

NEM Event Directions Report 22 and 27 January 2024

March 2024





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 as at 1 February 2024.

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 reasonable efforts 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
CSENERGY	CS Energy Limited
LOR	Lack of reserve
MN	Market Notice
MW	megawatt/megawatts
NEM	National Electricity Market
NER	National Electricity Rules
RERT	Reliability and Emergency Reserve Trader
SCL	Stanwell Corporation Limited
TI	Trading Interval



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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, 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.

After it issues a direction, AEMO is required to publish a report outlining the matters specified in clause 3.13.6A of the NER.

AEMO issued two directions on 22 January 2024 and one direction on 27 January 2024 to Queensland Market Participants to maintain the power system in a reliable operating state. These directions are summarised in Table 1.

Table 1 Summary of the Queensland directions on 22 and 27 January 2024

Directed plant	Directed Participant	Event No.	Issue time	Direction	Cancellation time
Stanwell Power Station	Stanwell Corporation Ltd (SCL)	1	1430 hrs, 22 January 2024	Follow dispatch instructions subject to the temporary release limits as specified in Schedule 3 - Table 3 Queensland Environmental Authority EPPR00708913 ^A .	1915 hrs, 22 January 2024
Tarong Power Station	Stanwell Corporation Ltd (SCL)	1	1620 hrs, 22 January 2024	Follow dispatch instructions subject to the temporary release limits as specified in Table 3, Queensland Environmental Authority EPPR00971913 ^B .	1915 hrs, 22 January 2024
Callide Unit B1	CS Energy Limited (CSENERGY)	2	1230 hrs, 27 January 2024	Follow dispatch instructions subject to the temporary release limits as specified in Table 3, Queensland Environmental Authority EPPR00536313 ^C .	2100 hrs, 27 January 2024

A. Environmental authority EPPR00708913, Queensland Government, 7 May 2020.


B. Environmental authority EPPR00971913, Queensland Government, 15 December 2021.

C. Environmental authority EPPR00536313, Queensland Government, 3 May 2018.

2 Intervention assessment

2.1 The need for intervention

Heatwave conditions extending across Queensland persisted from 18 January 2024, with temperatures reaching a peak of 37.7°C at Archerfield on 22 January. In addition to hot temperatures, Queensland also experienced high humidity on this day, with dew points reaching a high of 27°C in the afternoon (and having mostly stayed at elevated levels above 22°C since 18 January). These hot and humid conditions, coupled with limits on northerly flows on the Queensland – New South Wales Interconnector (QNI), resulted in consistent forecasts of low evening reserves in Queensland. Insufficient market response was provided to alleviate forecast reserve shortfalls.



Further, several Queensland coal-fired power stations were expecting their output to be limited by authorised release limits set in their Environmental Authorities issued under Queensland environmental regulations. At two of those power stations, any output reductions necessary to remain within the release limits are carried out through an automated process.

A reduction in generator output from the power stations would have resulted in a deterioration in the lack of reserve (LOR) conditions in Queensland. To mitigate this, AEMO issued two directions to Stanwell Corporation Ltd (SCL) on 22 January, one to Stanwell Power Station effective from Trading Interval (TI) ending 1430 hrs, and another to Tarong Power Station effective from TI ending 1620 hrs. The directions required SCL to follow dispatch instructions at Stanwell and Tarong power stations, subject to the temporary release limits specified in the respective Environmental Authorities. SCL was subsequently able to increase the maximum capacity bid into the market for Stanwell Power Station. Both directions were subsequently cancelled at TI ending 1915 hrs on the same day, in line with the cancellation of forecast LOR2.

Hot and humid conditions continued to build again in Queensland as the region experienced heatwave conditions from 25 January. On 27 January, temperatures at Archerfield peaked at 35.4°C, while dew points remained consistently high (above 25°C) throughout the day. High operational demand (above 10,000 megawatts (MW)), coupled with outages of two generating units in Queensland, resulted in consistent forecasts of low afternoon reserves in the state.

For reasons similar to the 22 January events, AEMO issued a direction to CS Energy Limited (CSENERGY) on 27 January from TI ending 1230 hrs to TI ending 2100 hrs. The direction required CSENERGY to follow dispatch instructions on Callide Unit B1, subject to the temporary release limits specified in CSENERGY's Environmental Authority for Callide Unit B1. CSENERGY was subsequently able to increase the maximum capacity bid into the market for Callide Unit B1.

Under the Environmental Authorities, temporary release limits relating to particulate emissions, nitrogen oxides, or release of process waters apply during a direction by AEMO.

The need for the directions was to permit the application of the temporary release limits for the relevant power stations, minimising any reductions in their generation capacity, to maintain a reliable operating state in Queensland during actual and forecast LOR conditions.

2.2 Assessment of market response and latest time to intervene

Under NER 4.8.5A(a) and (c), AEMO must notify the market of any foreseeable circumstances that may require intervention (through direction or Reliability and Emergency Reserve Trader (RERT) activation), and the latest time for market response before AEMO would need to intervene.

AEMO issued several market notices (MNs) relating to the LOR conditions in Queensland on 22 and 27 January 2024:

- LOR1 conditions for the early evening of 22 January were consistently forecast from 15 January 2024 (MN 113280 issued at 1454 hrs), and regularly updated. LOR2 conditions were also forecast on four occasions.
- LOR1 conditions for the early evening of 27 January were consistently forecast from 23 January 2024 (MN 113673 issued at 1547 hrs), and regularly updated. LOR2 conditions were also forecast on four occasions.

For these conditions, no time to intervene was determined in respect of the directions given to SCL and CSENERGY, as those directions became necessary when the environmental limits relating to specific power stations threatened to reduce their capacity. The MNs relating to conditions on 22 January (issued from 15 January) and 27 January (issued from 23 January) are listed in Table 2 and Table 3, respectively.

Table 2 Relevant market notices issued from 15 January 2024 relating to reserve conditions on 22 January 2024

Notice issued	Summary
MN 113280 15 Jan 2024 at 1454 hrs	Forecast LOR1 declared in Queensland region for 22 Jan 2024 from 1830 to 1900 hrs.
MN 113362 17 Jan 2024 at 1503 hrs	Cancellation of forecast LOR1 in Queensland region at 1400 hrs.
MN 113409 18 Jan 2024 at 1438 hrs	Forecast LOR1 declared in Queensland region for 22 Jan 2024 from 1730 to 2030 hrs.
MN 113465 19 Jan 2024 at 0816 hrs	Forecast LOR2 declared in Queensland region for 22 Jan 2024 from 1830 to 1900 hrs. Also refer to MN 113466 for updates issued on 19 Jan 2024.
MN 113468 19 Jan 2024 at 1053 hrs	Cancellation of forecast LOR2 in Queensland region at 1000 hrs.
MN 113476 19 Jan 2024 at 1053 hrs	Cancellation of forecast LOR1 in Queensland region at 1400 hrs.
MN 113550 21 Jan 2024 at 1342 hrs	Forecast LOR2 declared in Queensland region for 22 Jan 2024 from 1830 to 1930 hrs.
MN 113560 21 Jan 2024 at 1520 hrs	Cancellation of forecast LOR2 in Queensland region at 1520 hrs.
MN 113561 21 Jan 2024 at 1523 hrs	Forecast LOR1 declared in Queensland region for 22 Jan 2024 from 1800 to 2000 hrs. Also refer to MN 113582, 113601, 113616 for updates issued between 21 and 22 Jan 2024.
MN 113596 22 Jan 2024 at 1022 hrs	Forecast LOR2 declared in Queensland region for 22 Jan 2024 from 1830 and 1900 hrs.
MN 113598 22 Jan 2024 at 1047 hrs	Cancellation of forecast LOR2 in Queensland region at 1040 hrs.
MN 113602 22 Jan 2024 at 1426 hrs	Forecast LOR2 declared in Queensland region for 22 Jan 2024 from 1830 and 1900 hrs.
MN 113635 22 Jan 2024 at 1842 hrs	Actual LOR1 declared in Queensland region from 1830 hrs.
MN 113633 22 Jan 2024 at 1910 hrs	Cancellation of forecast LOR2 in Queensland region at 1900 hrs.
MN 113634 22 Jan 2024 at 1938 hrs	Cancellation of forecast LOR1 in Queensland region at 1930 hrs.
MN 113636 22 Jan 2024 at 1939 hrs	Cancellation of actual LOR1 in Queensland region at 1930 hrs.

Table 3 Relevant market notices issued from 23 January 2024 relating to reserve conditions on 27 January 2024

Notice issued	Summary
MN 113673 23 Jan 2024 at 1547 hrs	Forecast LOR1 declared in Queensland region for 27 Jan 2024 from 1530 to 2130 hrs. Also refer to MN 113701, 113744 for updates issued between 24 and 25 Jan 2024.
MN 113680 23 Jan 2024 at 2359 hrs	Forecast LOR2 declared in Queensland region for 27 Jan 2024 from 1730 to 2000 hrs. Also refer to MN 113686 and 113694 for updates issued on 24 Jan 2024.
MN 113705 24 Jan 2024 at 1541 hrs	Cancellation of forecast LOR2 in Queensland region at 1500 hrs.
MN 113714 24 Jan 2024 at 1731 hrs	Forecast LOR2 declared in Queensland region for 27 Jan 2024 from 1800 to 1930hrs. Also refer to MN 113722, 113730, 113732, 113740, 103750, 113754 for updates issued on 25 Jan 2024.
MN 113758 26 Jan 2024 at 0523 hrs	Cancellation of forecast LOR2 in Queensland region at 0500 hrs.
MN 113766 26 Jan 2024 at 1259 hrs	Forecast LOR2 declared in Queensland region for 27 Jan 2024 from 1700 to 2030 hrs. Also refer to MN 113768 for updates issued on 26 Jan 2024.

Notice issued	Summary
MN 113769 26 Jan 2024 at 1426 hrs	Forecast LOR1 declared in Queensland region for 27 Jan 2024 from 1630 to 1730 hrs, 2030 to 2100 hrs and 2130 to 2230 hrs Also refer to MN 113785, 113854, 113866 for updates issued between 26 and 27 Jan 2024.
MN 113784 26 Jan 2024 at 1548 hrs	Cancellation of forecast LOR2 in Queensland region at 1545 hrs.
MN 113819 26 Jan 2024 at 2018 hrs	Forecast LOR2 declared in Queensland region for 27 Jan 2024 from 1700 to 2030 hrs. Also refer to MN 113824, 113827, 113840, 113853 for updates issued on 27 Jan 2024.
MN 113865 27 Jan 2024 at 1550 hrs	Cancellation of forecast LOR2 in Queensland region at 1530 hrs.
MN 113871 27 Jan 2024 at 1827 hrs	Actual LOR1 declared in Queensland region from 1800 hrs.
MN 113892 27 Jan 2024 at 2046 hrs	Cancellation of actual LOR1 in Queensland region at 2045 hrs.

3 Intervention process

3.1 Market information

AEMO considers that it followed applicable processes under NER 4.8 for the management of the directions on 22 and 27 January 2024. AEMO issued MNs in relation to the directions as well as providing individual notices to directed participants.

3.2 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 prior to issuing the directions on 22 and 27 January 2024.

3.3 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. None of the directed participants listed in Table 1 notified AEMO of an inability to comply with a relevant direction, and AEMO is not aware of any failure to comply.

4 Dispatch and pricing outcomes

4.1 Changes to dispatch and pricing outcomes due to the directions

The directions resulted in available generation at Stanwell Power Station and Callide Unit B1 increasing by up to about 30 MW and 20 MW during the low reserve period, respectively, compared with the levels that would otherwise have been available had the temporary environmental limits not applied. It was not possible to determine an additional quantity of energy that could have been directed at Tarong Power Station without actually reducing generation to estimate the impact on the standing authorised release limits.

In the circumstances, AEMO determined not to apply intervention pricing in relation to the directions. The application of NER 3.9.3 in this case was not straightforward, given the direction did allow for the bidding and dispatch of some additional energy from Stanwell and Callide Unit B1. However, the purpose of the direction was to enable the temporary relaxation of restrictions under an external regulatory framework, where the application of those restrictions could have contributed to the power system in Queensland not being in a reliable operating state. AEMO notes that:

- The directions were necessary to trigger the application of the temporary release limits under the Environmental Authorities, a matter that was not within the control of the directed participants.
- The intervention pricing framework in the NER does not contemplate these circumstances. AEMO notes that processes to trigger equivalent temporary limits in some other jurisdictions are linked to reserve declarations rather than AEMO directions.

4.2 Direction costs

No compensation is payable as a result of this direction.

5 Conclusions and further actions

AEMO issued two directions on 22 January and one on 27 January to Queensland Market Participants to maintain the power system in a reliable operating state, in response to consistent forecasts of low reserves in the region.

AEMO is satisfied that applicable procedures and processes were followed in assessing the need for intervention, determining the latest time to intervene, enacting and managing the intervention and seeking market response from all generators capable of meeting the system strength requirements.

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

AEMO did not apply intervention pricing or compensate participants, for the reasons discussed in Section 4.1.

AEMO proposes to engage with the Queensland jurisdiction with a view to exploring potential alternative mechanisms to enable temporary authorised limits under environmental regulations, where necessary to reduce reliability risks.