm transaction curtailments took place, description of Transactional Contribution Factor calculation and results as well as how necessary relief was obtained through network service and native load contributions:

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

MISO should of called a TLR level 5 on FG 6002 MHEX_S due to a standing instruction, this TLR did curtail the same transactions that MHEX_S would have curtailed but NNL calculations are being reviewed.

MHEB and MISO will continue to work closely to ensure the region is operated in a reliable manner.