



NEM Event – Direction Report 8 to 10 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 21 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

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.

Accordingly, to the maximum extent permitted by law, AEMO and its officers, employees and consultants involved in the preparation of this report:

- make no representation or warranty, express or implied, as to the currency, accuracy, reliability or completeness of the information in this document; and
- are not liable (whether by reason of negligence or otherwise) for any statements or representations in this document, or any omissions from it, or for any use or reliance on the information in it.

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

Contents

1.	Summary	4
2.	Intervention assessment	4
2.1	The need for intervention	4
2.2	Assessment of market response and latest time to intervene	5
2.3	Decision to intervention	5
3.	Intervention process	5
3.1	Adequacy of responses to AEMO inquiries	7
3.2	Participant ability to comply with the intervention	7
4.	Dispatch and pricing outcomes	7
4.1	Changes to dispatch outcomes due to the directions	7
4.2	Application of intervention pricing	8
5.	Conclusions and further actions	9

Tables

Table 1	Summary of the South Australia directions between 8 and 10 June 2019	4
Table 2	Timeline of key events between 8 and 10 June 2019	5
Table 3	Estimated changes to local generation in each region (MWh)	8
Table 4	Estimated changes to interconnector flow between regions (MWh)	8

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 8 and 10 June 2019, AEMO issued six 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 South Australia directions between 8 and 10 June 2019

Direction	Directed Participant	Event No.	Issue time	Cancellation time	Direction instruction
Torrens Island A unit 1	AGL SA Generation Pty Ltd	1	2000 hrs, 8 June 2019	1430 hrs, 9 June 2019	Remain synchronised and follow dispatch targets from 0000 hrs on 9 June 2019
Torrens Island A unit 4	AGL SA Generation Pty Ltd	1	2000 hrs, 8 June 2019	1430 hrs, 9 June 2019	Remain synchronised and follow dispatch targets from 0100 hrs on 9 June 2019
Torrens Island A unit 1	AGL SA Generation Pty Ltd	2	1430 hrs, 9 June 2019	0208 hrs, 10 June 2019	To synchronise and follow dispatch targets from 0100 hrs on 10 June 2019
Torrens Island A unit 4	AGL SA Generation Pty Ltd	2	1430 hrs, 9 June 2019	0500 hrs, 10 June 2019	Remain synchronised and follow dispatch targets from 2130 hrs on 9 June 2019
Quarantine PS unit 5	Origin Energy Electricity Ltd	2	0225 hrs, 10 June 2019	0500 hrs, 10 June 2019	To synchronise and follow dispatch targets from 0245 hrs on 10 June 2019
Pelican Point GT 12 and ST 18	Pelican Point Power Pty Ltd (ENGIE)	2	0230 hrs, 10 June 2019	1430 hrs, 10 June 2019	To synchronise and follow dispatch targets from 0430 hrs on 10 June 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

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

basis. The need for intervention, and options considered, were assessed against the set of viable combinations available from 8 June 2019 for the direction events.

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 submitted a rebid at 1428 hrs on 8 June 2019 for Torrens Island A unit 1 to de-commit at 2300 hrs on 8 June 2019².
2. AGL submitted a rebid at 1319 hrs on 9 June 2019 for Torrens Island A unit 4 to de-commit at 2130 hrs on 9 June 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 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 8 and 10 June 2019. Table 2 provides a high-level timeline of the intervention event.

Table 2 Timeline of key events between 8 and 10 June 2019

Time	Events/comments
8 June 2019	
1428 hrs	AGL SA Generation Pty Ltd rebid to decommit Torrens Island A unit 1 from 2300 hrs on 8 June 2019.

² Rebid reason: 1231~F~001 PRIMARY RESPONSE TO D+1 PREDISPATCH~P30 PUBLISHED 12:31 (SL)

³ Rebid reason: 255~P~050 CHG IN UNIT OPERATION~501 CHANGED OFFLINE ORDER A1 FOR A4 (SEE LOG)

Time	Events/comments
1456 hrs	AEMO published a market notice seeking a market response and noting the latest time to intervene was 2200 hrs on 08 June 2019 (MN 68694).
1808 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 9 June 2019 (MN 68700).
2000 hrs	<ul style="list-style-type: none"> • Directions issued to AGL SA Generation Pty Ltd for Torrens Island A unit 1 to remain synchronised and follow dispatch targets from 0000 hrs on 9 June 2019. • Directions issued to AGL SA Generation Pty Ltd for Torrens Island A unit 4 to remain synchronised and follow dispatch targets from 0100 hrs on 9 June 2019. • AEMO published MN 68702 declaring a direction was issued to a South Australian participant. • AEMO published MN 68703 declaring that an AEMO intervention event had commenced from dispatch interval ending 2005 hrs on 8 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 1 in central dispatch from dispatch interval ending 0005 hrs on 9 June 2019. • Intervention constraints applied to Torrens Island A unit 4 in central dispatch from dispatch interval ending 0105 hrs on 9 June 2019.
9 June 2019	
1314 hrs	AEMO published an update to MN 68700 seeking a market response and noting the latest time to intervene was 2000 hrs on 9 June 2019 (MN 68708).
1331 hrs	AEMO published an update to MN 68708 seeking a market response and noting the latest time to intervene was 1430 hrs on 9 June 2019 (MN 68713).
1430 hrs	<ul style="list-style-type: none"> • The direction to Torrens Island A unit 1 was cancelled and intervention constraints were revoked. • The direction to Torrens Island A unit 4 was cancelled and intervention constraints were revoked. • AEMO published MN 68710 declaring the cancellation of the direction. • Directions issued to AGL SA Generation Pty Ltd for Torrens Island A unit 4 to remain synchronised and follow dispatch targets from 2130 hrs on 9 June 2019. • Directions issued to AGL SA Generation Pty Ltd for Torrens Island A unit 1 to synchronise and follow dispatch targets from 0100 hrs on 10 June 2019. • AEMO published MN 68716 declaring a direction was issued to a South Australian participant. • AEMO published MN 68717 declaring that an AEMO intervention event had commenced from dispatch interval ending 1435 hrs on 9 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 4 in central dispatch from dispatch interval ending 2135 hrs on 9 June 2019. • Intervention constraints applied to Torrens Island A unit 1 in central dispatch from dispatch interval ending 0105 hrs on 10 June 2019.
10 June 2019	
0208 hrs	<ul style="list-style-type: none"> • Torrens Island A unit tripped out of service, the direction was cancelled and intervention constraints were invoked.
0225 hrs	<ul style="list-style-type: none"> • Directions issued to Origin Energy Electricity Ltd for Quarantine Power Station unit 5 to synchronise and follow dispatch targets from 0245 hrs on 10 June 2019. • Intervention constraints applied to Quarantine Power Station unit 5 in central dispatch from dispatch interval ending 0250 hrs on 10 June 2019.
0230 hrs	<ul style="list-style-type: none"> • Directions issued to ENGIE for Pelican Point Power Station unit GT12 and ST 18 to synchronise and follow dispatch targets from 0430 hrs on 10 June 2019.
0325 hrs	<ul style="list-style-type: none"> • AEMO updated the direction to Torrens Island A unit 4.

Time	Events/comments
0407 hrs	<ul style="list-style-type: none"> AEMO updated the direction to Pelican Point Power Station unit GT12 and ST 18 to Pelican Point Power Station unit GT11 and ST 18. Intervention constraints applied to Pelican Point Power Station unit GT11 and ST 18 in central dispatch from dispatch interval ending 0435 hrs on 10 June 2019.
0500 hrs	<ul style="list-style-type: none"> The direction to Quarantine Power Station unit 5 was cancelled and intervention constraints were revoked. The direction to Torrens Island A unit 4 was cancelled and intervention constraints were revoked.
1430 hrs	<ul style="list-style-type: none"> The direction to Pelican Point Power Station unit GT11 and ST 18 was cancelled and intervention constraints were revoked. AEMO published MN 68756 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, Origin Energy Electricity Ltd and ENGIE for information prior to issuing the directions between 08 and 10 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 ENGIE, AGL SA Generation Pty Ltd and Origin Energy Electricity Ltd resulted in approximately 3,155 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	191,936	198,303	155,233	38,762	30,513
Actual	191,644	197,585	153,742	38,480+ 3,155 ^A	30,332
Change	-293	-718	-1,4901	6,028	-181

A. 3,155 is the directed energy.

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

	Terranora	QNI	VIC-NSW	Heywood	Murraylink	Basslink
Without direction ^A	-1,476	-10,575	19,032	-3,948	-1,246	-6,530
Actual ^B	-1,449	-10,319	20,012	-6,494	-1,524	-6,711
Change	27 MWh less into NSW	256 MWh less into NSW	980 MWh more into NSW	2,546 MWh more into VIC	277 MWh more into VIC	181 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 2005 hrs on 8 June 2019 until DI ending 1430 hrs on 9 June 2019.
- DI ending 1435 hrs on 9 June 2019 until DI ending 1430 hrs on 10 June 2019.

5. Conclusions and further actions

Between 8 and 10 June 2019, AEMO issued six 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.