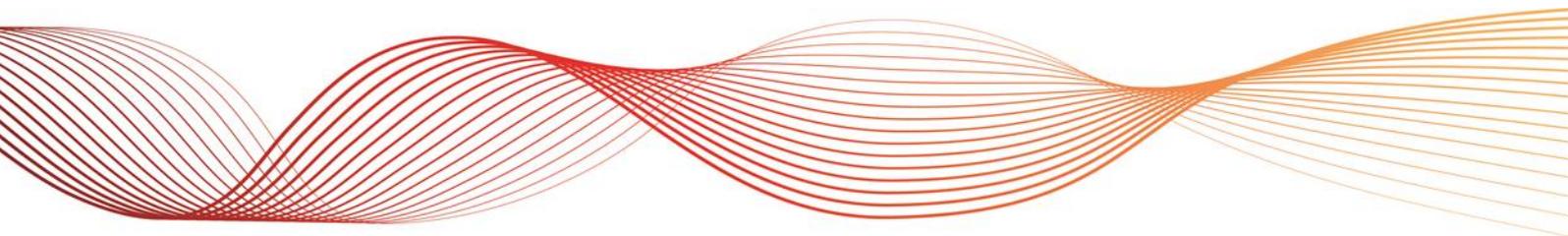




# NEM EVENT – DIRECTION 29 JANUARY- 4 FEBRUARY 2018

Published: **June 2018**





# 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 07 June 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

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# CONTENTS

Purpose	2
Disclaimer	2
<b>1. SUMMARY</b>	<b>4</b>
<b>2. INTERVENTION ASSESSMENT</b>	<b>4</b>
2.1 The need for intervention	4
2.2 Assessment of market response and latest time to intervene	5
2.3 Decision to intervene	5
<b>3. INTERVENTION PROCESS</b>	<b>5</b>
3.1 Adequacy of responses to AEMO inquiries	6
3.2 Participant ability to comply with the intervention	6
<b>4. CHANGES TO DISPATCH OUTCOMES</b>	<b>6</b>
4.1 Application of intervention pricing	7
<b>5. CONCLUSIONS AND FURTHER ACTIONS</b>	<b>7</b>
<b>ABBREVIATIONS</b>	<b>8</b>

# TABLES

Table 1	Summary of the two South Australia directions between 29 January 2018 and 4 February 2018	4
Table 2	Timeline of key events on 29 January to 4 February 2018	5
Table 3	Estimated changes to local generation in each region (MWh)	7
Table 4	Estimated changes to interconnector flow between regions (MWh)	7



# 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 29 January 2018 and 4 February 2018, AEMO issued two directions to South Australian Market Participants to maintain power system security. The two directions are summarised in Table 1.

**Table 1 Summary of the two South Australia directions between 29 January 2018 and 4 February 2018**

Direction	Directed participant	Issue time	Cancellation time	Direction instruction
<b>Osborne PS</b>	Origin Energy Electricity Ltd	1800 hrs, 29 January 2018	1000 hrs, 31 January 2018	Osborne Power Station (PS) to remain synchronised and follow dispatch targets effective from 2130 hrs on 29 January 2018.
<b>Pelican Point Gas Turbine (GT) 12</b>	Pelican Point Power Ltd	0920 hrs, 31 January 2018	0900 hrs, 4 February 2018	Pelican Point Gas Turbine (GT) 12 unit to remain synchronised and follow dispatch targets effective from 1000 hrs 31 January 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<sup>1</sup>. 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 at 29 January 2018.

At 1440 hrs on 29 January 2018, Origin Energy submitted a rebid de-committing Osborne Power Station (PS) from 2130 hrs on 29 January 2018<sup>2</sup>. As a result, AEMO assessed that there would be insufficient online synchronous generating units available to meet system strength requirements from 2130 hrs on 29 January 2018. AEMO sought a market response, assessed available options for intervention, and determined the latest time to intervene should a market response not be provided.

While the first direction was in effect, at 0846 hrs on 31 January 2018, ENGIE submitted a rebid de-committing Pelican Point GT12 unit from 1000 hrs on 31 January 2018<sup>3</sup>. As a result, AEMO determined that further intervention was required to ensure sufficient online synchronous generating units would be available to meet system strength requirements from 1000 hrs on 31 January 2018.

<sup>1</sup> For more information about this requirement, see <http://www.aemo.com.au/Media-Centre/South-Australia-System-Strength-Assessment>.  
<sup>2</sup> 1435A INC SA WIND GENERATION SL  
<sup>3</sup> 0840-F--REVISED TOLLING NOMINATION - SL-



## 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 this market notice (MN 61019) at 1731 hrs on 29 January 2018<sup>4</sup>.

AEMO contacted the Registered Participants who operate eligible synchronous generating units in South Australia to seek their availability for the relevant period, and to determine the latest time to intervene.

Those Registered Participants indicated that they did not intend to adjust their market offers, but identified units that would be available if directed.

Based on advised lead times, AEMO assessed that the latest time to intervene was at 1800 hrs on 29 January 2018.

## 2.3 Decision to intervene

At 1800 hours, insufficient market response had been provided, and the circumstances giving rise to the need for intervention were still in effect.

As insufficient market response had been provided, AEMO evaluated the estimated costs provided in relation to eligible synchronous generating units, and issued an initial direction to Origin Energy for Osborne PS to remain synchronised and follow dispatch targets from 2130 hrs on 29 January 2018.

Following the rebid de-committing Pelican Point GT12, a direction was also issued to ENGIE for Pelican Point GT12 to remain synchronised and follow dispatch targets from 1000 hrs on 31 January 2018.

# 3. INTERVENTION PROCESS

AEMO considers that it followed all applicable processes under NER Clause 4.8 for the management of the directions on 29 January to 4 February 2018<sup>5</sup>. Table 2 provides a high-level timeline of the intervention event.

**Table 2 Timeline of key events on 29 January to 4 February 2018**

Time	Events / comments
<b>29 January 2018</b>	
1440 hrs	Origin Energy Electricity Ltd submitted a rebid de-committing Osborne PS from 2130 hrs on 29 January 2018.
1731 hrs	AEMO published market notice seeking a market response and noting the latest time to intervene was at 1800 hrs on 29 January 2018 (MN 61019).
1800 hrs	Direction issued to Origin Energy Electricity Ltd for Osborne PS to remain synchronised and follow dispatch targets from 2100 hrs on 29 January 2018.
1808 hrs	AEMO published MN 61021 declaring a direction was issued to a SA participant at 1800 hrs.
1815 hrs	AEMO published MN 61022 declaring an AEMO intervention event commenced from dispatch interval (DI) ending 1805 hrs and that all DIs during the AEMO intervention event to be intervention price dispatch intervals.
2130 hrs	Intervention constraints applied to Osborne PS in central dispatch from DI ending 2135 hrs on 29 January 2018.
<b>31 January 2018</b>	

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

5 AEMO power system operating procedure SO\_OP 3707 "Intervention, Direction and Clause 4.8.9 Instructions", 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](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).



Time	Events / comments
0846 hrs	ENGIE submitted a rebid de-committing Pelican Point unit GT12 from 1000 hrs on 31 January 2018.
0920 hrs	Direction issued to ENGIE for Pelican Point unit GT12 to remain synchronised and follow dispatch targets from 1000 hrs on 29 January 2018.
1000 hrs	Intervention constraints applied to Pelican Point unit GT12 in central dispatch from DI ending 1005 hrs on 31 January 2018.
1000 hrs	The direction to Osborne PS was cancelled after Pelican Point direction was issued. Intervention constraints revoked for Osborne PS.
1256 hrs	AEMO published MN 61054 declaring a direction previously issued to a SA participant at 1800 hrs on 29 January 2018 had been cancelled. In the same market notice, AEMO declared another direction had been issued to an SA participant at 0920 hrs on 31 January 2018.
<b>4 February 2018</b>	
0900 hrs	The direction to Pelican Point unit GT12 was cancelled at 0900 hrs on 4 January. Intervention constraints revoked for Pelican Point unit GT12.
0904 hrs	AEMO published MN 61110 declaring the cancellation of the Direction event at 0900 hrs on 4 February.
0910 hrs	AEMO published MN 61111 declaring the cancellation of intervention pricing at 0900 hrs on 4 February.

### 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 off all responses to its requests for information prior to issuing directions between 29 January 2018 and 4 February 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 directions.

## 4. CHANGES TO DISPATCH OUTCOMES

The directions to Osborne PS and Pelican Point unit GT12 resulted in approximately 20,884 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>6</sup>.

AEMO considered the application of counter-action constraints to achieve this objective, but concluded this was not practical during the first direction to Osborne PS because all South Australian scheduled units were running at technical minimum load or not generating. However, during the subsequent direction to Pelican Point GT12, AEMO applied counter-action constraints to reduce the output of Torrens Island B unit 1 and Torrens Island B unit 3.

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

<sup>6</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, 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.

These directions displaced market-based generation in South Australia and increased exports from the region. The increased exports, 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
<b>Without direction</b>	946,851	959,569	632,728	157,606	88,771
<b>Actual</b>	944,242	950,638	629,931	154,569 +20,884 <sup>A</sup>	85,864
<b>Change</b>	<b>-2,610</b>	<b>-8,931</b>	<b>-2,797</b>	<b>+17,847</b>	<b>-2,907</b>

A. 20,884 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>	-8,023	-60,717	-1,536	-9,790	-1,898	-45,087
<b>Actual<sup>A</sup></b>	-7,103	-59,056	9,907	-24,204	-5,065	-47,995
<b>Change<sup>B</sup></b>	<b>920 MWh less into NSW</b>	<b>1661 MWh less into NSW</b>	<b>11443 MWh more into NSW</b>	<b>14413 MWh more into VIC</b>	<b>3166 MWh more into VIC</b>	<b>2909 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|.

## 4.1 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 Methodology<sup>7</sup>.

Intervention pricing was declared for this event in accordance with NER 3.9.3(b), and for the full intervention period from dispatch interval (DI) ending 1805 hrs on 29 January 2018 until DI ending 0900 hrs on 4 February 2018.

## 5. CONCLUSIONS AND FURTHER ACTIONS

Between 29 January 2018 and 4 February 2018, AEMO issued two energy directions to South Australian Market Participants 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 ensuring the market remained informed at all stages. AEMO is also satisfied with the timeliness and adequacy of participant responses and communication throughout.

<sup>7</sup> Intervention Pricing Methodology at <https://www.aemo.com.au/-/media/Files/PDF/Intervention-Pricing-Methodology-October-2014.pdf>.



## ABBREVIATIONS

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