



# **NEM Event – Direction 12 to 15 October 2018**

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**July 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 3 July 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).

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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

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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 times<sup>1</sup>.

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 12 and 15 October 2018, AEMO issued two directions to South Australian Market Participants to maintain power system security. The directions are summarised in Table 1.

**Table 1 Summary of the two South Australia directions between 12 and 15 October 2018**

Direction	Directed Participant	Event No.	Issue time	Cancellation time	Direction instruction
Torrens Island B unit 2	AGL SA Generation Pty Ltd	1	1315 hrs, 12 October 2018	1300 hrs, 15 October 2018	Remain synchronised and follow dispatch targets from 0030 hrs on 13 October 2018.
Pelican Point Gas Turbine (GT) 11	Pelican Point Power Pty Ltd (ENGIE)	1	1715 hrs, 13 October 2018	1300 hrs, 15 October 2018	Remain synchronised and follow dispatch targets from 2200 hrs on 13 October 2018.

## 2. Intervention assessment

### 2.1 The need for intervention

To ensure adequate system strength for secure operation of the South Australian power system, suitable combinations of synchronous generating units must be in service at all times<sup>1</sup>. AEMO continues to investigate system strength requirements in South Australia, and updates the set of viable combinations regularly.

The need for intervention, and options considered, were assessed against the set of viable combinations available on 12 October 2018.

AGL SA Generation Pty Ltd submitted an initial bid to de-commit Torrens Island B unit 2 from 0030 hrs on 13 October 2018<sup>2</sup>. Furthermore, ENGIE submitted an initial offer to de-commit a Pelican Point GT from 0000 hrs on 13 October 2018<sup>3</sup>.

AEMO determined that there would be insufficient online synchronous units available to meet system strength requirements from 0030 hrs on 13 October 2018.

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

<sup>2</sup> 0950~F~00 INITIAL BID~

<sup>3</sup> 1210~P~INITIAL OFFER~

## 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. AEMO issued market notice (MN 64796) at 1436 hrs on 11 October 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 Registered 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, AEMO assessed the latest time to intervene was 1300 hrs on 12 October 2018.

## 2.3 Decision to intervene

As all participants contacted had indicated that no market response would be provided, AEMO evaluated the estimated costs, and issued directions as listed in Table 1. 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 direction between 12 and 15 October 2018<sup>4</sup>. Table 2 provides a high-level timeline of the intervention event.

**Table 2** Timeline of key events between 12 and 15 October 2018

Time	Events / comments
10 October 2018	
0952 hrs	AGL SA Generation Pty Ltd submitted an initial bid to de-commit Torrens Island B unit 2 from 0030 hrs on 13 October 2018.
11 October 2018	
1215 hrs	ENGIE submitted an initial offer to de-commit a Pelican Point GT from 0000 hrs on 13 October 2018.
1436 hrs	AEMO published a market notice seeking a market response and noting the latest time to intervene was 1300 hrs on 12 October 2018 (MN64796).
12 October 2018	
1315 hrs	<ul style="list-style-type: none"> <li>Direction issued to AGL SA Generation Pty Ltd for Torrens Island B unit 2 to remain synchronised and follow dispatch targets from 0030 hrs on 13 October 2018.</li> <li>Intervention constraints applied to Torrens Island B unit 2 in central dispatch from DI ending 0035 hrs on 13 October 2018.</li> </ul>
1320 hrs	<ul style="list-style-type: none"> <li>AEMO published MN64827 declaring a direction was issued to a South Australian participant.</li> <li>AEMO published MN64829 declaring that an AEMO intervention event had commenced and that all dispatch intervals (DIs) during the AEMO intervention event would be intervention price DIs.</li> </ul>

<sup>4</sup> See [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](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).

13 October 2018	
1715 hrs	<ul style="list-style-type: none"> <li>• Direction issued to ENGIE for Pelican Point Gas Turbine (GT) 11 and Steam Turbine (ST) 18 to remain synchronised and follow dispatch targets from 2200 hrs on 13 October 2018.</li> <li>• Intervention constraints applied to Pelican Point Power Station in central dispatch from DI ending 2205 hrs on 13 October 2018.</li> <li>• AEMO published MN64863 declaring a direction was issued to a South Australian participant.</li> </ul>
15 October 2018	
1302 hrs	<ul style="list-style-type: none"> <li>• AEMO published MN64898 declaring the cancellation of the AEMO intervention event and all associated directions from 1300 hrs on 15 October 2018.</li> </ul>

### 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 and ENGIE prior to issuing the directions between 12 and 15 October 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 with AGL and ENGIE complying with the directions listed in Table 1.

## 4. Dispatch and pricing outcomes

### 4.1 Changes to dispatch outcomes due to the direction

The directions to Torrens Island A unit 1 resulted in approximately 8,677 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 minimised<sup>5</sup>. 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 this direction. These have been estimated by comparing against a simulated dispatch with the direction removed.

<sup>5</sup> 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.

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 increased exports into Victoria. The increased exports, coupled with an impact on network constraints, resulted in displacement of generation in all NEM regions.

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

	QLD	NSW	VIC	SA	TAS
<b>Without direction</b>	374,298	392,811	267,085	63,302	50,403
<b>Actual</b>	372,607	388,697	265,763	62,996 +8,677 <sup>A</sup>	49,826
<b>Change</b>	<b>-1,691</b>	<b>-4,114</b>	<b>-1,322</b>	<b>8,371</b>	<b>-577</b>

A. 8,677 MWh is the directed energy.

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

	Terranora	QNI	VIC-NSW	Heywood	Murraylink	Basslink
<b>Without direction<sup>A</sup></b>	-2,899	-20,786	18,442	-2,284	411	-9,501
<b>Actual<sup>A</sup></b>	-2,769	-19,263	24,323	-9,100	-1,025	-10,078
<b>Change<sup>B</sup></b>	<b>130 MWh less into NSW</b>	<b>1,523 MWh less into NSW</b>	<b>5,880 MWh more into NSW</b>	<b>6,816 MWh more into VIC</b>	<b>1,436 MWh more into VIC</b>	<b>577 MWh more into TAS</b>

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 Methodology<sup>6</sup>.

Intervention pricing applies whenever the direction meets the region reference node test, that is a direction at the region 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 can be fully substituted by directing at the region reference node (Torrens Island) in the current system strength scenarios. Accordingly, system strength directions in South Australia pass the region 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 hrs on 1315 hrs on 12 October 2018 until DI ending 1300 hrs on 15 October 2018.

<sup>6</sup> Intervention Pricing Methodology is available at [http://www.aemo.com.au/-/media/Files/Electricity/NEM/Security\\_and\\_Reliability/Dispatch/Policy\\_and\\_Process/2018/Intervention-Pricing-Methodology.pdf](http://www.aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Dispatch/Policy_and_Process/2018/Intervention-Pricing-Methodology.pdf).

# 5. Conclusions and further actions

Between 12 and 15 October 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.