



NEM Event – Direction 24-30 June 2018

May 2019

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 02 May 2019.

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

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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
PS	Power Station
SA	South Australia

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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.

Between 24 and 30 June 2018, AEMO issued two directions to South Australian Market Participants to maintain power system security. These two directions are classified under two direction events and are summarised in Table 1.

Table 1 Summary of the four South Australia directions between 24 and 30 June 2018

Direction	Directed Participant	Event No.	Issue time	Cancellation time	Direction instruction
Pelican Point Gas Turbine (GT) 12	Pelican Point Power Pty Ltd (ENGIE)	1	1839 hrs, 24 June 2018	1230 hrs, 25 June 2018	Synchronise GT12 and Steam Turbine (ST) 18 at 2000 hrs on 24 June 2018 and follow dispatch targets.
Torrens Island A unit 2	AGL SA Generation Pty Ltd	2	1630 hrs, 28 June 2018	0015 hrs, 30 June 2018	Remain synchronised and follow dispatch targets from 2230 hrs on 28 June 2018.

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 times. 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 from 24 June 2018 for each of the direction events.

From 0930 hrs on 22 June 2018, the loss of Pelican Point Gas Turbine (GT) 11 and any other generating unit was classified as a credible contingency event². This classification continued until 1530 hrs on 29 June 2018. During this period, Pelican Point GT11 was undergoing commissioning, and was unable to contribute to South Australian system strength.

ENGIE submitted a rebid at 1607 hrs on 24 June 2018 to de-commit Pelican Point GT12 from 1630 hrs on 24 June 2018³. This raised the need for the first direction.

AGL SA Generation Pty Ltd submitted an initial bid at 1009 hrs on 27 June 2018 to de-commit Torrens Island A unit 2 from 2230 hrs on 28 June 2018.⁴ Furthermore ENGIE submitted a rebid at 1232 hrs on 28 June 2018 to

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

² Refer AEMO market notice 61717.

³ Rebid reason: 1550~P~UPDATE GT11 COMMISSIONING PROFILE: GT12 OFFLINE~

⁴ Rebid reason: `005~F~00 INITIAL BID~

de-commit Pelican Point GT12 from 0000 hrs on 29 June 2018 due to a plant issue⁵. Finally, AGL SA Generation Pty Ltd submitted a rebid at 1449 hrs on 28 June 2018 to de-commit Torrens Island B4 from 0030 hrs on 29 June 2018⁶. These bids raised the need for the second direction.

As a result, AEMO determined that there would be insufficient online synchronous units available to meet system strength requirements following these de-commitments and assessed all available options before directing.

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, and the latest time for market response before AEMO would need to intervene.

For the first direction, AEMO issued this market notice (MN 63262)⁷ at 1726 hrs on 24 June 2018. For the next direction, AEMO issued the market notice (MN 63279) at 1356 hrs on 28 June 2018.

AEMO contacted all participants who operate suitable synchronous generating units in South Australia to confirm their availability and the latest time to intervene. Those participants indicated they did not intend to adjust their market offers, but identified units that would be available if directed.

Based on the advised lead times and ongoing commercial operation of key units in South Australia, AEMO assessed the latest time to intervene for a possible market intervention as 2100 hrs on 24 June 2018 for the first direction event, and as 2230 hrs on 28 June 2018 for the second direction event

2.3 Decision to intervene

Upon Pelican Point GT12 becoming available for direction and with insufficient market response provided, AEMO evaluated the estimated costs and operational parameters, and issued a direction to ENGIE for Pelican Point GT12 to synchronise at 2000 hrs on 24 June 2018 and follow dispatch targets. Due to insufficient time, AEMO was unable to update the latest time to intervene, following Pelican Point GT12 becoming available for direction. AEMO also issued a direction to AGL SA Generation Pty Ltd for Torrens Island A unit 2 to remain synchronised and follow dispatch targets from 2230 hrs on 28 June 2018. AEMO cancelled the directions when relevant synchronous generating units rebid into the market.

3. Intervention process

AEMO considers that it followed all applicable processes under NER Clause 4.8 for the management of the directions between 24 and 30 June 2018⁸. Table 2 provides a high-level timeline of the intervention event.

⁵ Rebid reason: 1225~P~UPDATE AVAIL: GT11 OOS: STATION OUTAGE SL~

⁶ Rebid reason: 1439~F~060 CHG IN FUEL COST~60 INCREASE IN F/CAST GAS VALUE

⁷ AEMO Market Notices are at <http://www.aemo.com.au/Market-Notices>.

⁸ AEMO. Power system operating procedure SO_OP 3707, "Intervention, direction and clause 4.8.9 instructions", 11 September 2014, available at 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.

Table 2 Timeline of key events between 24 and 30 June 2018

Time	Events / comments
22 June 2018	
0930 hrs	AEMO reclassified the simultaneous loss of Pelican Point GT11 with any other generating unit as a credible contingency event (MN 63258).
24 June 2018	
1607 hrs	ENGIE submitted a rebid to de-commit Pelican Point GT12 from 1630 hrs on 24 June 2018.
1726 hrs	AEMO published MN 63262 indicating a possible need for intervention from 2100 hrs on 24 June 2018, and seeking a market response. The latest time to intervene was noted as 2100 hrs on 24 June 2018.
1839 hrs	<ul style="list-style-type: none"> • Direction issued to ENGIE for Pelican Point GT12 to synchronise at 2000 hrs on 24 June 2018 and follow dispatch targets. • Intervention constraints applied to Pelican Point PS in central dispatch from DI ending 2005 hrs on 24 June 2018.
1914 hrs	AEMO published MN 63264 at 1914 hrs on 24 June declaring a direction was issued to a South Australian participant.
1915 hrs	AEMO published MN 63265 at 1915 hrs on 24 June declaring that an AEMO intervention event had commenced and that all dispatch intervals (DIs) during the AEMO intervention event would be intervention price DIs.
25 June 2018	
1230 hrs	<ul style="list-style-type: none"> • The direction to Pelican Point GT12 was cancelled and intervention constraints were revoked.
1250 hrs	<ul style="list-style-type: none"> • AEMO published MN 63269 declaring the cancellation of the direction.
27 June 2018	
1009 hrs	AGL SA Generation Pty Ltd submitted an initial bid to de-commit Torrens Island A unit 2 from 2230 hrs on 28 June 2018.
28 June 2018	
1232 hrs	ENGIE submitted a rebid to de-commit Pelican Point GT12 from 0000 hrs on 29 June 2018 (i.e. 2400 hrs on 28 June 2018).
1356 hrs	AEMO published MN 63279 indicating a possible need for intervention from 2400 hrs on 28 June 2018, and seeking a market response. The latest time to intervene was noted as 2230 hrs on 28 June 2018.
1449 hrs	AGL SA Generation Pty Ltd submitted a rebid to de-commit Torrens Island B unit 4 from 0030 hrs on 29 June 2018.
1630 hrs	<ul style="list-style-type: none"> • Direction issued to AGL SA Generation Pty Ltd for Torrens Island A unit 2 to remain synchronised and follow dispatch targets. • Intervention constraints applied to Torrens Island A unit 2 from DI ending 2235 hrs on 28 June 2018.
1640 hrs	<ul style="list-style-type: none"> • AEMO published MN 63283 at 1640 hrs on 28 June declaring a direction was issued to a South Australian participant. • AEMO published MN 63284 at 1640 hrs on 28 June declaring that an AEMO intervention event had commenced and that all dispatch intervals (DIs) during the AEMO intervention event would be intervention price DIs.
29 June 2018	
1530 hrs	AEMO reverted its reclassification of the simultaneous loss of Pelican Point GT11 with any other generating unit to a non-credible contingency event (MN 63290).
30 June 2018	
0015 hrs	<ul style="list-style-type: none"> • The direction to Torrens Island A unit 2 was cancelled and intervention constraints were revoked. • AEMO published MN 63296 declaring the cancellation of the direction.

3.1 Adequacy of responses to AEMO inquiries

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 from AGL, Origin and ENGIE prior to issuing the directions between 24 and 30 June 2018.

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. AEMO is satisfied that ENGIE and AGL complying with the directions listed in Table 1.

4. Dispatch and pricing outcomes

4.1 Changes to dispatch outcomes due to the directions

The directions to Pelican Point GT 12 and Torrens Island A unit 2 resulted in approximately 3,936 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 minimised⁹. AEMO considered the application of counter-action constraints to achieve this objective, but concluded this was not practical during this intervention.

Tables 3 and 4 summarise the estimated change to dispatch outcomes resulting from the two directions. These are estimated by comparing against a simulated dispatch with the direction removed.

Directions in one region can cause dispatch changes to other regions. 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 generation in all regions.

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

	QLD	NSW	VIC	SA	TAS
Without direction	295,009	357,080	244,601	55,281	66,792
Actual	293,786	356,229	244,337	53,794 + 3,936 ^A	66,269
Change	-1,224	-850	-265	+2,449	-522

A. 3,936 MWh is the directed energy.

⁹ 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.

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

	Terranora	QNI	VIC-NSW	Heywood	Murraylink	Basslink
Without direction ^A	-3,667	-28,161	2,956	9,115	1,415	10,948
Actual ^A	-3,541	-27,111	4,935	7,023	927	10,454
Change ^B	123 MWh less into NSW	1,050 MWh less into NSW	1,978 MWh more into NSW	2,092 MWh less into SA	488 MWh less into SA	495 MWh less into VIC

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

B. Change = |Actual - Without direction|.

4.2 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 Methodology¹⁰.

Intervention pricing applies whenever the direction meets the regional reference node test, that is a direction hypothetically given to a plant at the regional reference node would have avoided the need for the direction.

AEMO's transfer limit advice on South Australia System Strength provides a number of feasible combinations of generating units that provide the needed level of system strength. All combinations of plant in the limit advice could be fully substituted by directing at the regional reference node (Torrens Island) in the current system strength scenarios. Accordingly, system strength directions in South Australia pass the regional reference node test and intervention pricing is appropriate.

Intervention pricing was applied for this event in accordance with NER 3.9.3(b), and for the full intervention period from:

- DI ending 1840 hrs on 24 June 2018 until DI ending 1230 hrs on 25 June 2018.
- DI ending 1635 hrs on 28 June 2018 until DI ending 0015 hrs on 30 June 2018.

5. Conclusions and further actions

Between 24 and 30 June 2018, AEMO issued two directions to South Australian Market Participants to maintain power system security, in response to a forecast lack of system strength in the region.

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 seeking market response from all generators capable of meeting the system strength requirements. The market was informed after each direction was issued.

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

¹⁰ Intervention Pricing Methodology, available at http://www.aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Dispatch/Policy_and_Process/2018/Intervention-Pricing-Methodology.pdf.