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# NEM Event – Directions Report 17 to 24 August 2019

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**August 2020**

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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) 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 24 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.

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## ABBREVIATIONS

Abbreviation	Expanded name
AEMO	Australian Energy Market Operator
DI	Dispatch Interval
MN	Market Notice
NEM	National Electricity Market
NER	National Electricity Rules
SA	South Australia
PS	Power Station
GT	Gas Turbine
ST	Steam Turbine

# Contents

<b>1.</b>	<b>Summary</b>	<b>4</b>
<b>2.</b>	<b>Intervention assessment</b>	<b>5</b>
2.1	The need for intervention	5
2.2	Assessment of market response and latest time to intervene	5
<b>3.</b>	<b>Intervention process</b>	<b>6</b>
3.1	Adequacy of responses to AEMO inquiries	6
3.2	Participant ability to comply with the intervention	6
<b>4.</b>	<b>Dispatch and pricing outcomes</b>	<b>6</b>
4.1	Changes to dispatch outcomes due to the directions	6
4.2	Application of intervention pricing	7
4.3	Direction costs	8
<b>5.</b>	<b>Conclusions and further actions</b>	<b>8</b>

# Tables

Table 1	Summary of the South Australia directions between 17 and 24 August 2019	4
Table 2	Summary of latest time to intervene	5
Table 3	Estimated changes to local generation in each region (MWh)	7
Table 4	Estimated changes to interconnector flow between regions (MWh)	7

# 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 times<sup>1</sup>.

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 17 and 24 August 2019, AEMO issued seven directions across five 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 directions between 17 and 24 August 2019**

Direction	Directed Participant	Event No.	Issue time	Cancellation time	Direction instruction
Pelican Point GT 11 and ST 18	Pelican Point Power Pty Ltd (ENGIE)	1	1700 hrs, 17 August 2019	1630 hrs, 18 August 2019	Remain synchronised and follow dispatch targets from 0800 hrs, 18 August 2019
Torrens Island PS A unit 3	AGL SA Generation Pty Limited	2	2330 hrs, 19 August 2019	0700 hrs, 20 August 2019	Remain synchronised and follow dispatch targets from 0030 hrs, 20 August 2019
Torrens Island PS A unit 3	AGL SA Generation Pty Limited	3	1430 hrs, 20 August 2019	1433 hrs, 20 August 2019 <sup>2</sup>	Synchronise and follow dispatch targets from 0030 hrs, 21 August 2019
Pelican Point GT 12 and ST 18	Pelican Point Power Pty Ltd (ENGIE)	3	1600 hrs, 20 August 2019	1430 hrs, 21 August 2019	Remain synchronised and follow dispatch targets from 0100 hrs, 21 August 2019
Pelican Point GT 11 and ST 18	Pelican Point Power Pty Ltd (ENGIE)	4	1600 hrs, 21 August 2019	0600 hrs, 22 August 2019	Remain synchronised and follow dispatch targets from 0000 hrs, 22 August 2019
Torrens Island PS A unit 3	AGL SA Generation Pty Limited	5	1416 hrs, 23 August 2019	1830 hrs, 24 August 2019	Synchronise and follow dispatch targets from 0030 hrs, 24 August 2019
Pelican Point GT 11 and ST 18	Pelican Point Power Pty Ltd (ENGIE)	5	1432 hrs, 23 August 2019	1730 hrs, 24 August 2019	Remain synchronised and follow dispatch targets from 0130 hrs, 24 August 2019

<sup>1</sup> AEMO. Transfer Limit Advice – System Strength, available at [https://aemo.com.au/-/media/files/electricity/nem/security\\_and\\_reliability/congestion-information/transfer-limit-advice-system-strength.pdf?la=en](https://aemo.com.au/-/media/files/electricity/nem/security_and_reliability/congestion-information/transfer-limit-advice-system-strength.pdf?la=en).

<sup>2</sup> Direction was cancelled before it started due to updated information.

# 2. Intervention assessment

## 2.1 The need for intervention

The need for intervention, and options considered, were assessed against the set of viable plant combinations available on 17 August 2019.

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 1329 hrs, 17 August 2019 for Pelican Point PS to de-commit at 0800 hrs, 18 August 2019<sup>3</sup>.
2. ENGIE submitted a rebid at 1327 hrs, 19 August 2019 for Pelican Point PS to de-commit at 0030 hrs, 20 August 2019<sup>4</sup>.
3. ENGIE submitted a rebid at 1252 hrs, 20 August 2019 for Pelican Point PS to de-commit at 0100 hrs, 21 August 2019<sup>5</sup>.
4. ENGIE submitted a rebid at 1249 hrs, 21 August 2019 for Pelican Point PS to de-commit at 0000 hrs, 22 August 2019<sup>6</sup>.
5. ENGIE submitted a rebid at 1248 hrs, 23 August 2019 for Pelican Point PS to de-commit at 0130 hrs, 24 August 2019<sup>7</sup>.

## 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 anticipated power system security or reliability issue, 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 that no market response would be provided 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.

**Table 2 Summary of latest time to intervene**

Event no.	Latest time to respond	Market Notice
1	1700 hrs, 17 August 2019	MN 69292
2	2330 hrs, 19 August 2019	MN 69304
3	1600 hrs, 20 August 2019	MN 69321
4	1600 hrs, 21 August 2019	MN 69339
5	1400 hrs, 23 August 2019	MN 69369

<sup>3</sup> Rebid reason: 1320~F~REVISED TOLLING NOMINATION #1448~

<sup>4</sup> Rebid reason: 1325~F~REVISED TOLLING NOMINATION: #1452

<sup>5</sup> Rebid reason: 1240~A~RESPOND TO PREDISPATCH D+1~

<sup>6</sup> Rebid reason: 1245~A~RESPOND TO PREDISPATCH D+1~

<sup>7</sup> Rebid reason: 1245~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 directions between 17 and 24 August 2019<sup>8</sup>.

## 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 for information prior to issuing the directions between 17 and 24 August 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 listed in Table 1.

# 4. Dispatch and pricing outcomes

## 4.1 Changes to dispatch outcomes due to the directions

The directions to ENGIE and AGL resulted in approximately 8,513 megawatt hours (MWh) of synchronous generation being directed into 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 events. These are estimated by comparing against a dispatch scenario with the directions removed.

Directions in one region can cause dispatch changes to other regions. 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.

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<sup>8</sup> AEMO. Power system operating procedure SO\_OP 3707, "Procedures For Issue Of Directions And Clause 4.8.9 Instructions", 06 September 2019, at [https://aemo.com.au/-/media/files/electricity/nem/security\\_and\\_reliability/power\\_system\\_ops/procedures/so\\_op\\_3707-procedures-for-issue-of-directions-and-clause-4-8-9-instructions.pdf?la=en](https://aemo.com.au/-/media/files/electricity/nem/security_and_reliability/power_system_ops/procedures/so_op_3707-procedures-for-issue-of-directions-and-clause-4-8-9-instructions.pdf?la=en).

During the direction on 24 August, the Basslink interconnector tripped out of service resulting in a discrepancy in Basslink initial MW between the pricing and dispatch runs for three dispatch intervals. AEMO recalculated those three intervals to determine the changes to dispatch outcomes due to the directions.

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

	QLD	NSW	VIC	SA	TAS
Without direction	307,192	363,045	250,780	60,104	65,397
Actual	304,913	360,019	249,935	59,420+ 8,513 <sup>A</sup>	64,779
Change	-2,279	-3,026	-845	7,830	-619

A. 8,513 MWh is the directed energy.

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

	Terranora	QNI	VIC-NSW	Heywood	Murraylink	Basslink
Without direction <sup>A</sup>	-361	-2,706	1,644	-114	-186	452
Actual <sup>B</sup>	-2,720	-24,971	28,497	-2,164	-2,917	9,328
Change	2,359 MWh more into NSW	22,265 MWh more into NSW	26,853 MWh more into NSW	2,050 MWh more into VIC	2,731 MWh more into VIC	8,875 MWh more into VIC

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 1705 hrs, 17 August 2019 until DI ending 1630 hrs, 18 August 2019.
- DI ending 2335 hrs, 19 August 2019 until DI ending 0700 hrs, 20 August 2019.
- DI ending 1605 hrs, 20 August 2019 until DI ending 1430 hrs, 21 August 2019.
- DI ending 1605 hrs, 21 August 2019 until DI ending 0600 hrs, 22 August 2019.
- DI ending 1445 hrs, 23 August 2019 until DI ending 1830 hrs, 24 August 2019.

### 4.3 Direction costs

The compensation recovery costs for the directions between 17 and 24 August 2019 were \$1,306,050. Direction compensation recovery data can be found on the AEMO website<sup>9</sup>.

## 5. Conclusions and further actions

Between 17 and 24 August 2019, AEMO issued seven directions across five events 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.

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<sup>9</sup> AEMO. Direction Compensation Recovery, at <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/data-nem/settlements-data/direction-compensation-recovery>.