



NEM Event – Direction 6-12 August 2018

June 2019

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) clause 4.8.9(f) and 3.13.6A(a). This report satisfies those NER obligations, and is based on information available to AEMO at 27 May 2019.

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
PD	Pre-Dispatch
PS	Power Station
SA	South Australia

Contents

Abbreviations	2
1. Summary	4
2. Intervention assessment	5
2.1 The need for intervention	5
2.2 Assessment of market response and latest time to intervene	6
2.3 Decision to intervene	6
3. Intervention process	6
3.1 Adequacy of responses to AEMO inquiries	9
3.2 Participant ability to comply with the intervention	9
4. Dispatch and pricing outcomes	10
4.1 Changes to dispatch outcomes due to the directions	10
4.2 Application of intervention pricing	11
5. Conclusions and further actions	11

Tables

Table 1	Summary of the eight South Australia directions between 6 and 12 August	4
Table 2	Timeline of key events between 6 and 12 August	7
Table 3	Estimated changes to local generation in each region (MWh)	10
Table 4	Estimated changes to interconnector flow between regions (MWh)	10

1. Summary

To ensure adequate system strength for secure operation of the South Australian (SA) power system, suitable 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 6 and 12 August 2018, AEMO issued eight directions to South Australian Market Participants to maintain power system security. These eight directions are classified under six direction events and are summarised in Table 1.

Table 1 Summary of the eight South Australia directions between 6 and 12 August

Direction	Directed Participant	Event No.	Issue time	Cancellation time	Direction instruction
Pelican Point Gas Turbine (GT) 11	Pelican Point Power Pty Ltd (ENGIE)	1	1630 hrs, 6 August 2018	0600 hrs, 7 August 2018	Remain synchronised and follow dispatch targets from 0030 hrs on 7 August 2018
Torrens Island A unit 2	AGL SA Generation Pty Ltd	2	1430 hrs, 7 August 2018	0730 hrs, 8 August 2018	Synchronise Torrens Island A unit 2 at 2200 hrs on 7 August 2018 and follow dispatch targets.
Torrens Island A unit 4	AGL SA Generation Pty Ltd	2	1430 hrs, 7 August 2018	0730 hrs, 8 August 2018	Synchronise Torrens Island A unit 4 at 2130 hrs on 7 August 2018 and follow dispatch targets.
Torrens Island A unit 2	AGL SA Generation Pty Ltd	3	1530 hrs, 8 August 2018	1700 hrs, 9 August 2018	Remain synchronised and follow dispatch targets from 0900 hrs on 9 August 2018
Pelican Point GT 12 and ST 18	Pelican Point Power Pty Ltd (ENGIE)	3	1630 hrs, 8 August 2018	1600 hrs, 9 August 2018	Remain synchronised and follow dispatch targets from 0930 hrs on 9 August 2018
Torrens Island A unit 2	AGL SA Generation Pty Ltd	4	2130 hrs, 9 August 2018	1400 hrs, 10 August 2018	Remain synchronised and follow dispatch targets from 2230 hrs on 9 August 2018
Torrens Island A unit 2	AGL SA Generation Pty Ltd	5	1700 hrs, 10 August 2018	1700 hrs, 11 August 2018	Remain synchronised and follow dispatch targets from 2230 hrs on 10 August 2018

¹ See <http://www.aemo.com.au/Media-Centre/South-Australia-System-Strength-Assessment>.

Direction	Directed Participant	Event No.	Issue time	Cancellation time	Direction instruction
Torrens Island A unit 2	AGL SA Generation Pty Ltd	6	1900 hrs, 11 August 2018	1530 hrs, 12 August 2018	Remain synchronised and follow dispatch targets from 2230 hrs on 11 August 2018

2. Intervention assessment

2.1 The need for intervention

To ensure adequate system strength for secure operation of the South Australian power system, suitable 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 regularly.

The need for intervention, and options considered, were assessed against the set of viable combinations available from 6 August 2018 for each of the respective direction events.

For the first direction event:

1. ENGIE submitted an initial bid at 1201 hrs on 5 August 2018 to decommit PPCCGT GT11 from 0030 hrs on 07 August 2018².
2. AGL SA Generation Pty Ltd submitted a rebid at 1952 hrs on 5 August 2018 to decommit Torrens Island B unit 2 from 0030 hrs on 07 August 2018³.

For the second direction event:

1. ENGIE submitted a rebid at 0608 hrs on 07 August 2018 to decommit PPCCGT GT11 from 0000 hrs on 8 August 2018⁴.

For the third direction event:

1. Origin Energy Electricity Ltd submitted a rebid at 1327 hrs on 07 August 2018 to decommit Osborne PS from 1000 hrs on 9 August 2018⁵.
2. ENGIE submitted a rebid at 1314 hrs on 8 August 2018 to decommit PPCCGT PS from 0930 on 9 August 2018⁶.

For the fourth direction event:

1. ENGIE submitted an initial bid at 0832 hrs on 8 August 2018 to decommit PPCCGT PS from 0000 hrs on 10 August 2018⁷.
2. AGL SA Generation Pty Ltd submitted a rebid at 1003 hrs on 9 August 2018 to decommit Torrens Island A unit 2 from 2230 hrs on 9 August 2018⁸.

For the fifth direction event:

² Initial bid: 1155~P~INITIAL OFFER~

³ Rebid reason: 1948~F~010 CHANGE IN F/CAST FUEL CONSUMPT~014 REDIST ACROSS PORT

⁴ Rebid reason: 0605~A~CHANGE SRMC: 06:00 VIC GAS PRICE~

⁵ Rebid reason: 1325A CONSTRAINT MANAGEMENT – V::S_SETB_MAXG_2 SL

⁶ Rebid reason: 1305~A~RESPOND TO PREDISPATCH D+1~

⁷ Initial bid: 0830~P~INITIAL OFFER~

⁸ Rebid reason: 0845~P010 UNEXPECTED/PLANT LIMITS~112 REDIST ACROSS PORTFOLIO [

1. ENGIE submitted a rebid at 1306 hrs on 9 August 2018 to decommit PPCCGT GT11 from 0200 hrs on 11 August 2018⁹.
2. AGL SA Generation Pty Ltd submitted an initial bid at 1112 hrs on 9 August 2018 to decommit Torrens Island A unit 2 from 2230 hrs on 10 August 2018¹⁰.

For the sixth direction event:

1. ENGIE submitted an initial bid at 0725 hrs on 10 August 2018 to decommit PPCCGT GT11 from 0100 hrs on 12 August 2018¹¹.
2. AGL SA Generation Pty Ltd submitted a rebid at 1701 hrs on 10 August 2018 to decommit Torrens Island A unit 2 from 2230 hrs on 11 August 2018¹².

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(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 market notices as listed in Table 2.

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.

Based on the advised lead times and ongoing commercial operation of key units in South Australia, AEMO assessed the latest time to intervene taking account of the advised lead times. The latest times to intervene are listed in Table 2.

2.3 Decision to intervene

With insufficient market response provided, AEMO evaluated the estimated costs, and issued directions to AGL SA Generation Pty Ltd (Torrens Island A units 2 and 4) and Pelican Point Power Ltd Pty (Pelican Point PS) for their respective units to either synchronise or remain synchronised, and follow dispatch targets. 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 directions between 6 and 12 August 2018¹³. Table 2 provides a high-level timeline of the intervention event.

⁹ Rebid reason: 1305~A~RESPOND TO PREDISPATCH D+1~

¹⁰ Initial bid: 1105~F~00 INITIAL BID~

¹¹ Initial bid: 0720~P~INITIAL OFFER~

¹² Rebid reason: 1655~A~010 AEMO DIRECTION~MARKET NOTICE ID: 63838

¹³ AEMO. Power system operating procedure SO_OP 3707, "Intervention, direction and clause 4.8.9 instructions", 11 September 2014, available at http://aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Power_System_Ops/Procedures/SO_OP_3707---Intervention-Direction-and-Clause-4-8-9-Instructions.pdf.

Table 2 Timeline of key events between 6 and 12 August

Time	Events / comments
5 August 2018	
1201 hrs	ENGIE submitted an initial bid to decommit PPCCGT GT11 from 0030 hrs on 7 August 2018.
1952 hrs	AGL SA Generation Pty Ltd submitted a rebid to decommit Torrens Island A unit 2 from 0030 hrs on 8 August 2018.
6 August 2018	
1359 hrs	AEMO published MN 63768 indicating a possible need for intervention from 0030 hrs on 7 August 2018 and seeking a market response. The latest time to intervene was noted as 1630 hrs on 6 August 2018.
1630 hrs	<ul style="list-style-type: none"> • Direction issued to ENGIE for Pelican Point GT11 to remain synchronised and follow dispatch targets from 0030 hrs on 7 August 2018 (PPCCGT direction 1). • AEMO published MN 63771 declaring a direction was issued to a SA participant. • AEMO published MN 63772 declaring that an AEMO intervention event had commenced and that all dispatch intervals (DIs) during the AEMO intervention event would be intervention price DIs. • Intervention constraints applied to Pelican Point GT11 in central dispatch from DI ending 0035 hrs on 7 August 2018.
7 August 2018	
0600 hrs	<ul style="list-style-type: none"> • The direction to Pelican Point Power Ltd Pty (PPCCGT direction 1) was cancelled and intervention constraints were revoked. • AEMO published MN 63775 declaring the cancellation of the direction.
0608 hrs	ENGIE submitted a rebid to decommit PPCCGT GT11 from 0000 hrs on 8 August 2018
1327 hrs	Origin Energy Electricity Ltd submitted a rebid to decommit Osborne PS from 1000 hrs on 9 August 2018.
1329 hrs	AEMO published MN 63779 indicating a possible need for intervention from 0000 hrs on 8 August 2018 and seeking a market response. The latest time to intervene was noted as 1430 hrs on 7 August 2018.
1430 hrs	<ul style="list-style-type: none"> • Direction issued to AGL SA Generation Pty Ltd for Torrens Island A units 2 and 4 to synchronise and follow dispatch targets from 2200 hrs on 7 August 2018 (TORRA2 direction 1) and 2130 hrs on 7 August 2018 (TORRA4 direction 1), respectively. • AEMO published MN 63783 declaring a direction was issued to a SA participant. • AEMO published MN 63784 declaring that an AEMO intervention event had commenced and that all dispatch intervals (DIs) during the AEMO intervention event would be intervention price DIs. • Intervention constraints applied to Torrens Island A units 2 and 4 in central dispatch from DI ending 0005 hrs on 8 August 2018. See section 4.1 for further details.
8 August 2018	
0730 hrs	<ul style="list-style-type: none"> • The directions to Torrens Island A unit 2 (TORRA2 direction 1) and 2 (TORRA4 direction 1) were cancelled and intervention constraints were revoked. • AEMO published MN 63790 declaring the cancellation of the direction.
0832 hrs	ENGIE submitted an initial bid to decommit Pelican Point PS from 0000 hrs on 10 August 2018.
1314 hrs	ENGIE submitted a rebid to decommit Pelican Point PS from 0930 hrs on 9 August 2018.
1436 hrs	AEMO published MN 63792 indicating a possible need for intervention from 0900 hrs on 9 August 2018 and seeking a market response. The latest time to intervene was noted as 1500 hrs on 8 August 2018.
1530 hrs	<ul style="list-style-type: none"> • Direction issued to AGL SA Generation Pty Ltd for Torrens Island A unit 2 (TORRA2 direction 2) to remain synchronised and follow dispatch targets from 0900 hrs 9 August 2018

Time	Events / comments
	<ul style="list-style-type: none"> • AEMO published MN 63795 declaring a direction was issued to a SA participant • AEMO published MN 63796 declaring that an AEMO intervention had commenced and that all dispatch intervals (Dis) during the AEMO intervention event what be intervention price Dis • Intervention constraints applied to Torrens Island A unit 2 in central dispatch from DI ending 0905 hrs on 9 August 2018
1630 hrs	<ul style="list-style-type: none"> • Direction issued to ENGIE for Pelican Point GT12 and ST18 (PPCCGT direction 2) to remain synchronised and follow dispatch targets from 0930 hrs on 9 August 2018. • Intervention constraints applied to Pelican Point PS in central dispatch from DI ending 0935 hrs on 9 August 2018.
1922 hrs	<p>AEMO published MN 63798 indicating a possible need for intervention from 0030 hrs on 10 August 2018 and seeking a market response. The latest time to intervene was noted as 1600 hrs on 9 August 2018.</p> <p>AEMO updated the latest time to intervene to 2130 hrs on 9 August 2019 (MN 63815).</p>
9 August 2018	
1003 hrs	AGL SA Generation Pty Ltd submitted a rebid to decommit Torrens Island A unit 2 from 2230 hrs on 9 August 2018.
1112 hrs	AGL SA Generation Pty Ltd submitted an initial bid to decommit Torrens Island A unit from 2230 hrs on 10 August 2018.
1306 hrs	ENGIE submitted an initial bid to decommit Pelican Point GT11 from 0200 hrs on 11 August 2018.
1600 hrs	The direction to Pelican Point GT12 and ST18 (PPCCGT direction 2) was cancelled and intervention constraints were revoked.
1700 hrs	<ul style="list-style-type: none"> • The direction to Torrens Island A unit 2 (TORRA2 direction 2) was cancelled and intervention constraints were revoked. • AEMO published MN 63819 declaring the cancellation of the direction.
1733 hrs	<p>AEMO published MN 63820 indicating a possible need for intervention from 0200 hrs on 11 August 2018 and seeking a market response. The latest time to intervene was noted to be published at a reasonably practical time following the 1230 hrs predispatch run on 10 August 2018.</p> <p>AEMO updated the latest time to intervene to 1700 hrs on 10 August 2019 (MN 63831).</p>
2130 hrs	<ul style="list-style-type: none"> • Direction issued to AGL SA Generation Pty Ltd for Torrens Island A unit 2 (TORRA2 direction 3) to remain synchronised and follow dispatch targets from 2230 hrs on 9 August 2018. • AEMO published MN 63825 declaring a direction was issued to a SA participant • AEMO published MN 63826 declaring that an AEMO intervention had commenced and that all dispatch intervals (Dis) during the AEMO intervention event what be intervention price Dis • Intervention constraints applied to Torrens Island A unit 2 in central dispatch from DI ending 2235 hrs on 9 August 2018
10 August 2018	
0725 hrs	ENGIE submitted an initial bid to decommit Pelican Point GT11 from 0100 hrs on 12 August 2018.
1326 hrs	AEMO published MN 63830 indicating a possible need for intervention from 0100 hrs on 12 August 2018 and seeking a market response. The latest time to intervene was noted to be published at a reasonably practical time following the 1230 hrs predispatch run on 11 August 2018.
1343 hrs	AEMO published MN 63832 indicating a market response was no longer required from 0100 hrs 12 August 2018
1200 hrs	<ul style="list-style-type: none"> • The direction to Torrens Island A unit 2 (TORRA2 direction 3) was cancelled and intervention constraints were revoked.

Time	Events / comments
	<ul style="list-style-type: none"> AEMO published MN 63834 declaring the cancellation of the direction.
1700 hrs	<ul style="list-style-type: none"> Direction issued to AGL SA Generation Pty Ltd for Torrens Island A unit 2 (TORRA2 direction 4) to remain synchronised and follow dispatch targets from 2230 hrs on 10 August 2018. AEMO published MN 63839 declaring a direction was issued to a SA participant AEMO published MN 63840 declaring that an AEMO intervention had commenced and that all dispatch intervals (Dis) during the AEMO intervention event what be intervention price Dis Intervention constraints applied to Torrens Island A unit 2 in central dispatch from DI ending 2235 hrs on 10 August 2018.
1701 hrs	AGL SA Generation Pty Ltd submitted a rebid to decommit Torrens Island A unit 2 from 2230 hrs on 11 August 2018.
11 August 2018	
1542 hrs	AEMO published MN 63841 indicating a possible need for intervention from 0100 hrs on 12 August 2018 and seeking a market response. The latest time to intervene was noted as 1900 hrs on 11 August 2018
1700 hrs	<ul style="list-style-type: none"> The direction to Torrens Island A unit 2 (TORRA2 direction 4) was cancelled and intervention constraints were revoked. AEMO published MN 63843 declaring the cancellation of the direction.
1900 hrs	<ul style="list-style-type: none"> Direction issued to AGL SA Generation Pty Ltd for Torrens Island A unit 2 (TORRA2 direction 5) to remain synchronised and follow dispatch targets from 2230 hrs on 11 August 2018. AEMO published MN 63845 declaring a direction was issued to a SA participant AEMO published MN 63846 declaring that an AEMO intervention had commenced and that all dispatch intervals (Dis) during the AEMO intervention event what be intervention price Dis Intervention constraints applied to Torrens Island A unit 2 in central dispatch from DI ending 2235 hrs on 11 August 2018.
12 August 2018	
1530 hrs	<ul style="list-style-type: none"> The direction to Torrens Island A unit 2 (TORRA2 direction 5) was cancelled and intervention constraints were revoked. AEMO published MN 63859 declaring the cancellation of the direction.

3.1 Adequacy of responses to AEMO inquiries

NER 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 for information from AGL and ENGIE prior to issuing the directions between 6 and 12 August 2018.

3.2 Participant ability to comply with the intervention

NER 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 did not receive any indication that a Registered Participant would be unable to comply with the direction. AEMO is satisfied that AGL and ENGIE complied 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 Torrens Island A and Pelican Point PS resulted in approximately 4,867.29 megawatt hours (MWh) of generation being added to the market.

Under NER 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 minimised¹⁴. 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 two directions. 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 decreased imports into South Australia. The decreased imports, coupled with an impact on network constraints, resulted in displacement of generation in all regions.

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

	QLD	NSW	VIC	SA	TAS
Without direction	453,083	481,593	386,449	93,671	120,431
Actual	453,355	479,249	386,177	93,279 + 4,867 ^A	119,294
Change	272	-2,344	-272	4,476	-1,137

A. 4,867 MWh is the directed energy.

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

	Terranora	QNI	VIC-NSW	Heywood	Murraylink	Basslink
Without direction^A	-4,255	-30,537	63,925	-3,428	-3,974	30,948
Actual^A	-3,997	-31,054	66,138	-4,057	-7,478	29,898
Change^B	258 MWh less into NSW	517 MWh more into NSW	2,213 MWh more into NSW	630 MWh less into SA	3,504 MWh more into VIC	1,050 MWh less into VIC

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

B. Change = |Actual - Without direction|.

¹⁴ AEMO's power system operating procedure SO_OP 3707 "Intervention, Direction and Clause 4.8.9 Instructions" describes this objective. In practice, AEMO meets the objective by selecting generating units located in the same region as the directed generation (and, if possible, belonging to the same participant) and then constraining the dispatch of the selected generating units by an equal and opposite amount to that of the directed generating units.

4.2 Application of intervention pricing

AEMO declares intervention pricing for periods subject to an AEMO intervention event. Under intervention pricing, NER 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 Methodology¹⁵.

Intervention pricing applies whenever the direction meets the region reference node test, that is a direction at the region 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 3.9.3(b), and for the full intervention period from:

- DI ending 1635 hrs on 6 August 2018 until DI ending 0600 hrs on 7 August 2018.
- DI ending 1435 hrs on 7 August 2018 until DI ending 0730 hrs on 8 August 2018.
- DI ending 1535 hrs on 8 August 2018 until DI ending 1700 hrs on 9 August 2018.
- DI ending 2135 hrs on 9 August 2018 until DI ending 1400 hrs on 10 August 2018.
- DI ending 1705 hrs on 10 August 2018 until DI ending 1700 hrs on 11 August 2018.
- DI ending 1905 hrs on 11 August 2018 until DI ending 1530 hrs on 12 August 2018.

In post-event analysis, AEMO identified that the timing of invoking intervention constraints for Torrens Island A units 2 and 4 in event 2 should have started from DI ending 2135 hrs on 7 August 2018 and DI ending 2205 hrs on 7 August 2018, respectively, when the units were synchronising. Manual reruns were performed by invoking constraints that align with the synchronisation times.

5. Conclusions and further actions

Between 6 and 12 August 2018, AEMO issued eight 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.

¹⁵ Intervention Pricing Methodology, available at http://www.aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Dispatch/Policy_and_Process/2018/Intervention-Pricing-Methodology.pdf.