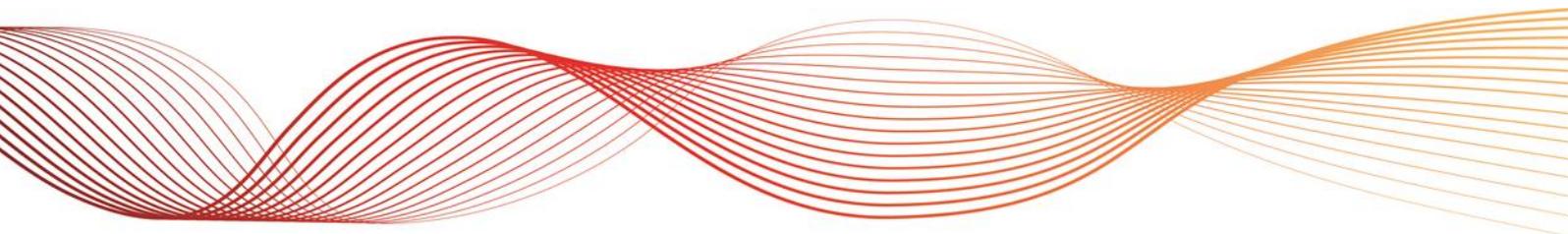




NEM EVENT – DIRECTION 7-8 OCTOBER 2017

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IMPORTANT NOTICE

Purpose

Where the Australian Energy Market Operator (AEMO) intervenes in the National Electricity Market (NEM) through the use of directions, AEMO must publish a report in accordance with National Electricity Rules (NER) clause 4.8.9(f) and 3.13.6A(a). This report satisfies those NER obligations, and is based on information available to AEMO at 6 April 2018.

Unless otherwise indicated, terms in this report have the same meanings as those defined in the NER.

All references to time in this report are based on Australian Eastern Standard Time (AEST).

Disclaimer

AEMO has made every reasonable effort to ensure the quality of the information in this report but cannot guarantee its accuracy or completeness. Any views expressed in this report are those of AEMO unless otherwise stated, and may be based on information given to AEMO by other persons.

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1. SUMMARY

To ensure adequate system strength for secure operation of the South Australian power system, certain combinations of synchronous generating units must be in service at all times¹.

Clause 4.8.9 of the National Electricity Rules (NER) allows AEMO to intervene in the market by issuing directions or clause 4.8.9 instructions, if AEMO is satisfied that it is necessary to maintain or re-establish the power system to a secure, satisfactory, or reliable operating state. Section 116 of the National Electricity Law allows AEMO to issue directions to take certain action if AEMO considers that it is necessary to maintain power system security or for reasons of public safety.

On 7 October 2017, AEMO issued one direction to a South Australian Market Participant to maintain power system security, which remained in place until 8 October 2017. The direction is summarised in Table 1.

Table 1 Summary of the South Australia direction between 7 October 2017 and 8 October 2017

Direction	Directed Participant	Issue time	Cancellation time	Direction instruction
Torrens Island B unit 2	AGL SA Generation Pty Ltd	1445 hrs, 7 October 2017	1700 hrs, 8 October 2017	Torrens Island B unit 2 to remain synchronised and follow dispatch targets from 1500 hrs on 7 October 2017.

2. INTERVENTION ASSESSMENT

2.1 The need for intervention

To ensure adequate system strength for secure operation of the South Australian power system, certain combinations of synchronous generating units must be in service at all times¹. AEMO continues to investigate system strength requirements in South Australia, and updates the set of viable combinations on a regular basis. The need for intervention, and options considered, were assessed against the set of viable combinations available on 7 October 2017.

At 1423 hrs on 7 October 2017, AGL SA Generation Pty Ltd submitted a rebid de-committing Torrens Island B unit 2 capacity with effect from 1500 hrs². As a result, AEMO determined that there would be insufficient online synchronous generating units available to meet system strength requirements from 1500 hrs on 7 October 2017.

AEMO assessed available options, and determined that an immediate intervention response was required.

2.2 Assessment of market response and latest time to intervene

Under NER clause 4.8.5A(a) and (c), AEMO must notify the market of any anticipated power system security or reliability issue that may require intervention, and the latest time for market response before AEMO would need to intervene.

In this instance, AEMO did not publish market notices under those clauses due to time limitations. However, AEMO contacted Registered Participants who operate eligible synchronous generating units in South Australia to confirm their availability. Those Registered Participants indicated they did not intend to adjust their market offers, but identified units that would be available if directed.

¹ <http://www.aemo.com.au/Media-Centre/South-Australia-System-Strength-Assessment>.

² Rebid reason: 1418-A-050 CHG IN AEMO PD-50 PD DEMAND DECREASE [NEM] -395MW PE1.



2.3 Decision to intervene

As insufficient market response had been provided, AEMO evaluated the operational parameters provided in relation to eligible synchronous generating units, and issued a direction to AGL SA Generation Pty Ltd for Torrens Island B unit 2 to remain synchronised and follow dispatch targets from 1500 hrs on 7 October 2017.

3. INTERVENTION PROCESS

AEMO considers that it followed all applicable processes under NER Clause 4.8 for the management of the direction on 7 and 8 October 2017 as far as possible.³ AEMO did not publish market notices prior to intervention under NER 4.8.5A(a) or (c), as there was insufficient time to do so. Table 2 provides a high level timeline of the intervention event.

Table 2 Timeline of key events on 7-8 October 2017

Time	Events / comments
7 October 2017	
1423 hrs	Torrens Island B unit 2 submitted a bid withdrawing its capacity from 1500 hrs.
1445 hrs	Direction issued to AGL SA Generation Pty Ltd for Torrens Island B unit 2 to remain synchronised and follow dispatch targets from 1500 hrs on 7 October 2017.
1500 hrs	Intervention constraints applied to Torrens Island B unit 2 in central dispatch from dispatch interval (DI) ending 1505 hrs.
1506 hrs	AEMO published Market Notice (MN) 59373 declaring a direction was issued to a South Australian Participant at 1445 hrs.
1507 hrs	AEMO published MN 59375 declaring an AEMO intervention event commenced from DI ending 1450 hrs and that all DIs during the AEMO intervention event to be intervention price DIs.
8 October 2017	
1700 hrs	AGL SA Generation Pty Ltd (Torrens Island B unit 2) direction was cancelled at 1700 hrs on 8 October 2017, after Torrens Island B2 was bid available. Intervention constraints were revoked for Torrens Island B unit 2. AEMO published MN 59381 declaring the cancellation of the direction. AEMO published MN 59382 declaring the cancellation of the AEMO intervention event from DI ending 1700 hrs.

3.1 Adequacy of responses to AEMO inquires

NER 4.8.5A(d) permits AEMO to request information from Scheduled Network Service Providers, Scheduled Generators, Semi-Scheduled Generators, and Market Customers.

AEMO is satisfied with the timeliness, adequacy, and effectiveness of all responses to its requests for information prior to issuing the direction on 7 October 2017.

3.2 Participant ability to comply with the intervention

NER 4.8.9(d) requires that a Registered Participant must immediately notify AEMO of its inability to comply, or intention not to comply, with a direction or clause 4.8.9 instruction.

AEMO did not receive any indication that a Registered Participant would be unable to comply with the direction.

³ http://aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Power_System_Ops/Procedures/SO_OP_3707---Intervention-Direction-and-Clause-4-8-9-Instructions.pdf.

4. CHANGES TO DISPATCH OUTCOMES

The direction for Torrens Island B unit 2 to remain synchronised and follow dispatch targets resulted in approximately 1,471 megawatt hours (MWh) of generation being added to the market.

Under NER 3.8.1(b)(11), AEMO must ensure that, as far as reasonably practicable, the number of participants affected by the intervention, and the resulting changes to interconnector flows are minimised⁴. AEMO considered the application of counter-action constraints to achieve this objective, but concluded this was not practical during this intervention, because all eligible units were either offline or operating at technical minimum load.

Table 3 and 4 summarise the changes to dispatch outcomes resulting from this direction. These are estimated by comparing against a simulated dispatch with the direction removed.

Directions in one region can cause dispatch changes to other regions, even when counter-action constraints are applied to minimise this effect. In particular, these changes are driven by economic co-optimisation within the market, and by the interplay between network constraint equations across multiple regions.

Of note is that while these directions displaced market-based generation in South Australia, they also decreased imports into South Australia. The decreased imports, coupled with an impact on network constraints, resulted in displacement of some generation in both Victoria and New South Wales.

Table 3 Estimated changes to local generation in each region (MWh)

	QLD	NSW	VIC	SA	TAS
Without direction	149,358	152,793	118,464	23,869	36,053
Actual	149,543	152,184	117,406	23,621 + 1,471.14 ^A	36,275
Change	+185	-609	-1,058	+1,223	+223

A. 1,471.14 MWh is the directed energy.

Table 4 Estimated changes to interconnector flow between regions (MWh)

	Terranora	QNI	VIC-NSW	Heywood	Murraylink	Basslink
Without direction^A	-629	-785	22,609	1,755	-1,940	8,999
Actual^B	-643	-957	23,066	687	-2,192	9,207
Change^C	14 MWh more to NSW	172 MWh more to NSW	457 MWh more to NSW	1,067 MWh less to VIC	251 MWh more to VIC	208 MWh more to VIC

A. Positive numbers are for flows flowing north or west, negative for flows flowing south or east.

B. Change = |Actual - Without direction|.

C. Intervention Pricing Methodology at <https://www.aemo.com.au/-/media/Files/PDF/Intervention-Pricing-Methodology-October-2014.pdf>.

4.1 Application of intervention pricing

AEMO declares intervention pricing for periods subject to an AEMO intervention event. Under intervention pricing, NER 3.9.3(b) requires that AEMO set the dispatch price and ancillary service prices at the value which AEMO, in its reasonable opinion, considers would have applied had the intervention event not occurred. AEMO determines and publishes these prices in accordance with the Intervention Pricing Methodology⁵.

Intervention pricing was applied for this event in accordance with NER 3.9.3(b) for the full intervention period from DI ending 1450 hrs on 7 October 2017 until DI ending 1700 hrs on 8 October 2017.

⁴ AEMO's power system operating procedure SO_OP 3707 "Intervention, Direction and Clause 4.8.9 Instructions" describes this objective. In practice, AEMO meets the objective by selecting generating units located in the same region as the directed generation (and, if possible, belonging to the same participant) and then constraining the dispatch of the selected generating units by an equal and opposite amount to that of the directed generating units.

⁵ Intervention Pricing Methodology <https://www.aemo.com.au/-/media/Files/PDF/Intervention-Pricing-Methodology-October-2014.pdf>.



5. CONCLUSIONS AND FURTHER ACTIONS

On 7 October 2017, AEMO issued a direction to a South Australian Market Participant to maintain power system security in response to a forecast lack of system strength.

AEMO is satisfied that all applicable procedures and processes were followed in assessing the need for intervention, determining the latest time to intervene, enacting and managing the intervention, applying appropriate intervention pricing, and informing the market to the extent reasonably practical within time constraints.

AEMO is also satisfied with the timeliness and adequacy of participant responses and communication throughout.



ABBREVIATIONS

Abbreviation	Expanded name
AEMO	Australian Energy Market Operator
AEST	Australian Eastern Standard Time
DI	Dispatch Interval
MN	Market Notice
NEM	National Electricity Market
NER	National Electricity Rules
PD	Pre-Dispatch
SA	South Australia