

Price Revision Incident Report – 8 February 2009

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Introduction

On Sunday, 8 February 2009, NEMMCO identified DIs 09:40hrs to 10:00hrs as being affected by a manifestly incorrect input (MII). The intervals between dispatch intervals (DIs) ending 09:40hrs to 09:55hrs were not triggered as “subjected to review” (STR) as the change in prices and interconnector flows were not above the trigger threshold. The DI 10:00hrs and DI 10:05hrs were automatically triggered as STR in accordance with National Electricity Rule (NER) 3.9.2B.

It was found that inappropriate constraint equations had been invoked. The prices at DI 10:00hrs were rejected and replaced with the corresponding prices for the preceding DI 09:55hrs. This report describes the circumstances of the event and provides the information required to be published in accordance with NER 3.9.2B(g).

Subject to review trigger

The trigger thresholds for identifying DIs as STR relate to changes in regional price and interconnector dispatch targets, and are described in NEMMCO’s annual review of price revision triggers “**Effectiveness of Procedures for Manifestly Incorrect Inputs**” (For a copy, please refer to <http://www.nemmco.com.au/powersystemops/140-0104.html>).

The Queensland and New South Wales energy prices, and QNI and Terranora interconnector target flow between DI 09:35hrs and DI 09:55hrs are listed in Table 1. These intervals were not triggered as STR.

	DI 09:35hrs	DI 09:40hrs	DI 09:45hrs	DI 09:50hrs	DI 09:55hrs
Queensland Price	\$107.66/MWh	\$67.16/MWh	\$55.14/MWh	\$54.79/MWh	\$54.46/MWh
New South Wales Price	\$118/MWh	\$73.16/MWh	\$59.98/MWh	\$59.98/MWh	\$59.98/MWh
Terranora Target Flow	-81MW	-81MW	-8.2MW	-8.2MW	-8.2MW
QNI Target Flow	-701.85MW	-666.87MW	-643.27MW	-679.5MW	-724.56MW

Table 1: Energy price and interconnector flows between DI 09:35hrs to DI 09:55hrs

The DI 10:00hrs was automatically triggered as STR due to significant price changes in Queensland and New South Wales, and significant power flow changes across both the QNI and Terranora interconnectors. Table 2 lists the energy prices and interconnector flow differences as well as the corresponding trigger threshold differences.

	DI 09:55	DI 10:00	Difference to trigger	Threshold
Queensland Price	\$54.46/MWh	-\$26.88/MWh	3.03 times	3 times
New South Wales Price	\$59.98/MWh	\$289.30/MWh	3.82 times	3 times
Terranora flow target	-8.2MW	-168.2 MW	160 MW	80 MW
QNI flow target	-724.56 MW	-88 MW	636.56 MW	240/450 MW ¹

Table 2: Triggers above the thresholds for DI 10:00hrs

¹ Threshold of 240MW for a price change in Queensland and 450MW for a price change in New South Wales

Identified incorrect input

At 07:45hrs, NEMMCO was advised that the Directlink transmission facility was unable to follow target flows due to communication link problems. A constraint set was invoked to match the dispatch and the flow of the interconnector. At 09:40hrs, another constraint set was invoked with the intention to match the new dispatch output of the interconnector. The sequence of constraint sets invoked during this period was as follows:

Constraint	Invoke	Revoke	Interconnector Flow (MW)
#N-Q-MNSP1_E	08/02/2009 07:50	08/02/2009 09:40	-81
#N-Q-MNSP1_E	08/02/2009 09:40	08/02/2009 09:45	88
#N-Q-MNSP1_E	08/02/2009 09:45	08/02/2009 09:55	88
#NSW1-QLD1_E	08/02/2009 09:55	08/02/2009 10:00	-88
#N-Q-MNSP1_E	08/02/2009 10:05	08/02/2009 11:00	-88

Table 3: Constraint sets invoked/revoked

NEMMCO identified DIs 09:40hrs to 10:00hrs as being affected by an MII. The incorrect constraint sets invoked are highlighted in Table 3. The intervals DI 09:40hrs to DI 9:55hrs were not triggered as STR as the change in prices and interconnector flows were not above the relevant trigger thresholds.

For DI 10:00hrs, a constraint set #NSW1-QLD1_E was invoked with the effect of limiting the target flow on the QNI interconnector to 88MW in the Queensland to New South Wales direction. This resulted in a step change of 636.56MW in the target flow of the QNI interconnector.

NEMMCO's automated system triggered DI 10:00hrs and DI 10:05hrs as STR. NEMMCO determined within the prescribed 30-minute period that DI 10:00hrs contained an MII and rejected the prices. For DI 10:05hrs, the prices returned to typical values when the constraint set #NSW1-QLD1_E was revoked. These prices were accepted within the prescribed 30-minute period. The correct constraint set #N-Q-MNSP1_E was invoked for the next interval (DI 10:10hrs). The power system would have reached its first correct targets by the end of DI 10:10hrs.

Scheduling Error

In accordance with Rule 3.8.24(a)(3), a scheduling error occurs when NEMMCO determines that a dispatch interval contained a manifestly incorrect input. As incorrect constraint equations were invoked for dispatch intervals prior to that identified by the automatic process, NEMMCO determines, in accordance with Rule 3.8.24(a)(2) that a scheduling error occurred for the period 09:35hrs to 10:10hrs ie from DI 09:40hrs to DI 10:10hrs.

Conclusion

NEMMCO identified DI 09:40hrs to DI 10:05hrs on 8 February 2009 as affected by an MII. Incorrect constraint sets were invoked in the market systems which affected dispatch outcomes for the Terranora interconnector flow then the QNI interconnector flow. The DI 10:00hrs was triggered as STR and the prices were rejected. These prices were replaced with the corresponding prices for the preceding DI 09:55hrs. NEMMCO has determined under Rule 3.8.24 (a)(2) that a scheduling error occurred.