Automated procedures
for identifying intervals
subject to review

July 2022

NER 3.9.2B(h)

VERSION CONTROL

Version	Release date	Changes
3	01/07/2022	Updated with amendments to Interconnector flow thresholds
2	31/12/2020	Updated due to delayed five-minute settlement start date.
1	12/07/2019	Updated template. Modified terminology to incorporate five-minute settlement.

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1. Introduction to the automated procedure

1.1 Rules requirement and purpose of this document

This document describes the automated procedures, required under clause 3.9.2B(h) of the National Electricity Rules (NER), for identifying intervals subject to review. The procedures were developed in consultation with Registered Participants and have effect only for the purposes set out in the NER. The NER and the National Electricity Law prevail over this document to the extent of any inconsistency.

In this document:

- terms that are defined in the NER have the same meanings;
- the word "interval" refers to a *dispatch interval* prior to 1 October 2021, and to a *trading interval* from 1 October 2021; and
- the word "price" refers to a *dispatch price* or *ancillary service price* prior to 1 October 2021, and to a *spot price* or *ancillary service price* from 1 October 2021.

1.2 Overview of the automated procedure

NER 3.9.2B requires AEMO to apply automated procedures to identify intervals that are subject to review. If an interval is identified as subject to review, AEMO must then determine whether the interval subject to review contained a manifestly incorrect input (MII) to the dispatch algorithm. If AEMO determines that an interval contained an MII, the prices for that interval are overwritten with the prices from the previous interval.

Every interval AEMO compares the price in each region and the interconnector flow into or out of that region to the price and flow for that region in the previous interval. The interval is subject to review if the changes in price and flow for any region breach predetermined thresholds.

An exception is made if the interconnector flows are zero for the current and previous intervals – in other words, if the region is electrically "islanded" from the rest of the National Electricity Market (NEM). In this case, only the prices between consecutive intervals are compared. The interval is subject to review if the change in prices for the islanded region breaches a predetermined threshold.

The automated procedure is shown schematically in Figure 1.

Figure 1 The automated procedure for detecting trading intervals subject to review
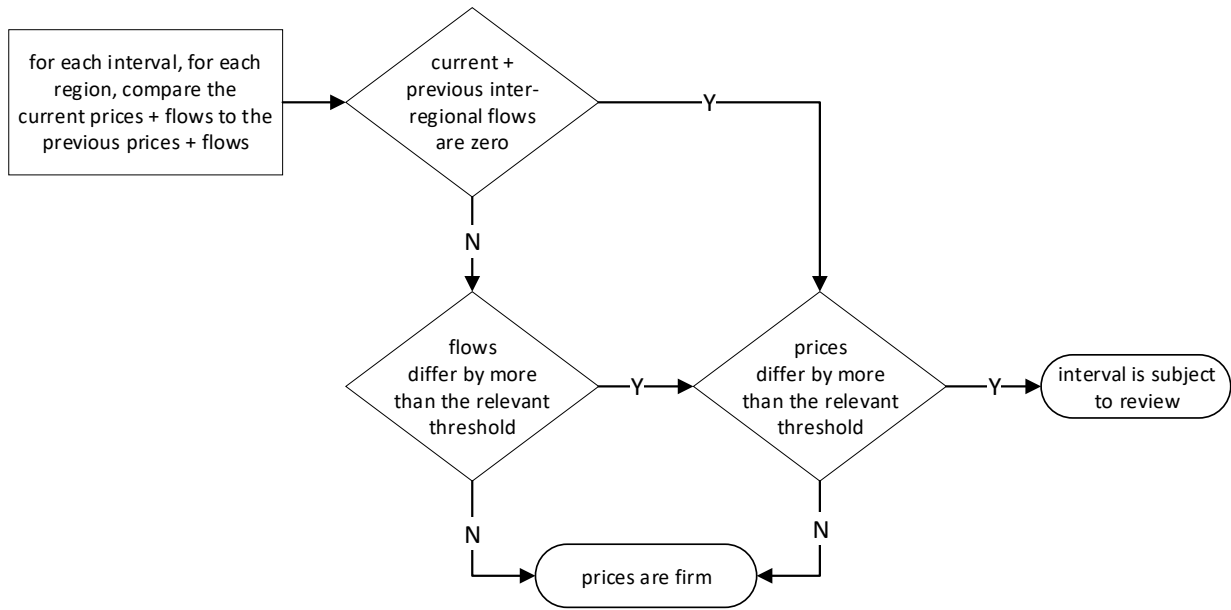
2. Price and flow thresholds

2.1 Price thresholds

Price thresholds are based on two parameters: an absolute number X and a relative number Y. The parameters are specific to each region.

If the prices for the current interval and previous interval both exceed X, the threshold is breached if the difference between the prices, expressed as a multiple of the smaller price, exceeds Y. If the price for the current interval or the price for the previous interval does not exceed X, the threshold is breached if the difference between the prices exceeds X*Y.[1]

This can be expressed mathematically as:

> The price threshold is breached if
>
> $$Min(|P_i|, |P_{i-1}|) > X \; and \; |P_i - P_{i-1}|/Min(|P_i|, |P_{i-1}|) > Y$$
>
> or
>
> $$Min(|P_i|, |P_{i-1}|) \leq X \; and \; |P_i - P_{i-1}| > X * Y$$
>
> where
>
> $$P_i = price \; in \; the \; current \; interval$$
> $$P_{i-1} = price \; in \; the \; previous \; interval$$

The price parameters for each region are shown in Table 1:

Table 1 Regional price threshold parameters

Region	X ($/MWh)	Y
NSW	20	3
QLD	20	3
SA	20	3
TAS	20	4
VIC	20	3

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[1] The prices used in these comparisons are the Regional Original Price (ROP) for each interval. The ROP includes the cost of any constraint violations and can exceed the Market Price Cap (MPC). If the ROP exceeds the MPC it will be automatically revised before it is published as the Regional Reference Price (RRP) for the interval.

2.2 Flow thresholds

Flow thresholds are based on a single parameter Z. The thresholds are specific to the direction of flow on each interconnector.

The flow threshold is breached if the difference between the flows for the current and previous intervals exceeds Z.[2]

This can be expressed mathematically as:

> The flow threshold is breached if
>
> $$|F_i - F_{i-1}| > Z$$
>
> where
>
> $$F_i = flow\ in\ the\ current\ interval$$
> $$F_{i-1} = flow\ in\ the\ previous\ interval$$

The flow parameters for each interconnector are shown in Table 2:

Table 2   Interconnector flow threshold parameters

Interconnector	Direction	Z (MW)
NSW1-QLD1 (QNI)	NSW ⇨ QLD	450
	QLD ⇨ NSW	240
N-Q-MNSP1 (Terranora)	NSW ⇨ QLD	100
	QLD ⇨ NSW	100
T-V-MNSP1 (Basslink)	TAS ⇨ VIC	190
	VIC ⇨ TAS	190
VIC1-NSW1	VIC ⇨ NSW	500
	NSW ⇨ VIC	500
V-SA (Heywood)	VIC ⇨ SA	300
	SA ⇨ VIC	300
V-S-MNSP1 (Murraylink)	VIC ⇨ SA	100
	SA ⇨ VIC	100

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[2] The flows used in these comparisons are the interconnector targets for each interval.

3. The MII price review process

A Market Notice is automatically generated if the automated procedures identify an interval subject to review. The Market Notice will specify the interval that is under review and state that prices for that interval are not firm. Subsequent intervals will also be subject to review, with accompanying Market Notices, until the sooner of:

- prices in the original interval being accepted or rejected; or
- 30 minutes from the start of the original interval subject to review.

NER 3.9.2B(f) allows AEMO up to 30 minutes to reject the prices from any interval that is subject to review. The prices will be rejected only if AEMO considers that the interval contained an MII. In other words, prices will be rejected only if one or more of the inputs used in the dispatch algorithm appears manifestly incorrect. If the prices have been neither rejected nor accepted after 30 minutes they must be automatically accepted.

If prices are rejected, they are replaced with the prices from the most recent interval that was not subject to review. In this case a Market Notice is automatically generated that identifies the interval, the original prices, and the revised prices, which are now firm.

If the prices are accepted, either manually or after 30 minutes without a decision being made, a Market Notice is automatically generated that identifies the interval and states that the original prices are now firm.

The MII price review process is detailed in Power System Operating Procedure 3705.[3]

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[3] https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/power-system-operation/power-system-operating-procedures

Glossary

In addition to the terms defined in the NER, other specific terms or abbreviations used in this document have the meanings given in the table below:

Term	Definition
Market Notice	A notice issued by AEMO to Registered Participants and published on the 'Market Notices' section of AEMO's website
MII	Manifestly Incorrect Input
MPC	Market Price Cap
NER	National Electricity Rules
ROP	Regional Original Price
RRP	Regional Reference Price