



NEM Event – Directions Report 21 to 27 September 2019

October 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 6 August 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
MN	Market Notice
NEM	National Electricity Market
NER	National Electricity Rules
PS	Power Station
GT	Gas Turbine
ST	Steam Turbine

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1. Summary

To ensure adequate system strength for secure operation of the power system, certain regional 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 21 and 27 September 2019, AEMO issued six directions across four events to Victorian and South Australian Market Participants to maintain power system security. These directions are summarised in Table 1.

Table 1 Summary of the directions between 21 and 27 September 2019

Direction	Directed Participant	Event no.	Issue time	Cancellation time	Direction instruction
Pelican Point Gas Turbine (GT) 11 and Steam Turbine (ST) 18	Pelican Point Power Limited (ENGIE)	1	1800 hrs, 21 September 2019	1700 hrs, 22 September 2019	Remain synchronised and follow dispatch targets from 0900 hrs, 22 September 2019
Newport Power Station (PS)	EnergyAustralia Ecogen Pty Ltd	2	0700 hrs, 22 September 2019	1430 hrs, 22 September 2019	Remain synchronised and follow dispatch targets from 0800 hrs, 22 September 2019
Osborne PS	Origin Energy Electricity Limited	3	0400 hrs, 23 September 2019	0805 hrs, 23 September 2019	Synchronise and follow dispatch targets from 0930 hrs, 23 September 2019
Pelican Point GT 11 and ST 18	Pelican Point Power Limited (ENGIE)	4	1600 hrs, 26 September 2019	1700 hrs, 27 September 2019	Remain synchronised and follow dispatch targets from 0230 hrs, 27 September 2019
Pelican Point GT 12	Pelican Point Power Limited (ENGIE)	4	0130 hrs, 27 September 2019	0930 hrs, 27 September 2019	Remain synchronised and follow dispatch targets from 0130 hrs, 27 September 2019
Torrens Island PS B unit 1	AGL SA Generation Pty Ltd	4	1615 hrs, 26 September 2019	1500 hrs, 27 September 2019	Remain synchronised and follow dispatch targets from 0100 hrs, 27 September 2019

¹ 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.

2. Intervention assessment

2.1 The need for intervention

To ensure adequate system strength for secure operation of the power system, certain regional combinations of synchronous generating units must be in service at all times. If market conditions lead to market participants seeking to decommit synchronous generation AEMO is required to intervene to maintain the required level of synchronous units. The need for intervention, and options considered, were assessed against the set of viable plant combinations available on 21 September 2019.

The requirement to intervene for the direction events in this report arose when the following bids were submitted.

Table 2 Participant offers

Event no.	Unit	Offer date	Bid
1	Pelican Point PS	1344 hrs, 21 September 2019	Rebid to de-commit from 0900 hrs, 22 September 2019 ^A
2	Newport PS	1333 hrs, 21 September 2019	Rebid to de-commit from 0800 hrs, 22 September 2019 ^B
3	Osborne PS	1258 hrs, 22 September 2019	Rebid to remain offline until 1300 hrs, 23 September 2019 ^C
4	Torrens Island PS B unit 1	1345 hrs, 26 September 2019	Rebid to de-commit from 0100 hrs, 27 September 2019 ^D

A. Rebid reason: 1335~F~REVISED TOLLING NOMINATION #1522~~

B. Rebid reason: 1305~A~ADJ ROC FOR INITIAL RESPONSE TO PD CONDITIONS~~

C. Rebid reason: 1255A INITIAL RESPONSE TO PDS SL~

D. Rebid reason: 1231~F~001 PRIMARY RESPONSE TO D+1 PREDISPATCH~ ~

2.2 Assessment of market response and latest time to intervene

Under NER clause 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 3.

AEMO contacted all participants who operate suitable generating units in Victoria and 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 latest times to intervene are listed in Table 3.

Table 3 Summary of latest time to intervene

Event no.	Latest time to respond	Market Notice (MN)
1	1800 hrs, 21 September 2019	MN 70141
2	0700 hrs, 22 September 2019	MN 70150
3	0600 hrs, 23 September 2019	MN 70174
4	1600 hrs, 26 September 2019	MN 70252

3. Intervention process

AEMO considers that it followed all applicable processes under NER clause 4.8 for the management of directions between 21 and 27 September 2019².

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 participants for information prior to issuing the directions between 21 and 27 September 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 resulted in approximately 6,418 megawatt hours (MWh) of synchronous generation being directed into the market in Victoria and South Australia.

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 4 and 5 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.

² AEMO. Power system operating procedure SO_OP 3707, "Procedures For Issue Of Directions And Clause 4.8.9 Instructions", 6 September 2019, available 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.

Table 4 Estimated changes to local generation in each region (MWh)

	Queensland	New South Wales	Victoria	South Australia	Tasmania
Without direction	160,767	141,513	103,482	26,590	24,612
Actual	160,355	138,729	102,502 + 551 ^A	24,966 + 5,868 ^B	24,612
Change	-412	-2,784	-429	4,244	Nil

A. 551 MWh is the directed energy in Victoria.

B. 5,868 MWh is the directed energy in South Australia.

Table 5 Estimated changes to interconnector flow between regions (MWh)

	Terranora	QNI	VIC-NSW	Heywood	Murraylink	Basslink ^A
Without direction ^B	-2,340	-22,955	6,067	-4,714	705	0
Actual ^C	-2,269	-22,639	9,308	-6,707	-1,413	0
Change	71 MWh less into NSW	315 MWh less into NSW	3,241 MWh more into NSW	1,993 MWh more into VIC	2,118 MWh more into VIC	Nil

A. Basslink was out of service for the duration of these directions.

B. Positive numbers are for flows north or west, negative for flows south or east.

C. 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.

Intervention pricing was applied for the events in accordance with NER clause 3.9.3(b), and for the full intervention period.

Table 6 Intervention pricing application

Event no.	Intervention pricing start (dispatch interval ending)	Intervention pricing end
1	1805 hrs, 21 September 2019	1700 hrs, 22 September 2019
2	0705 hrs, 22 September 2019	1430 hrs, 22 September 2019
3	0405 hrs, 23 September 2019	0805 hrs, 23 September 2019
4	1605 hrs, 26 September 2019	1700 hrs, 27 September 2019

4.3 Direction costs

The compensation recovery costs for the directions between 21 and 27 September 2019 were \$1,164,830. Direction compensation recovery data can be found on the AEMO website³.

5. Conclusions and further actions

Between 21 and 27 September 2019, AEMO issued six directions to Market Participants to maintain power system security, in response to a forecast lack of system strength in the Victoria and South Australia.

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.

³ AEMO. Direction Compensation Recovery, available at <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/data-nem/settlements-data/direction-compensation-recovery>.