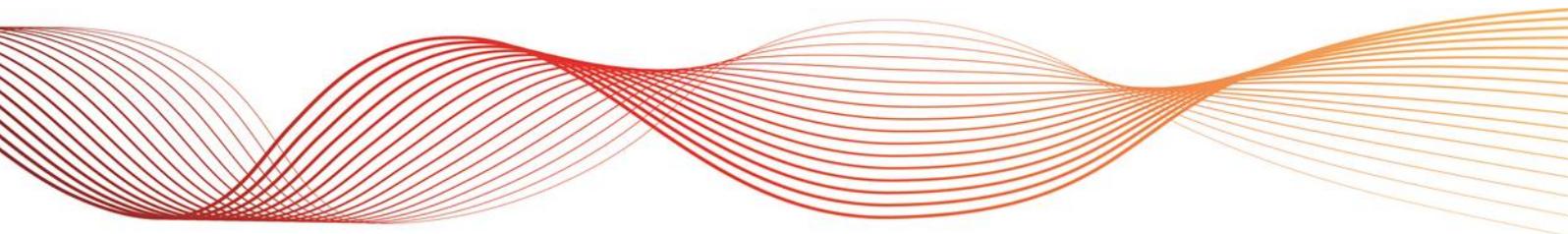




NEM EVENT – DIRECTION 27 - 28 MARCH 2018

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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 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

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.

Between 27 March 2018 and 28 March 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 27 March 2018 and 28 March 2018

Direction	Directed participant	Issue time	Cancellation time	Direction instruction
Osborne Power Station (PS)	Origin Energy Electricity Ltd	1720 hrs, 27 March 2018	0630 hrs, 28 March 2018	Osborne Power Station (PS) to remain synchronised and follow dispatch targets effective from 2130 hrs on 27 March 2018.
Pelican Point Gas Turbine (GT) 12	Pelican Point Power Ltd	1950 hrs, 27 March 2018	0500 hrs, 28 March 2018	Pelican Point Gas Turbine (GT) 12 unit to remain synchronised and follow dispatch targets effective from 2130 hrs 27 March 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 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 at 27 March 2018.

At 0553 hrs on 27 March 2018, ENGIE submitted a rebid de-committing Pelican Point GT12 unit from 2230 hrs on 27 March 2018². As a result, AEMO assessed that there would be insufficient online synchronous generating units available to meet system strength requirements from 2230 hrs on 27 March 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.

Following the 1230 predispach run, Engie submitted another rebid at 1251 hrs de-committing Pelican Point GT12 unit from 2130 hrs on 27 March 2018³ and Origin Energy Electricity Ltd submitted a rebid at 1351 hrs de-committing Osborne PS from 2130 hrs on 27 March 2018⁴.

1 For more information about this requirement, see <http://www.aemo.com.au/Media-Centre/South-Australia-System-Strength-Assessment>.

2 0530~A~CHANGE SRMC: VIC 6AM GAS PRICE~

3 1250~a~RESPOND TO PREDISPATCH D+1~

4 1341A DEC SA DEM – 5PD 1045 MW < 30PD 1186 MW @ 1435 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 61947) at 1247 hrs on 27 March 2018⁵. AEMO issued two updates to this market notice (MN 61948 and 61950) at 1331 hrs and 1544 hrs, on 27 March 2018.

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 1730 hrs on 27 March 2018 (MN 61950).

2.3 Decision to intervene

At 1720 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 a direction to Origin Energy for Osborne PS to remain synchronised and follow dispatch targets from 2130 hrs on 27 March 2018. At 1950 hours, AEMO then issued a second direction to ENGIE for Pelican Point GT12 to remain synchronised and follow dispatch targets from 2130 hrs on 27 March 2018.

3. INTERVENTION PROCESS

AEMO considers that it followed all applicable processes under NER Clause 4.8 for the management of the directions on 27 to 28 March 2018⁶. **Error! Not a valid bookmark self-reference.** Table 2 provides a high-level timeline of the intervention event.

Table 2 Timeline of key events on 27 to 28 March 2018

Time	Events / comments
27 March 2018	
0533 hrs	ENGIE submitted a rebid de-committing Pelican Point unit GT12 from 2230 hrs on 27 March 2018.
1247 hrs	AEMO published market notice seeking a market response and noting the latest time to intervene was at 2100 hrs on 27 March 2018 (MN 61947).
1251 hrs	ENGIE submitted a rebid de-committing Pelican Point unit GT12 from 2130 hrs on 27 March 2018.
1331 hrs	AEMO published market notice seeking a market response and noting the latest time to intervene was at 2000 hrs on 27 March 2018 (MN 61948).
1351 hrs	Origin Energy Electricity Ltd submitted a rebid de-committing Osborne PS from 2130 hrs on 27 March 2018.
1544 hrs	AEMO published market notice seeking a market response and noting the latest time to intervene was at 1730 hrs on 27 March 2018 (MN 61950).
1720 hrs	Direction issued to Origin Energy Electricity Ltd for Osborne PS to remain synchronised and follow dispatch targets from 2130 hrs on 27 March 2018.

⁵ AEMO Market Notices are at <http://www.aemo.com.au/Market-Notices>.

⁶ 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.



Time	Events / comments
1730 hrs	AEMO published MN 61953 declaring a direction was issued to a SA participant at 1720 hrs.
1732 hrs	AEMO published MN 61955 declaring an AEMO intervention event commenced from dispatch interval (DI) ending 1725 hrs and that all DIs during the AEMO intervention event to be intervention price dispatch intervals.
1950 hrs	Direction issued to ENGIE for Pelican Point unit GT12 to remain synchronised and follow dispatch targets from 2130 hrs on 27 March 2018.
1952 hrs	AEMO published MN 61957 declaring a direction was issued to a SA participant at 1950 hrs.
2130 hrs	Intervention constraints applied to Osborne PS in central dispatch from DI ending 2135 hrs on 27 March 2018.
2130 hrs	Intervention constraints applied to Pelican Point PS in central dispatch from DI ending 2135 hrs on 27 March 2018.
28 March 2018	
0500 hrs	The direction to Pelican Point unit GT12 was cancelled after the unit resumed commercial operation. Intervention constraints revoked from Pelican Point unit GT12 in central dispatch from DI ending 0500 hrs.
0501 hrs	AEMO published MN 61974, declaring the cancellation of the Direction event at 0500 hrs on 28 March 2018.
0630 hrs	The direction to Osborne PS was cancelled after the unit resumed commercial operation. Intervention constraints revoked from Osborne PS in central dispatch from DI ending 0630 hrs.
0630 hrs	AEMO published MN 61977, declaring the cancellation of the Direction event at 0630 hrs on 28 March 2018.
0631 hrs	AEMO published MN 61978, declaring the cancellation of intervention pricing at 0630 hrs on 28 March 2018.

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 off all responses to its requests for information prior to issuing directions between 27 March 2018 and 28 March 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 2,462 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 minimised⁷.

⁷ 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.

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 or second direction to Pelican Point GT12 because all South Australian scheduled units were running at close to technical minimum load or not generating.

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.

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 most regions other than Tasmania. The Basslink interconnector was unavailable during the direction period.

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

	QLD	NSW	VIC	SA	TAS
Without direction	56,353	52,909	44,439	8,960	8,254
Actual	55,956	51,832	43,484	8,994 +2,462 ^A	8,254
Change	-397	-1,077	-955	+2,496	0

A. 2,462 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	-462	-2,630	5,476	1,458	103	0
Actual ^A	-425	-2,276	7,046	-702	-265	0
Change ^B	37 MWh less into NSW	354 MWh less into NSW	1570 MWh more into NSW	2160 MWh more into VIC	368 MWh more into VIC	Unavailable

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 Methodology⁸.

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 1725 hrs on 27 March 2018 until DI ending 0630 hrs on 28 March 2018.

⁸ Intervention Pricing Methodology at <https://www.aemo.com.au/-/media/Files/PDF/Intervention-Pricing-Methodology-October-2014.pdf>.



5. CONCLUSIONS AND FURTHER ACTIONS

Between 27 March 2018 and 28 March 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.



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