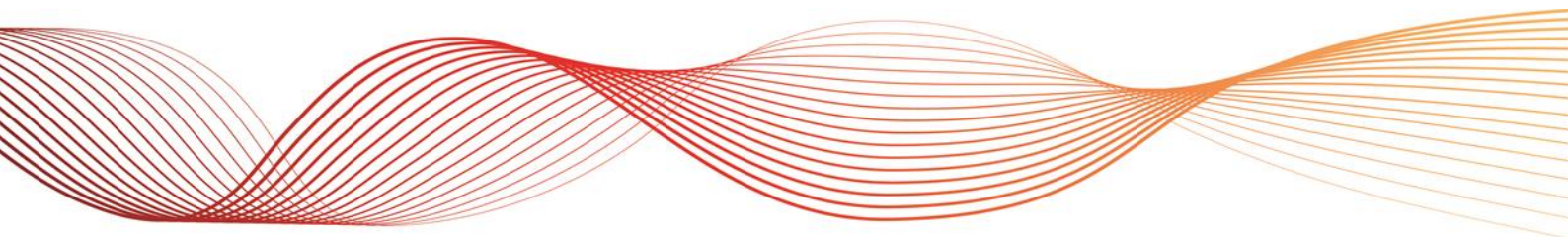




NEM EVENT – DIRECTION 23 - 26 FEBRUARY 2018

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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 2 May 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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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 23 February 2018 and 26 February 2018, AEMO issued one direction to a South Australian Market Participant to maintain power system security. The direction is summarised in Table 1.

Table 1 Summary of the South Australia direction between 23 February 2018 and 26 February 2018

Direction	Directed Participant	Issue time	Cancellation time	Direction instruction
Osborne Power Station (PS)	Origin Energy Electricity Limited	1200 hrs, 23 Feb 2018	0600 hrs, 26 Feb 2018	Remain synchronised and follow dispatch targets effective from 2100 hrs on 23 February 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 on 23 February 2018.

The 1600 hrs Pre-Dispatch (PD) run on 22 February 2018 indicated that there would be insufficient online synchronous generating units available to meet these requirements from 0030 hrs on 24 February 2018 when Pelican Point Power Station (PS) reduced its availability. AEMO determined that, should a market response not be provided, a direction would be required to maintain power system security.

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. AEMO issued this market notice (MN 61465) at 1633 hrs on 22 February 2018².

AEMO contacted the Registered Participants who operate eligible synchronous generating units in South Australia to seek their availability for the relevant periods. Those Registered Participants indicated they did not intend to adjust their market offers, but identified units that would be available if directed.

Based on advised lead times, and de-commitment of generation capacity by Osborne PS from 2100 hrs on 23 February 2018, AEMO assessed that the latest time to intervene was 1200 hrs on 23 February 2018.

¹ <http://www.aemo.com.au/Media-Centre/South-Australia-System-Strength-Assessment>.
² AEMO Market Notices are at <http://www.aemo.com.au/Market-Notices>.

2.3 Decision to intervene

As insufficient market response had been provided, AEMO evaluated the estimated costs provided for eligible synchronous generating units, and issued a direction to Origin Energy Electricity Ltd for Osborne PS to remain synchronised and follow dispatch targets from 2100 hrs on 23 February 2018, instead of de-committing.

3. INTERVENTION PROCESS

AEMO considers that it followed all applicable processes under NER 4.8 for the management of the direction between 23 February 2018 and 26 February 2018³. Table 2 provides a high level timeline of the intervention event.

Table 2 Timeline of key events between 23 February 2018 and 26 February 2018

Time	Events / comments
22 February 2018	
1633 hrs	AEMO published market notice seeking a market response and noting the latest time to intervene was at 1200 hrs on 23 February 2018 (MN 61465).
23 February 2018	
1200 hrs	Direction issued to Origin Energy Electricity Ltd for Osborne PS to remain synchronised and follow dispatch targets from 2100 hrs on 23 February 2018.
	AEMO published MN 61484 declaring a direction was issued to a South Australian participant at 1200 hrs.
	AEMO published MN 61485 declaring an AEMO intervention event commenced from dispatch interval (DI) ending 1205 hrs and that all DIs during the AEMO intervention event would be intervention price dispatch intervals.
26 February 2018	
0600 hrs	AEMO published MN 61548 declaring that the direction was cancelled at 0600 hrs on 26 February 2018. Intervention constraints revoked for Osborne PS.
	AEMO published MN 61549 declaring the cancellation of intervention pricing.

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 between 23 February 2018 and 26 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 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 Osborne PS to remain synchronised and follow dispatch targets resulted in approximately 4,935 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. To achieve this objective, in accordance with 4.8.9(h)(3) of the NER, AEMO applied counter-action constraints to reduce the output of Pelican Point PS, Torrens Island B unit 1, Torrens Island B unit 2, and Torrens Island B unit 3.

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

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.

Of note is that while these directions displaced market-based generation in South Australia, they also increased exports from South Australia. The increased exports, coupled with an impact on network constraints, resulted in less energy flow southwards (with the exception of Tasmania), and displacement of generation in New South Wales and Queensland.

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

	QLD	NSW	VIC	SA	TAS
Without direction	375,007	416,336	299,054	59,948	45,815
Actual	373,932	412,329	300,164	59,274 + 4,935 ^A	45,610
Change	-1,075	-4,006	+1,110	+4,261	-205

A. 4,935 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	-2,323	-13,778	20,466	7,715	475	-14,112
Actual^B	-2,205	-12,834	25,726	4,212	-343	-14,310
Change^C	118 MWh less to NSW	945 MWh less to NSW	5,260 MWh more to NSW	3,503 MWh more to VIC	818 MWh more to VIC	198 MWh less 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.

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>.



Intervention pricing was declared for this event in accordance with NER 3.9.3(b) for the full intervention period from dispatch interval (DI) ending 1205 hrs on 23 February 2018 until DI ending 0600 hrs on 26 February 2018.

5. CONCLUSIONS AND FURTHER ACTIONS

Between 23 February 2018 and 26 February 2018, AEMO issued a direction to a South Australian Market Participant to maintain power system security in response to a generator trip in the region resulting in insufficient 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
PS	Power Station
SA	South Australia