



NEM Event – Directions 5 to 10 March 2019

October 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) clauses 4.8.9(f) and 3.13.6A(a). This report satisfies those NER obligations, and is based on information available to AEMO at 5 August 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
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 5 and 10 March 2019, AEMO issued eight directions to South Australian Market Participants to maintain power system security across two events. These directions are summarised in Table 1.

Table 1 Summary of the eight South Australia directions between 5 and 10 March 2109

Direction	Directed Participant	Event No.	Issue time	Cancellation time	Direction instruction
Torrens Island A unit 3	AGL SA Generation Pty Ltd	1	1400 hrs, 5 March 2019	2330 hrs, 5 March 2019	Synchronise Torrens Island A unit 3 at 2400 hrs on 5 March 2019 and follow dispatch targets
Torrens Island B unit 3	AGL SA Generation Pty Ltd	1	1400 hrs, 5 March 2019	2330 hrs, 5 March 2019	Synchronise Torrens Island B unit 3 at 2400 hrs on 5 March 2019 and follow dispatch targets
Pelican Point Gas Turbine (GT) 11 and Steam Turbine (ST) 18	Pelican Point Power Pty Ltd (ENGIE)	1	2344 hrs, 5 March 2019	0930 hrs, 6 March 2019	Remain synchronised and follow dispatch targets from 0000 hrs on 6 March 2019
Torrens Island A unit 1	AGL SA Generation Pty Ltd	1	0150 hrs, 6 March 2019	1600 hrs, 6 March 2019	Synchronise Torrens Island A unit 1 at 0930 hrs on 6 March 2019 and follow dispatch targets
Torrens Island A unit 3	AGL SA Generation Pty Ltd	1	0151 hrs, 6 March 2019	1600 hrs, 6 March 2019	Synchronise Torrens Island A unit 3 at 0930 hrs on 6 March 2019 and follow dispatch targets
Torrens Island A unit 3	AGL SA Generation Pty Ltd	2	1500 hrs, 9 March 2019	1520 hrs, 9 March 2019	Synchronise Torrens Island A unit 3 at 0600 hrs on 10 March 2019 and follow dispatch targets
Torrens Island B unit 4	AGL SA Generation Pty Ltd	2	1500 hrs, 9 March 2019	1500 hrs, 10 March 2019	Synchronise Torrens Island B unit 4 at 0600 hrs on 10 March 2019 and follow dispatch targets
Torrens Island B unit 3	AGL SA Generation Pty Ltd	2	1520 hrs, 9 March 2019	1500 hrs, 10 March 2019	Synchronise Torrens Island B unit 3 at 0600 hrs on 10 March 2019 and follow dispatch targets

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

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 5 March 2019 for each of the direction events.

The need for intervention for each of the two direction events arose due to the following respective rebids:

1. ENGIE submitted a rebid at 1319 hrs on 4 March 2019 for Pelican Point PS to de-commit at 0000 hrs on 6 March 2019².
2. ENGIE submitted a rebid at 1351 hrs on 9 March 2019 for Pelican Point PS to de-commit at 0600 hrs on 10 March 2019³.

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 clauses 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 each of the direction events, AEMO issued this market notification as listed in Table 2.

AEMO contacted all participants who operate suitable 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.

For each of the direction events, AEMO assessed the latest time to intervene taking account of the advised lead times. The latest times to intervene are listed in Table 2.

2.3 Decision to intervention

As all participants contacted had indicated that no market response would be provided, AEMO evaluated the estimated costs, and issued the directions 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 5 and 10 March 2019. Table 2 provides a high-level timeline of the intervention event.

² Rebid reason: 1240~F~REVISED TOLLING NOMINATION: 1147~

³ Rebid reason: 1345~A~RESPOND TO PREDISPATCH D+1~

Table 2 Timeline of key events between 5 March and 10 March 2019

Time	Events/comments
4 March 2019	
1319 hrs	ENGIE rebid to decommit Pelican Point PS from 0000 hrs on 6 March 2019.
5 March 2019	
0741 hrs	AEMO published a market notice (MN) seeking a market response and noting the latest time to intervene was 1330 hrs on 5 March 2019 (MN 67565).
1400 hrs	<ul style="list-style-type: none"> • Directions issued to AGL SA Generation Pty Ltd for Torrens Island A unit 3 and Torrens Island B unit 3 to synchronise and follow dispatch targets from 2400 hrs on 5 March 2019. • AEMO published MN 67574 declaring a direction was issued to a South Australian participant. • AEMO published MN 67575 declaring that an AEMO intervention event had commenced from dispatch interval (DI) ending 1405 hrs on 5 March 2019 and that all DIs during the AEMO intervention event would be intervention price DIs.
2330 hrs	The directions to Torrens Island A unit 3 and Torrens Island B unit were cancelled prior to becoming effective.
2344 hrs	Direction issued to Pelican Point GT11 and ST18 to remain synchronised and follow dispatch targets from 0000 hrs on 6 March 2019.
6 March 2019	
0150 hrs	<ul style="list-style-type: none"> • Direction issued to AGL SA Generation Pty Ltd for Torrens Island A unit 1 to synchronise and follow dispatch targets from 0930 hrs on 6 March 2019. • Intervention constraints applied to Torrens Island A unit 1 in central dispatch from DI ending 0935 hrs on 6 March 2019.
0151 hrs	<ul style="list-style-type: none"> • Direction issued to AGL SA Generation Pty Ltd for Torrens Island A unit 3 to synchronise and follow dispatch targets from 0930 hrs on 6 March 2019. • Intervention constraints applied to Torrens Island A unit 3 in central dispatch from DI ending 0935 hrs on 6 March 2019.
0930 hrs	The direction to Pelican Point GT11 and ST18 was cancelled and intervention constraints were revoked.
1600 hrs	<ul style="list-style-type: none"> • The directions to Torrens Island A units 1 & 3 were cancelled and intervention constraints were revoked. • AEMO published MN 67616 declaring the cancellation of the direction.
9 March 2019	
1351 hrs	ENGIE rebid to decommit Pelican Point PS from 0600 hrs on 10 March 2019.
1440 hrs	AEMO published a market notice seeking a market response and noting the latest time to intervene was 1500 hrs on 9 March 2019 (MN 67688).
1500 hrs	<ul style="list-style-type: none"> • Directions issued to AGL SA Generation Pty Ltd for Torrens Island A unit 3 and Torrens Island B unit 4 to synchronise and follow dispatch targets from 0600 hrs on 10 March 2019. • AEMO published MN 67693 declaring a direction was issued to a South Australian participant. • AEMO published MN 67694 declaring that an AEMO intervention event had commenced from DI ending 1505 hrs on 9 March 2019 and that all DIs during the AEMO intervention event would be intervention price DIs. • Intervention constraints applied to Torrens Island B unit 4 in central dispatch from DI ending 0605 hrs on 10 March 2019.
1520 hrs	<ul style="list-style-type: none"> • The direction to Torrens Island A unit 3 was cancelled prior to becoming effective. • Direction issued to AGL SA Generation Pty Ltd for Torrens Island B unit 3 to synchronise and follow dispatch targets from 0600 hrs on 10 March 2019.

Time	Events/comments
	<ul style="list-style-type: none"> Intervention constraints applied to Torrens Island B unit 3 in central dispatch from DI ending 0605 hrs on 10 March 2019.
10 March 2019	
1500 hrs	<ul style="list-style-type: none"> The directions to Torrens Island B units 3 and 4 were cancelled and intervention constraints were revoked. AEMO published MN 67715 declaring the cancellation of the direction.

3.1 Adequacy of responses to AEMO inquiries

NER clause 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 from ENGIE and AGL SA Generation Pty Ltd for information prior to issuing the directions between 5 and 10 March 2019.

3.2 Participant ability to comply with the intervention

NER clause 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 is satisfied with ENGIE complying with the direction in Table 1.

AEMO received notification from AGL that it would not be able to comply with the direction issued to Torrens Island B unit 3 at 1400 hrs on 5 March 2019. As a result, AEMO cancelled the directions to both Torrens Island B unit 3 and A unit 3 as they were no longer a viable system strength option.

AEMO also received notification from AGL that Torrens Island A unit 3 was not able to comply with the direction issued at 1500 hrs on 9 March 2019. A direction to AGL for Torrens Island B unit 3 was issued instead at 1520 hrs on 9 March 2019.

4. Dispatch and pricing outcomes

4.1 Changes to dispatch outcomes due to the directions

The directions to ENGIE and AGL SA Generation Ltd resulted in approximately 2,472 megawatt hours (MWh) of generation being added to the market.

Under NER clause 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. 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 all eight 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 increased exports from South Australia. The increased exports, coupled with an impact on network constraints, resulted in displacement of generation in other NEM regions.

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

	QLD	NSW	VIC	SA	TAS
Without direction	173,622	173,649	125,559	27,372	14,655
Actual	173,177	172,735	124,945	27,198 2,472 ^A	14,639
Change	-42	-914	-614	2,299	-16

A. 2,472 is the directed energy.

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

	Terranora	QNI	VIC-NSW	Heywood	Murraylink	Basslink
Without direction ^A	-1,587	-13,591	15,320	-1,578	-731	-8,569
Actual ^B	-1,539	-13,150	16,748	-3,229	-1,298	-8,585
Change	48 MWh less into NSW	442 MWh less into NSW	1,428 MWh more into NSW	1,651 MWh more into VIC	568 MWh more into VIC	16 MWh more into TAS

A. Positive numbers are for flows north or west, negative for flows 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 clause 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.

Intervention pricing applies whenever the direction meets the regional reference node test, that is a direction 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 can 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 clause 3.9.3(b), and for the full intervention period from:

- DI ending 1405 hrs on 5 March 2019 until DI ending 1600 hrs on 6 March 2019.
- DI ending 1505 hrs on 9 March 2019 until DI ending 1500 hrs on 10 March 2019.

5. Conclusions and further actions

Between 5 and 10 March 2019, AEMO issued eight 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.