



NEM Event – Direction Report

29 April to 2 May 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 22 January 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

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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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 29 April 2019 and 2 May 2019, AEMO issued three directions to South Australian Market Participants to maintain power system security across three events. These directions are summarised in Table 1.

Table 1 Summary of the South Australia directions between 29 April and 2 May 2019

Direction	Directed Participant	Event No.	Issue time	Cancellation time	Direction instruction
Torrens Island B unit 2	AGL SA Generation Pty Ltd	1	1500 hrs, 29 April 2019	1700 hrs, 30 April 2019	Remain synchronised and follow dispatch targets from 0230 hrs on 30 April 2019
Torrens Island B unit 2	AGL SA Generation Pty Ltd	2	2130 hrs, 30 April 2019	1600 hrs, 1 May 2019	Remain synchronised and follow dispatch targets from 2230 hrs on 30 April 2019
Torrens Island B unit 2	AGL SA Generation Pty Ltd	3	2000 hrs, 1 May 2019	1600 hrs, 2 May 2019	Remain synchronised and follow dispatch targets from 0030 hrs on 2 May 2019

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 29 April 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. AGL SA Generation Pty Ltd submitted a rebid at 1324 hrs on 29 April 2019 for Torrens Island B unit 2 to de-commit at 0130 hrs on 30 April 2019².

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

² Rebid reason: 1230~F~001 PRIMARY RESPONSE TO D+1 PREDISPATCH~ADJUSTED RUNNING

2. AGL SA Generation Pty Ltd submitted a rebid at 0918 hrs on 30 April 2019 for Torrens Island B unit 2 to de-commit at 2230 hrs on 30 April 2019³.
3. AGL SA Generation Pty Ltd submitted a rebid at 1404 hrs on 1 May 2019 for Torrens Island B unit 2 to de-commit at 0030 hrs on 2 May 2019⁴.

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 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.

3. Intervention process

AEMO considers that it followed all applicable processes under NER clause 4.8 for the management of the direction between 29 April and 2 May 2019. Table 2 provides a high-level timeline of the intervention event.

Table 2 Timeline of key events between 29 April and 2 May 2019

Time	Events/comments
29 April 2019	
1324 hrs	AGL SA Generation Pty Ltd rebid to decommit Torrens Island B unit 2 from 0200 hrs on 30 April 2019.
1417 hrs	AEMO published a market notice seeking a market response and noting the latest time to intervene was 1500 hrs on 29 April 2019 (MN 68233).
1500 hrs	<ul style="list-style-type: none"> • Direction issued to AGL SA Generation Pty Ltd for Torrens Island B unit 2 to remain synchronised and follow dispatch targets from 0230 hrs on 30 April 2019. • AEMO published MN 68235 declaring a direction was issued to a South Australian participant.

³ Rebid reason: 0909~A010 AEMO DIRECTION~UPDATED DIRECTION TORRB2 #68242 - REDI

⁴ Rebid reason: 1231~F~001 PRIMARY RESPONSE TO D+1 PREDISPATCH~P30 PUBLISHED 12:

Time	Events/comments
	<ul style="list-style-type: none"> AEMO published MN 68236 declaring that an AEMO intervention event had commenced from dispatch interval ending 1505 hrs on 29 April 2019 and that all dispatch intervals during the AEMO intervention event would be intervention price dispatch intervals. Intervention constraints applied to Torrens Island B unit 2 in central dispatch from dispatch interval ending 0235 hrs on 30 April 2019.
30 April 2019	
0918 hrs	<ul style="list-style-type: none"> AGL SA Generation Pty Ltd rebid to decommit Torrens Island B unit 2 from 2230 hrs on 30 April 2019. AEMO published a market notice seeking a market response and did not note the latest time to intervene (MN 68244).
1343 hrs	AEMO published an updated market notice seeking a market response and noting the latest time to intervene was 2130 hrs on 30 April 2019 (MN 68249).
1700 hrs	<ul style="list-style-type: none"> The direction to Torrens Island B unit 2 was cancelled and intervention constraints were revoked. AEMO published MN 68253 declaring the cancellation of the direction.
2130 hrs	<ul style="list-style-type: none"> Direction issued to AGL SA Generation Pty Ltd for Torrens Island B unit 2 to remain synchronised and follow dispatch targets from 2230 hrs on 30 April 2019. AEMO published MN 68255 declaring a direction was issued to a South Australian participant. AEMO published MN 68256 declaring that an AEMO intervention event had commenced from dispatch interval ending 2135 hrs on 29 April 2019 and that all dispatch intervals during the AEMO intervention event would be intervention price dispatch intervals. Intervention constraints applied to Torrens Island B unit 2 in central dispatch from dispatch interval ending 2235 hrs on 30 April 2019.
1 May 2019	
1404 hrs	AGL SA Generation Pty Ltd rebid to decommit Torrens Island B unit 2 from 0030 hrs on 2 May 2019.
1453 hrs	AEMO published a market notice seeking a market response and noting the latest time to intervene was 1700 hrs on 1 May 2019 (MN 68259).
1600 hrs	<ul style="list-style-type: none"> The direction to Torrens Island B unit 2 was cancelled and intervention constraints were revoked. AEMO published MN 68261 declaring the cancellation of the direction.
2000 hrs	<ul style="list-style-type: none"> Direction issued to AGL SA Generation Pty Ltd for Torrens Island B unit 2 to remain synchronised and follow dispatch targets from 0030 on 2 May 2019. AEMO published MN 68263 declaring a direction was issued to a South Australian participant. AEMO published MN 68264 declaring that an AEMO intervention event had commenced from dispatch interval ending 2005 hrs on 1 May 2019 and that all dispatch intervals during the AEMO intervention event would be intervention price dispatch intervals. Intervention constraints applied to Torrens Island B unit 2 in central dispatch from dispatch interval ending 0035 hrs on 2 May 2019.
2 May 2019	
1600 hrs	<ul style="list-style-type: none"> The direction to Torrens Island B unit 2 was cancelled and intervention constraints were revoked. AEMO published market notice 68304 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 AGL SA Generation Pty Ltd for information prior to issuing the directions between 29 April and 2 May 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, resulted in approximately 1,714 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	301,590	359,611	204,827	60,045	43,903
Actual	301,695	359,082	203,913	60,490+ 1,714 ^A	43,386
Change	105	-529	-914	2,159	-517

^A 1,714 is the directed energy.

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

	Terranora	QNI	VIC-NSW	Heywood	Murraylink	Basslink
Without direction ^A	-1,435	-10,297	-8,433	-6,527	-1,871	-7,907
Actual ^B	-1,427	-10,408	-8,032	-7,522	-2,918	-8,420
Change	8 MWh less into NSW	111 MWh more into NSW	401 MWh less into VIC	995 MWh more into VIC	1,047 MWh more into VIC	513 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 1505 hrs on 29 April 2019 until DI ending 1700 hrs on 30 April 2019.
- DI ending 2135 hrs on 30 April 2019 until DI ending 1600 hrs on 1 May 2019.
- DI ending 2005 hrs on 1 May 2019 until DI ending 1600 hrs on 2 May 2019.

5. Conclusions and further actions

Between 29 April and 2 May 2019, AEMO issued three directions over three events 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.