



NEM Event – Direction 24 January 2019

October 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 the time of publication.

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
VNI	VIC-NSW Interconnector
RERT	Reliability and Emergency Reserve Trader
SA	South Australia
VIC	Victoria
LOR	Lack of Reserve

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1. Summary

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 to registered participants, 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.

On 24 January 2019, AEMO issued a direction to a New South Wales Market Participant to maintain power system security. The direction is summarised in Table 1.

Table 1 Summary of the New South Wales direction on 24 January 2019

Direction	Directed Participant	Event No.	Issue time	Cancellation time	Direction instruction
Lower Tumut unit 2	Snowy Hydro Limited	1	1639 hrs, 24 Jan 2019	2115 hrs, 24 Jan 2019	To synchronise Unit 2 at Lower Tumut at 1639 hrs on 24 January 2019 and remain in service as a synchronous condenser.

2. Intervention assessment

2.1 The need for intervention

On 24 January 2019, south-eastern Australia experienced hot temperatures and high operational demands. These elevated temperatures, coupled with supply conditions and limitations on southern flows through the VIC-NSW interconnector (VNI), resulted in consistent forecasts of low reserves on the afternoon of 24 January 2019 in South Australia (SA) and Victoria (VIC). Insufficient market response was provided to alleviate the forecast reserve shortfalls. Subsequently, AEMO managed the reserve shortfalls by:

- Between DI ending 1605 hrs and DI ending 2230 hrs on 24 January 2019, AEMO activated Reliability and Emergency Reserve Trader (RERT) contracts in South Australia and Victoria which affected dispatch quantities for intervention pricing purposes.
- Between DI ending 1640 hrs and DI ending 2115 hrs on 24 January 2019, AEMO issued the direction to Snowy Hydro Limited. The relevant action under the direction allowed the post-contingent voltage collapse constraint ($N^{\wedge}V_NIL_1$) on VNI flows to be relaxed, maximising southern flow through the VNI which was necessary to maintain the power system in a secure operating state at higher flow levels.
- Between 1810 hrs and 2000 hrs on 24 January 2019, AEMO directed Ausnet to shed load as a result of a shortfall in available capacity reserves.

This report is limited to the direction to Snowy Hydro Limited (second bullet point). For more information about RERT contract activation and the load shedding event (first and third bullet point), please refer to the power system incident report "Load Shedding in VIC on 24 and 25 January 2019"¹.

¹ https://aemo.com.au/-/media/Files/Electricity/NEM/Market_Notices_and_Events/Power_System_Incident_Reports/2019/Load-Shedding-in-VIC-on-24-and-25-January-2019.pdf

2.2 Assessment of market response and latest time to intervene

Under NER clause 4.8.5A(a) and (c) respectively, 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 had published several market notices advising the market of the forecast and actual Lack of Reserve (LOR) conditions and the time at which they were anticipated to arise. AEMO did not publish a specific market notice advising about the possibility of the type of intervention for which the direction was issued. It was only after all of the coincident risks became apparent and AEMO had an opportunity to assess their potential impact on system security that a need for intervention was confirmed. By the time AEMO had determined that intervention would be necessary, the time to intervene was imminent. A market notice was published subsequently to inform the market that a direction had been issued.

2.3 Decision to intervene

AEMO assessed a number of increased risk factors presented at that time, including:

- High VIC and SA demand forecast coinciding with hot weather conditions and with increased forecast uncertainty at those temperatures.
- Reduced generation capacity in VIC and SA due to thermal generator outages and performance issues during hot weather conditions. All available generation in VIC and SA was dispatched.
- All RERT contracts available at that time had been activated.
- Interconnector flow on Basslink into VIC was at maximum capacity and the flow on VNI was constrained at the import limit into VIC.
- Actual LOR 2 condition declared in VIC from 1600 hrs on 24 January 2019.

After assessing these factors, AEMO decided to issue the direction to Snowy Hydro Limited to synchronise Lower Tumut unit 2 and remain in service as a synchronous condenser. This would provide voltage support, which AEMO considered would allow higher flow levels to be maintained securely on VNI.

3. Intervention process

AEMO considers that it followed all applicable processes under NER Clause 4.8 for the management of the direction on 24 January 2019². Table 2 provides a high-level timeline of the direction event.

Table 2 High-level timeline of the direction event on 24 January 2019

Please refer to the power system incident report “Load Shedding in VIC on 24 and 25 January 2019³” for detailed key events.

Time	Events / comments
23 January 2019	

² 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.

³ https://aemo.com.au/-/media/Files/Electricity/NEM/Market_Notices_and_Events/Power_System_Incident_Reports/2019/Load-Shedding-in-VIC-on-24-and-25-January-2019.pdf

Time	Events / comments
1618 hrs	First Pre Dispatch Projected Assessment of System Adequacy (PD PASA) that forecast LOR 3 condition for VIC and SA for 24 January 2019. AEMO sought a market response and updated the latest time to intervene as 0800 hrs on 24 January 2019 for the 24 January 2019 reserve shortfall. (MN 66556 and 66558)
2051 hrs	Cancellation of forecast LOR 3 condition for VIC and SA for 24 January 2019. (MN66569 and MN66570)
24 January 2019	
0826 hrs	PD PASA forecast LOR 2 condition for VIC and SA for 24 January 2019. AEMO sought a market response and updated the latest time to intervene as 1330 hrs on 24 January 2019 for the 24 January 2019 reserve shortfall. (MN 66588 and 66589)
1354 hrs	AEMO published MN 66616 requesting for tender for the provision of additional reserve in VIC and SA for 24 January 2019.
1604 hrs	AEMO published MN 66629 declaring that an AEMO intervention event (RERT) commenced at 1430 hrs and affects dispatch quantities for intervention pricing purposes from DI ending 1605 hrs.
1622 hrs	Actual LOR 2 condition declared in VIC from 1600 hrs on 24 January 2019. AEMO sought for an immediate market response. (MN 66630)
1639 hrs	Direction issued to Snowy Hydro Limited for Lower Tumut unit 2 to synchronise at 1639 hrs on 24 January 2019 and remain in service as a synchronous condenser. AEMO published MN 66634 declaring a direction was issued to a New South Wales participant.
1806 hrs	Actual LOR 2 condition declared in SA from 1740 hrs on 24 January 2019. AEMO sought for an immediate market response. (MN 66666)
1814 hrs	Actual LOR 3 condition declared in VIC from 1810 hrs on 24 January 2019. Between 1810 hrs and 2000 hrs. AEMO directed Ausnet to shed load as a result of a shortfall in available capacity reserves. (MN 66670)
2000 hrs	Cancellation of actual LOR 3 condition in VIC at 2000 hrs on 24 January 2019. (MN 66708) AEMO published MN 66710 declaring the cancellation of the direction to Ausnet.
2115 hrs	AEMO published MN 66724 declaring the cancellation of the direction to Snowy Hydro Limited.
2153 hrs	Cancellation of actual LOR 2 condition in VIC and SA at 2150 hrs on 24 January 2019. (MN 66721 and MN 66722)
2230 hrs	AEMO published MN 666725 and MN 66726 declaring the cancellation of the RERT dispatch and the intervention event (RERT)

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 from Snowy Hydro Limited for information prior to issuing the direction on 24 January 2019.

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 Snowy Hydro Limited complied with the direction listed in Table 1.

4. Dispatch and pricing outcomes

4.1 Changes to dispatch outcomes due to the directions

The direction to Snowy Hydro Limited to synchronise Lower Tumut unit 2 and for it to remain in service as a synchronous condenser resulted in approximately 9.5 megawatt hours (MWh) of energy consumed from the market. Section 9 of the power system incident report⁴¹ on the event provides an overview of the changes in dispatch outcome as a result of RERT during the same period.

4.2 Application of intervention pricing

Intervention pricing was not applied for this event in accordance with NER 3.9.3(b), as the need to relax the post-contingent voltage constraint could not be met by directing a plant at the regional reference node.

During the same period, intervention pricing was applied for the activation of RERT contracts, as per NER 3.9.3(b).

5. Conclusions and further actions

On 24 January 2019, AEMO issued a direction to a New South Wales Participant to maintain power system security.

AEMO is satisfied with the timeliness and adequacy of participant responses and communication throughout.

AEMO assessed its compliance with the applicable procedures and processes for determining 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 security requirements.

AEMO is satisfied that the procedure and process requirements were met to the extent it was reasonably practicable to do so. Market notices were not issued in advance of the direction advising of the possibility or timing of an intervention of this nature, although several market notices had been issued in relation to the LOR conditions that gave rise to the power system security issue. When the need was identified, there was an imminent requirement to implement the action. AEMO considers that in those circumstances it was not reasonably practicable to issue specific market notices before this direction.

⁴ https://aemo.com.au/-/media/Files/Electricity/NEM/Market_Notices_and_Events/Power_System_Incident_Reports/2019/Load-Shedding-in-VIC-on-24-and-25-January-2019.pdf