



NEM Event – Direction Report 26 to 30 June 2019

June 2020

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 26 March 2020.

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
GT	Gas Turbine
ST	Steam Turbine

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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 26 and 30 June 2019, AEMO issued six directions across four events to South Australian Market Participants to maintain power system security. These directions are summarised in Table 1.

Table 1 Summary of the South Australia direction between 26 and 30 June 2019

Direction	Directed Participant	Event No.	Issue time	Cancellation time	Direction instruction
Torrens Island A unit 2	AGL SA Generation Pty Ltd	1	2200 hrs, 26 June 2019	0700 hrs, 27 June 2019	Remain synchronised and follow dispatch targets from 0100 hrs on 27 June 2019
Torrens Island B unit 4	AGL SA Generation Pty Ltd	1	2200 hrs, 26 June 2019	0700 hrs, 27 June 2019	Remain synchronised and follow dispatch targets from 0130 hrs on 27 June 2019
Torrens Island A unit 2	AGL SA Generation Pty Ltd	2	1400 hrs, 27 June 2019	1515 hrs, 28 June 2019	To synchronise and follow dispatch targets from 0100 hrs on 28 June 2019
Torrens Island A unit 3	AGL SA Generation Pty Ltd	2	1400 hrs, 27 June 2019	1515 hrs, 28 June 2019	To synchronise and follow dispatch targets from 0000 hrs on 28 June 2019
Pelican Point GT 12 and ST 18	Pelican Point Power Pty Ltd (ENGIE)	3	1630 hrs, 28 June 2019	1400 hrs, 29 June 2019	Remain synchronised and follow dispatch targets from 0030 hrs on 29 June 2019
Pelican Point GT 12 and ST 18	Pelican Point Power Pty Ltd (ENGIE)	4	1800 hrs, 29 June 2019	1430 hrs, 30 June 2019	Remain synchronised and follow dispatch targets from 0100 hrs on 30 June 2019

2. Intervention assessment

¹ See https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/congestion-information/transfer-limit-advice-system-strength.pdf.

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 26 June 2019 for the direction event.

The requirement to intervene for the direction events in this report arose when the following rebids were submitted (the numbering corresponds to the directions events):

1. ENGIE submitted a rebid at 1519 hrs on 26 June 2019 for Pelican Point PS to de-commit at 2330 hrs on 26 June 2019².
2. ENGIE submitted a rebid at 1209 hrs on 27 June 2019 for Pelican Point PS to de-commit at 0130 hrs on 27 June 2019³.
3. ENGIE submitted a rebid at 1249 hrs on 27 June 2019 for Pelican Point PS to de-commit at 0030 hrs on 29 June 2019⁴.
4. ENGIE submitted a rebid at 1249 hrs on 28 June 2019 for Pelican Point PS to de-commit at 0100 hrs on 30 June 2019⁵.

As a result, AEMO determined that there would be insufficient online synchronous units available to meet system strength requirements following this de-commitment and assessed all available options before directing.

2.2 Assessment of market response and latest time to intervene

Under NER clause 4.8.5A paragraphs (a) and (c), AEMO must notify the market of any foreseeable circumstances that may require AEMO to intervene, and the latest time for market response before AEMO would need to intervene.

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 market notices and 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.

² Rebid reason: 1515~A~RESPOND TO PREDISPATCH D0~

³ Rebid reason: 1205~P~UPDATE MINGEN: CURRENT AMBIENT TEMPERATURE~

⁴ Rebid reason: 1210~A~RESPOND TO PREDISPATCH D+1~

⁵ Rebid reason: 1235~A~ RESPOND TO PREDISPATCH D+1~

3. Intervention process

AEMO considers that it followed all applicable processes under NER clause 4.8 for the management of the direction between 26 and 30 June 2019. Table 2 provides a high-level timeline of the intervention event.

Table 2 Timeline of key events between 26 and 30 June 2019

Time	Events/comments
26 June 2019	
1519 hrs	ENGIE rebid to decommit Pelican Point PS from 2335 hrs on 26 June 2019.
1611 hrs	AEMO published a market notice seeking a market response and noting the latest time to intervene was 2200 hrs on 26 June 2019 (MN 68828).
2200 hrs	<ul style="list-style-type: none"> • Directions issued to AGL SA Generation Pty Ltd for Torrens Island A unit 2 to remain synchronised and follow dispatch targets from 0100 hrs on 27 June 2019. • Directions issued to AGL SA Generation Pty Ltd for Torrens Island B unit 4 to remain synchronised and follow dispatch targets from 0130 hrs on 27 June 2019. • AEMO published MN 68832 declaring a direction was issued to a South Australian participant. • AEMO published MN 68833 declaring that an AEMO intervention event had commenced from dispatch interval ending 2205 hrs on 27 June 2019 and that all dispatch intervals during the AEMO intervention event would be intervention price dispatch intervals. • Intervention constraints applied to Torrens Island A unit 2 in central dispatch from dispatch interval ending 0105 hrs on 27 June 2019. • Intervention constraints applied to Torrens Island B unit 4 in central dispatch from dispatch interval ending 0135 hrs on 27 June 2019.
27 June 2019	
0700 hrs	<ul style="list-style-type: none"> • The direction to Torrens Island A unit 2 was cancelled and intervention constraints were revoked. • The direction to Torrens Island B unit 4 was cancelled and intervention constraints were revoked. • AEMO published market notice 68482 declaring the cancellation of the direction.
0930 hrs	AEMO published a market notice seeking a market response and noting the latest time to intervene was 1400 hrs on 27 June 2019 (MN 68841).
1400 hrs	<ul style="list-style-type: none"> • Directions issued to AGL SA Generation Pty Ltd for Torrens Island A unit 2 to remain synchronised and follow dispatch targets from 0100 hrs on 28 June 2019. • Directions issued to AGL SA Generation Pty Ltd for Torrens Island A unit 3 to remain synchronised and follow dispatch targets from 0000 hrs on 28 June 2019. • AEMO published MN 68844 declaring a direction was issued to a South Australian participant. • AEMO published MN 68845 declaring that an AEMO intervention event had commenced from dispatch interval ending 1405 hrs on 27 June 2019 and that all dispatch intervals during the AEMO intervention event would be intervention price dispatch intervals. • Intervention constraints applied to Torrens Island A unit 2 in central dispatch from dispatch interval ending 0105 hrs on 28 June 2019.
1535 hrs	<ul style="list-style-type: none"> • AEMO published an update to Torrens Island A unit 3 direction, to remain synchronised and follow dispatch targets from 0000 hrs on 28 June 2019. • Intervention constraints applied to Torrens Island A unit 3 in central dispatch from dispatch interval ending 0005 hrs on 28 June 2019. • AEMO published an update to MN 68844 and MN 68845 (MN 68847).

Time	Events/comments
28 June 2019	
0700 hrs	AEMO published a market notice seeking a market response and noting the latest time to intervene would be published after the 1230 hrs pre dispatch run on the 28 June 2019 (MN 68848).
1340 hrs	AEMO published a market notice seeking a market response and noting the latest time to intervene 1630 hrs on the 28 June 2019 (MN 68849).
1435 hrs	AEMO published an update to MN 68844 and MN 68847 (MN 68854).
1515 hrs	<ul style="list-style-type: none"> • The direction to Torrens Island A unit 2 was cancelled and intervention constraints were revoked. • The direction to Torrens Island A unit 3 was cancelled and intervention constraints were revoked. • AEMO published MN 68857 declaring the cancellation of the direction.
1630 hrs	<ul style="list-style-type: none"> • Direction issued to Pelican Point GT12 to remain synchronised and follow dispatch targets from 0030 hrs on 29 June 2019. • AEMO published MN 68859 declaring a direction was issued to a South Australian participant. • AEMO published MN 68860 declaring that an AEMO intervention event had commenced from dispatch interval ending 1635 hrs on 28 June 2019 and that all dispatch intervals during the AEMO intervention event would be intervention price dispatch intervals. • Intervention constraints applied to Pelican Point GT12 in central dispatch from dispatch interval ending 0035 hrs on 29 June 2019.
1740 hrs	<ul style="list-style-type: none"> • AEMO published a market notice seeking a market response and noting the latest time to intervene would be published after the 1230 hrs pre dispatch run on the 29 June 2019 (MN 68861).
29 June 2019	
1330 hrs	<ul style="list-style-type: none"> • AEMO published an update to MN 68861 seeking a market response and noting the latest time to intervene was 1800 hrs on the 29 June 2019 (MN 68864).
1400 hrs	<ul style="list-style-type: none"> • The direction to Pelican Point GT12 was cancelled and intervention constraints were revoked. • AEMO published market notice 68866 declaring the cancellation of the direction.
1800 hrs	<ul style="list-style-type: none"> • Direction issued to Pelican Point GT12 to remain synchronised and follow dispatch targets from 0100 hrs on 30 June 2019. • AEMO published MN 68870 declaring a direction was issued to a South Australian participant. • AEMO published MN 68871 declaring that an AEMO intervention event had commenced from dispatch interval ending 1805 hrs 29 June 2019 and that all dispatch intervals during the AEMO intervention event would be intervention price dispatch intervals. • Intervention constraints applied to Pelican Point GT12 in central dispatch from dispatch interval ending 0105 hrs on 30 June 2019.
30 June 2019	
1430 hrs	<ul style="list-style-type: none"> • The direction to Pelican Point GT12 was cancelled and intervention constraints were revoked. • AEMO published market notice 68876 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 for information prior to issuing the directions between 26 and 30 June 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 all participants complying with the directions in Table 1.

4. Dispatch and pricing outcomes

4.1 Changes to dispatch outcomes due to the directions

The directions to AGL SA Generation Pty Ltd and ENGIE resulted in approximately 6,256 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 the direction event. 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	276,230	355,433	255,852	59,660	42,341
Actual	275,299	351,249	255,526	59,494 + 6,256 ^A	42,207
Change	-931	-4,184	-326	12,347	-134

A. 6,256 is the directed energy.

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

	Terranora	QNI	VIC-NSW	Heywood	Murraylink	Basslink
Without direction ^A	-1,398	-8,493	21,237	-4,933	-467	-12,479
Actual ^B	-1,305	-7,638	26,366	-9,016	-2,236	-12,563

	Terranora	QNI	VIC-NSW	Heywood	Murraylink	Basslink
Change	93 MWh less into NSW	855 MWh less into NSW	5,128 MWh more into NSW	4,083 MWh more into VIC	1,768 MWh more into VIC	84 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 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 clause 3.9.3(b), and for the full intervention period from:

- DI ending 2205 hrs on 26 June 2019 until DI ending 0700 hrs on 27 June 2019.
- DI ending 1405 hrs on 27 June 2019 until DI ending 1515 hrs on 28 June 2019.
- DI ending 1635 hrs on 28 June 2019 until DI ending 1400 hrs on 29 June 2019.
- DI ending 1805 hrs on 29 June 2019 until DI ending 1430 hrs on 30 June 2019.

5. Conclusions and further actions

Between 26 and 30 June 2019, AEMO issued six directions to a South Australian Market Participant 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.