

Status Report

1 October 2022 to 31
December 2022

Prepared for the ERA under clause
7.12 of the WEM Rules





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1 Introduction

The Australian Energy Market Operator (AEMO) has prepared this report under clause 7.12 of the Wholesale Electricity Market Rules (WEM Rules).

Clause 7.12 of the WEM Rules requires AEMO to provide a report to the Economic Regulation Authority (ERA) once every three months on the performance of the market with respect to the dispatch process. The report must include details of:

- the incidence and extent of issuance of Operating Instructions and Dispatch Instructions;
- the incidence and extent of non-compliance with Operating Instructions and Dispatch Instructions;
- the incidence and reasons for the issuance of Dispatch Instructions to Balancing Facilities Out of Merit, including for the purposes of clause 7.12.1 of the WEM Rules, issuing Dispatch Orders to the Balancing Portfolio in accordance with clause 7.6.2 of the WEM Rules;
- the incidence and extent of transmission constraints;
- the incidence and extent of shortfalls in Ancillary Services, involuntary curtailment of load, High Risk Operating States and Emergency Operating States; and
- the incidence and reasons for the selection and use of LFAS Facilities under clause 7B.3.8 of the WEM Rules.

In this report:

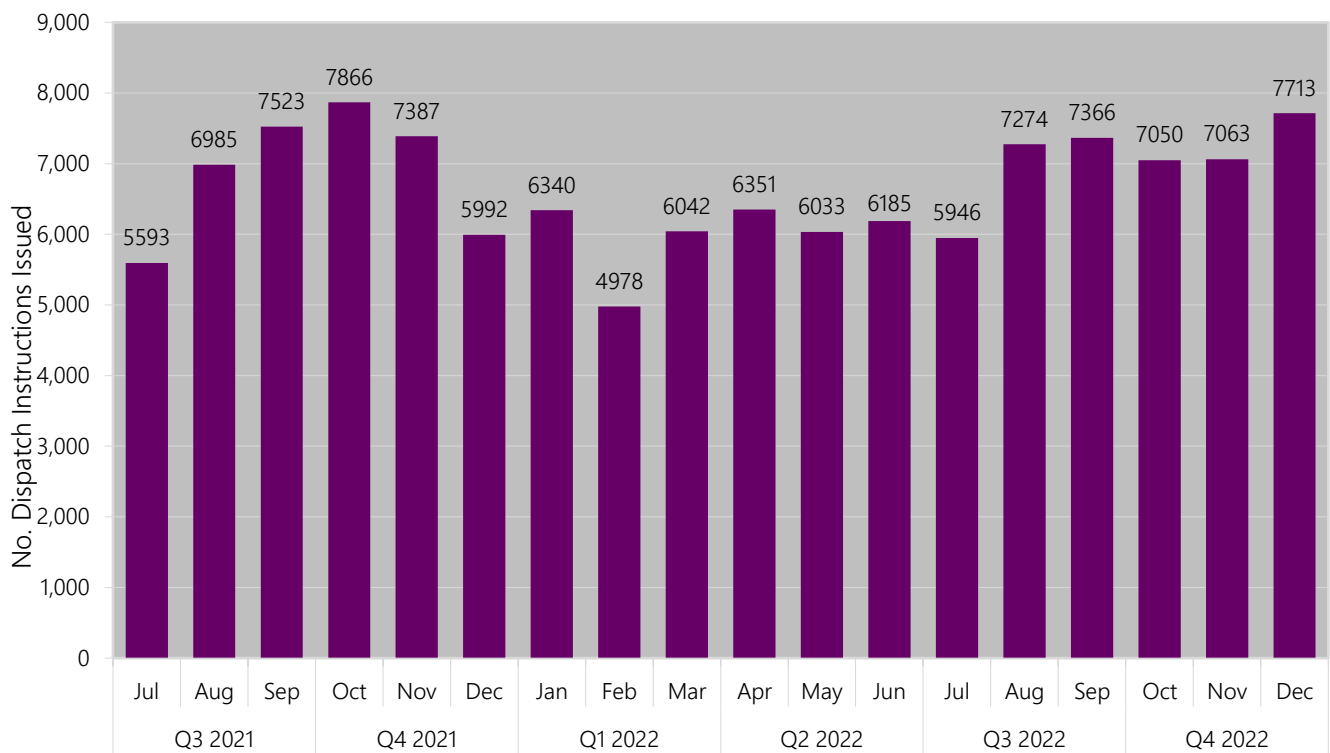
- the reporting period is from 1 October 2022 to 31 December 2022;
- terms that are capitalised but not defined have the meaning given in the WEM Rules; and
- date references are to Trading Days, not calendar days, unless otherwise stated.

2 Issuance of Dispatch Instructions and Operating Instructions

2.1 Dispatch Instructions

AEMO issued 21,826 Dispatch Instructions to Market Participants during the reporting period.

Figure 1 Dispatch Instructions issued during each Trading Month since 1 July 2021.

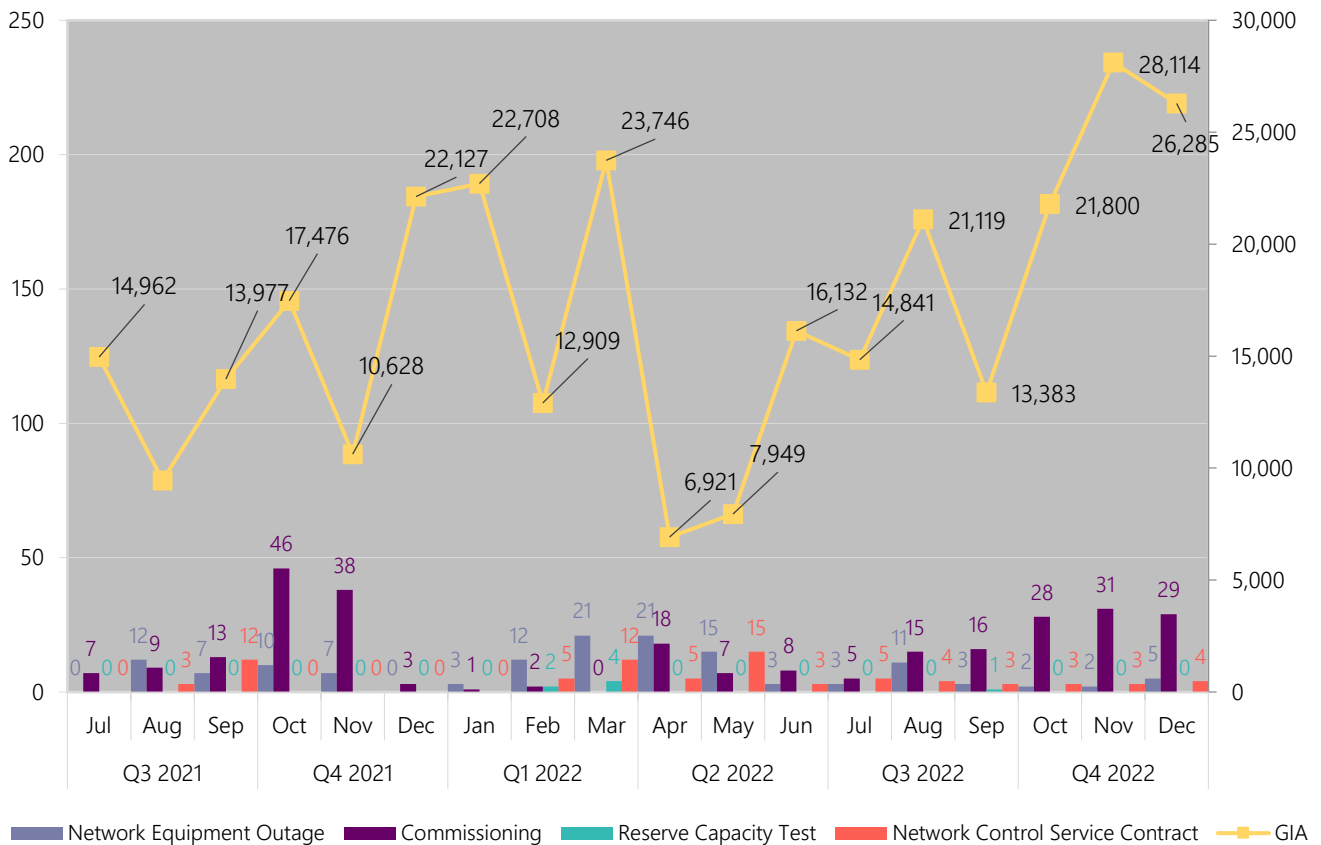


2.2 Operating Instructions

AEMO issued 76,306 Operating Instructions during the reporting period.

Situations where AEMO may issue Operating Instructions under the WEM Rules are for Commissioning Tests, Reserve Capacity Tests, Network Equipment Outages (pursuant to clause 7.7.11.) and provision of services under the Network Control Service Contracts and Generator Interim Access (GIA) Operating Instructions.

Figure 2 Operating Instructions¹ issued during each Trading Month since 1 July 2021.



¹ Generator Interim Access (GIA) Operating Instructions are a sub-set of Network Control Service (NCS) Operating Instructions. Figure 2 separates GIA from NCS for clarity.

3 Non-Compliance with Dispatch Instructions and Operating Instructions²

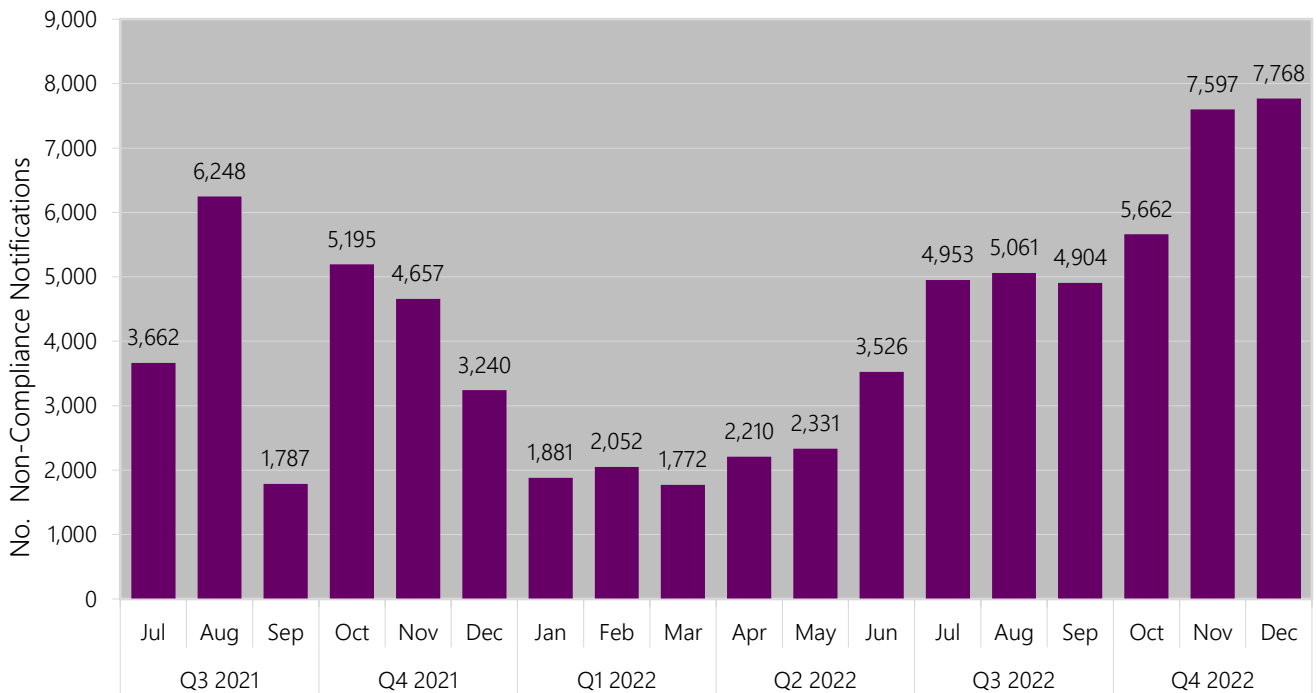
During the reporting period, AEMO issued the following one-minute non-compliance notifications to Market Participants, considering the Tolerance Range and any Facility Tolerance Ranges, where applicable:

- 21,027 Dispatch Instruction non-compliance notifications, and
- 474 Operating Instructions non-compliance notifications.

During the reporting period, the following were instances where a Market Participant did not confirm receipt when required to do so under the WEM Rules:

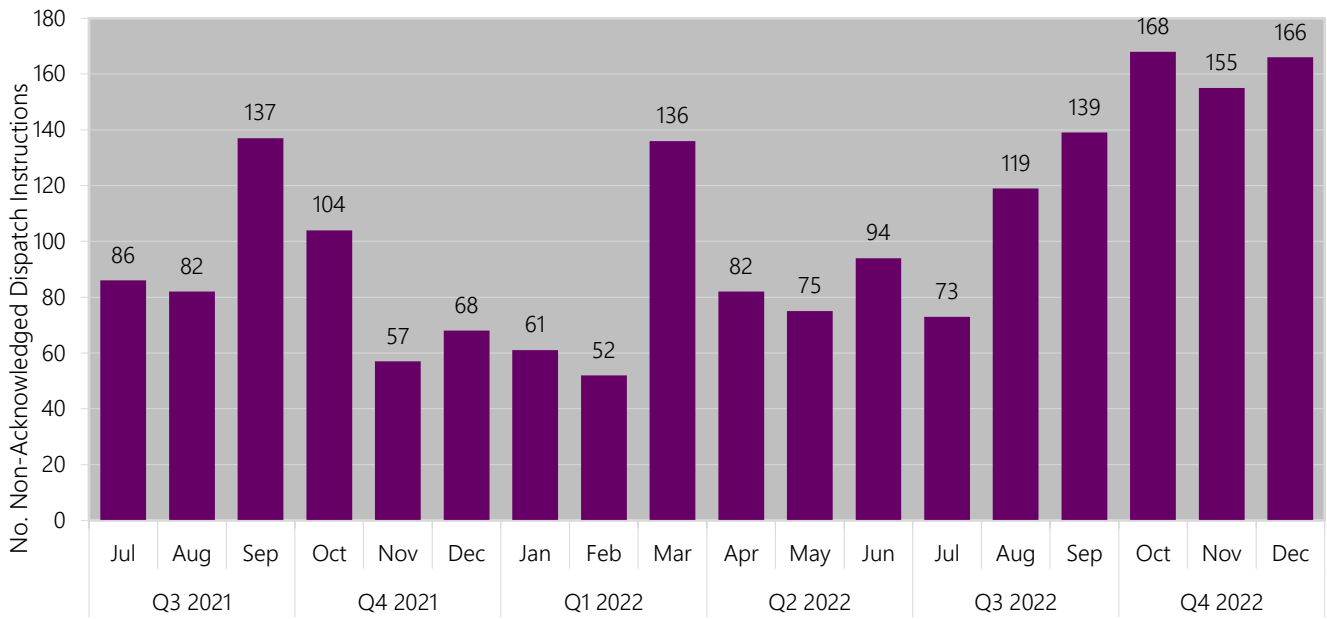
- 489 instances of non-acknowledgement of Dispatch Instructions, and
- 3,026 instances of non-acknowledgement of Operating Instructions.

Figure 3 Dispatch Instruction non-compliance notifications since 1 July 2021.



² Instances of non-compliance are calculated using information AEMO has at hand at the time of creation of the 7.12 report. Actual instances may differ once reviewed and determined by the ERA.

Figure 4 Non-acknowledgement of Dispatch Instructions since 1 July 2021.



4 Issuance of Dispatch Instruction to Balancing Facilities Out of Merit

4.1 Instances of Out of Merit dispatch identified by AEMO

During the reporting period, one instance was identified where Dispatch Instructions were issued to Balancing Facilities Out of Merit.

Date/Interval/s	Trading Interval 13:1 on 30 Nov 2022 to Trading Interval 18:2 on 01 Dec 2022
Dispatch Advisory #	209388
Details	Due to a Forced Western Power Network Outage of MUJA BTT3 and WKT T2, AEMO constrained on the PRK_AG Facility to provide Network stability support in the Eastern Goldfields region.
AEMO Action	AEMO dispatched Out of Merit to maintain Power System Security and Reliability.

4.2 Other instances of Out of Merit dispatch³

Section 5 of this report includes information regarding instances of Out of Merit dispatch due to transmission network constraints. AEMO issues Dispatch Advisories when these situations occur.

Section 6 of this report describes occasions of High Risk and Emergency Operating States that occurred during the reporting period. Note that during elevated Operating States, there may be a need to dispatch Facilities Out of Merit to enable the SWIS to be returned to a Normal Operating State.

³ 7.6.1D of the WEM Rules provides for Out of Merit dispatch to avoid a High Risk Operating State or an Emergency Operating State or, if the SWIS is in a High Risk Operating State or an Emergency Operating State, to enable the SWIS to be returned to a Normal Operating State.

5 Transmission Constraints

A “transmission constraint” refers to the configuration of the transmission network that has an effect or potential effect of constraining or otherwise varying the output of a generation Facility. As a result of the transmission constraint, the generation Facility is required to increase or decrease output, depending on the relevant circumstances.

AEMO has identified the following transmission constraints during the reporting period:

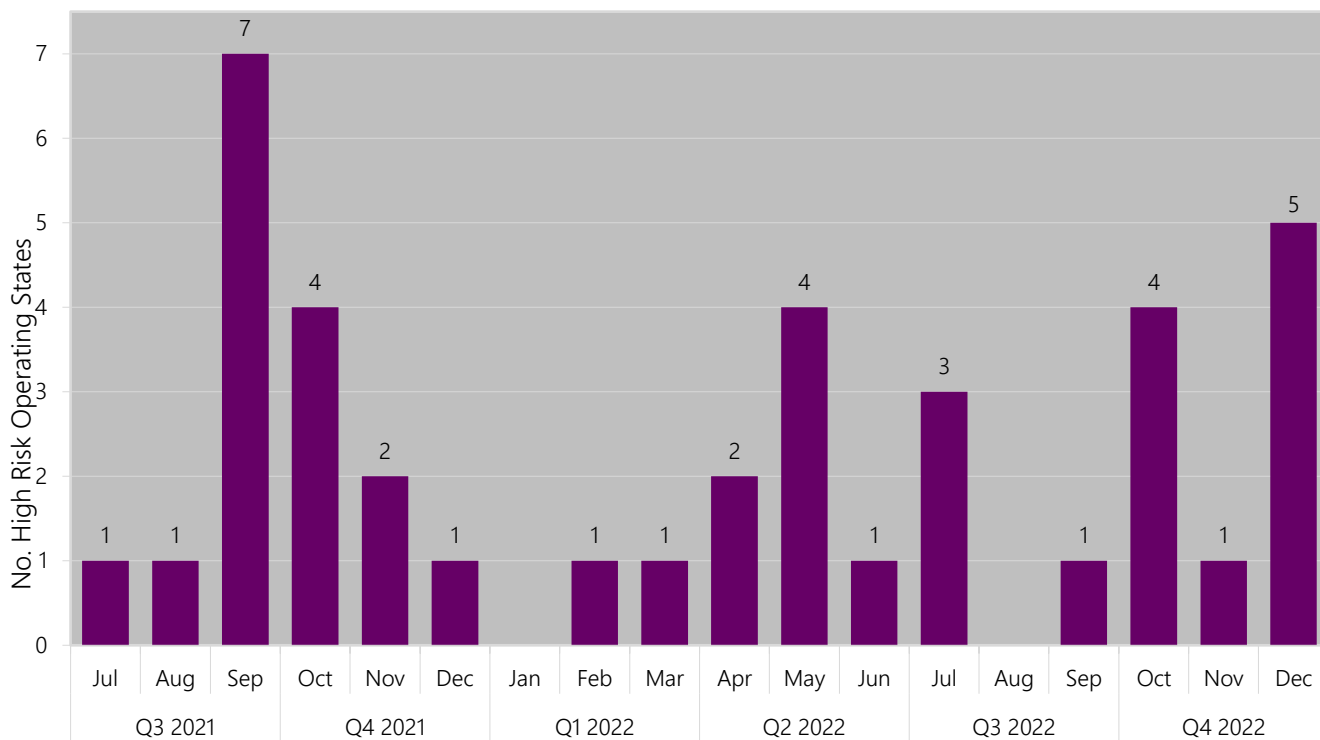
Date/Interval/s	15 Oct 2022 / Trading Interval 13:1 to Trading Interval 19:1
Dispatch Advisory #	209254
Details	A Forced Western Power Network Outage on the SNR-APJ81 line resulted in the need to constrain the ALCOA_WGP Facility.
Date/Interval/s	22 Nov 2022 / Trading Interval 6:1 to Trading Interval 8:1
Dispatch Advisory #	209359
Details	A Forced Western Power Network Outage on the ALB522.0 circuit breaker resulted in the need to constrain the GRASMERE_WF1 Facility.
Date/Interval/s	Trading Interval 13:1 on 30 Nov 2022 to Trading Interval 18:2 on 01 Dec 2022
Dispatch Advisory #	209388
Details	A Forced Western Power Network Outage of MUJA BTT3 and WKT T2 resulted in the need to constrain the PRK_AG Facility.
Date/Interval/s	9 Dec 2022 / Trading Interval 10:2 to Trading Interval 17:2
Dispatch Advisory #	209402
Details	A Forced Western Power Network Outage on the NT-NBT91 line resulted in the need to constrain the WARRADARGE_WF1 Facility.
Date/Interval/s	9 Dec 2022 / Trading Interval 10:2 to Trading Interval 17:2
Dispatch Advisory #	209402
Details	A Forced Western Power Network Outage on the NT-NBT91 line resulted in the need to constrain the YANDIN_WF1 Facility.
Date/Interval/s	Trading Interval 17:2 on 13 Dec 2022 to Trading Interval 16:1 on 15 Dec 2022
Dispatch Advisory #	209406
Details	A Forced Western Power Network Outage on the MGA-GTN 81 transmission line resulted in the need to constrain the ALINTA_WWF Facility.

6 Operating States, Shortfalls in Ancillary Services and Involuntary Curtailment of Load

6.1 High Risk Operating State

There were 10 instances of a High Risk Operating State during the reporting period.

Figure 5 High Risk Operating States that have occurred since 1 July 2021.



Date/Interval/s	10 Oct 2022 / Trading Interval 21:2 to Trading Interval 22:2
Dispatch Advisory #	209236
Details	System Management experienced IT issues affecting the operation of the Real Time Dispatch Engine (RTDE).
AEMO Action	IT Support were contacted to investigate the issue. AEMO dispatched according to the latest BMO received to maintain Power System Security and Power System Reliability.

Date/Interval/s	16 Oct 2022 / Trading Interval 10:2 to Trading Interval 13:1
Dispatch Advisory #	209256
Details	AEMO Control was unable to maintain the Load Rejection Reserve Ancillary Service due to low system load.
AEMO Action	AEMO dispatched according to the latest BMO received to maintain Power System Security and Power System Reliability.

Date/Interval/s	19 Oct 2022 / Trading Interval 12:2
Dispatch Advisory #	209263
Details	AEMO Control experienced significant degradation of its IT systems lasting approximately 5 minutes.
AEMO Action	IT Support were contacted to investigate the issue. AEMO dispatched according to the latest BMO received to maintain Power System Security and Power System Reliability.

Date/Interval/s	30 Oct 2022 / Trading Interval 19:2 to Trading Interval 21:2
Dispatch Advisory #	209287
Details	ALINTA_WGP_U2 was unable to generate due to a gas pipeline pressure issue. Some Out of Merit generation may have occurred.
AEMO Action	AEMO dispatched according to the latest BMO received to maintain Power System Security and Power System Reliability.

Date/Interval/s	29 Nov 2022 / Trading Interval 17:2 to Trading Interval 20:2
Dispatch Advisory #	209386
Details	All Generators in the Balancing Merit Order became In Merit and received Dispatch Instructions to generate during the evening peak due to multiple Generator Forced Outages and high temperature forecast. Demand Side Programs were also dispatched.
AEMO Action	AEMO dispatched in accordance with the WEM Rules and power system technical requirements to maintain Power System Security and Reliability.

Date/Interval/s	1 Dec 2022 / Trading Interval 13:1
Dispatch Advisory #	209392
Details	At 13:12 ALINTA_PNJ_U1 tripped, resulting in a loss of approximately 133MW. Frequency dropped below 49.68Hz for approximately 46 seconds. Some Out of Merit generation may have occurred.
AEMO Action	AEMO dispatched according to the latest BMO received to maintain Power System Security and Power System Reliability.

Date/Interval/s	1 Dec 2022 / Trading Interval 13:1 to Trading Interval 14:2
Dispatch Advisory #	209393
Details	AEMO lost Automatic Generation Control (AGC) and visibility of the Synergy PINJAR units, resulting in a shortfall in Ancillary Services. The units were not able to provide Ancillary Services until these services were restored.
AEMO Action	AEMO liaised with Synergy and Western Power who were investigating these issues. AEMO dispatched according to the latest BMO received to maintain Power System Security and Power System Reliability.

Date/Interval/s	17 Dec 2022 / Trading Interval 9:1
Dispatch Advisory #	209410
Details	An unplanned Western Power Network Outage on the KW-BIB 81 transmission line at 09:05 resulted in a net loss of approximately 105MW of Distributed PV. Frequency dropped to 49.55Hz, recovering to within the Normal Operating Frequency Band in less than 1 minute. Some Out of Merit Dispatch may have occurred.
AEMO Action	AEMO dispatched according to the latest BMO received to maintain Power System Security and Power System Reliability.

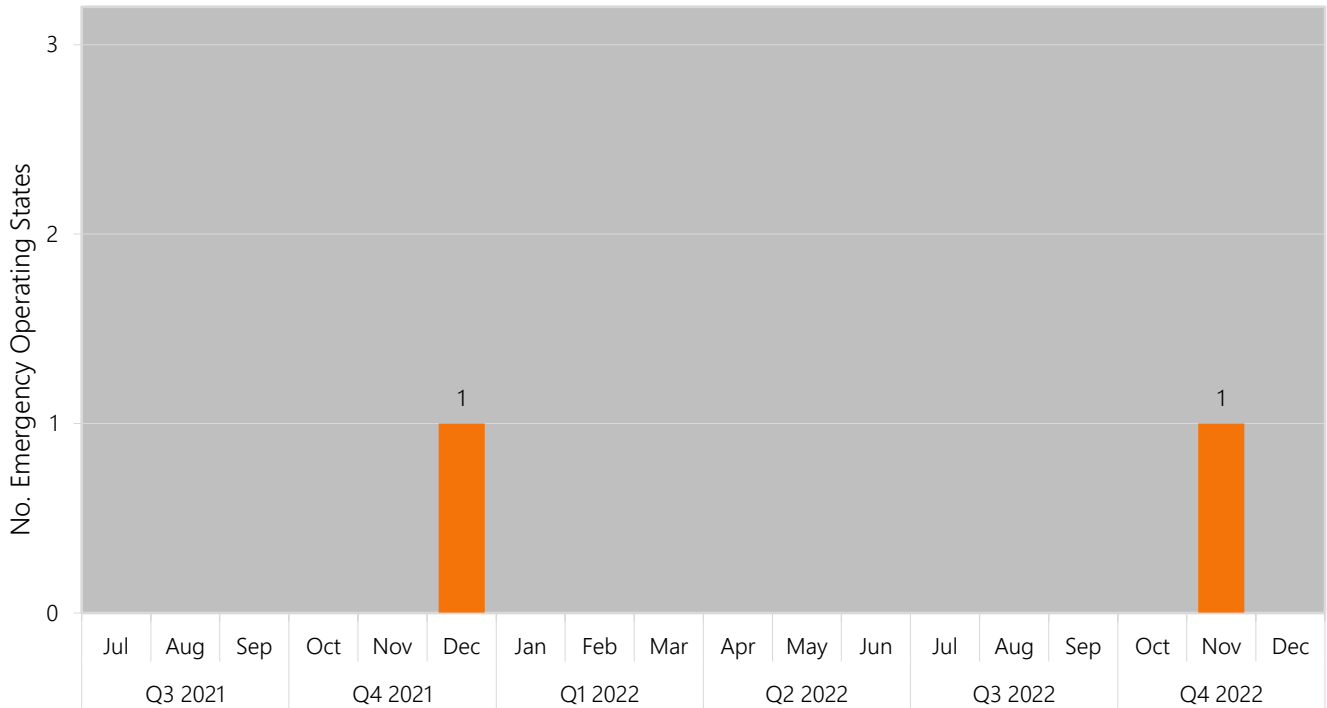
Date/Interval/s	17 Dec 2022 / Trading Interval 12:2
Dispatch Advisory #	209411
Details	Unplanned Western Power Network Outages on the KW-BIB 81 and KW-SF 82 transmission lines at 12:42 resulted in KWINANA_GT2 tripping and a loss of Distributed PV, resulting in a total loss of approximately 150 MW. Frequency dropped to 49.53Hz, recovering to within the Normal Operating Frequency Band in less than 1 minute. Some Out of Merit Dispatch may have occurred.
AEMO Action	AEMO dispatched according to the latest BMO received to maintain Power System Security and Power System Reliability.

Date/Interval/s	19 Dec 2022 / Trading Interval 23:2
Dispatch Advisory #	209418
Details	At 23:34 PINJAR_GT11 tripped, resulting in a loss of approximately 109 MW. Frequency fell to 49.54Hz recovering to normal frequency operating band in two minutes. Some Out of Merit generation may have occurred.
AEMO Action	AEMO dispatched according to the latest BMO received to maintain Power System Security and Power System Reliability.

6.2 Emergency Operating State

There was one instance of an Emergency Operating State during the reporting period.

Figure 6 Emergency Operating States that have occurred since 1 July 2021.



Date/Interval/s	27 Nov 2022 / Trading Interval 7:2 to Trading Interval 12:2
Dispatch Advisory #	209372
Details	AEMO directed Western Power to maintain System Load above the Minimum Demand Threshold (MDT) of 570 MW to maintain Power System Security and Reliability.
AEMO Action	Based on the latest forecast information available, AEMO liaised with Western Power to maintain System Load above the MDT. Due to a change in weather conditions the System Load did not reach the MDT as expected in real-time, therefore no further action was required from AEMO or Western Power to maintain Power System Security and Reliability.

6.3 Shortfalls in Ancillary Services

During the reporting period there were 37 instances of a shortfall in Ancillary Services. A shortfall occurs when the Ancillary Service Requirements are not met within a Trading Interval.

Load Rejection Reserve Service (LRRS)

AEMO's primary function as the system operator in the SWIS is to ensure the SWIS operates in a secure and reliable manner (clause 2.2.1 of the WEM Rules). The LRRS is the service of holding capacity associated with a Scheduled Generator in reserve so that the Scheduled Generator can reduce output rapidly in response to a sudden decrease in SWIS load.

During the reporting period, 35 instances related to shortfalls of LRRS⁴. The majority of shortfalls occurred during periods of high volatility of wind and rooftop PV systems. In these situations, maintaining the required level of Load Rejection Reserve is difficult, and maintaining Power System Security and Power System Reliability while minimising costs to the WEM often means no action is the best response. This is because by the time any action is taken to resolve the shortfall, Power System conditions are likely to have changed and the issue no longer exists. Further, the dynamic LRR includes safety factors which limits risks to the Power System for the duration.

Load Following Ancillary Services (LFAS)

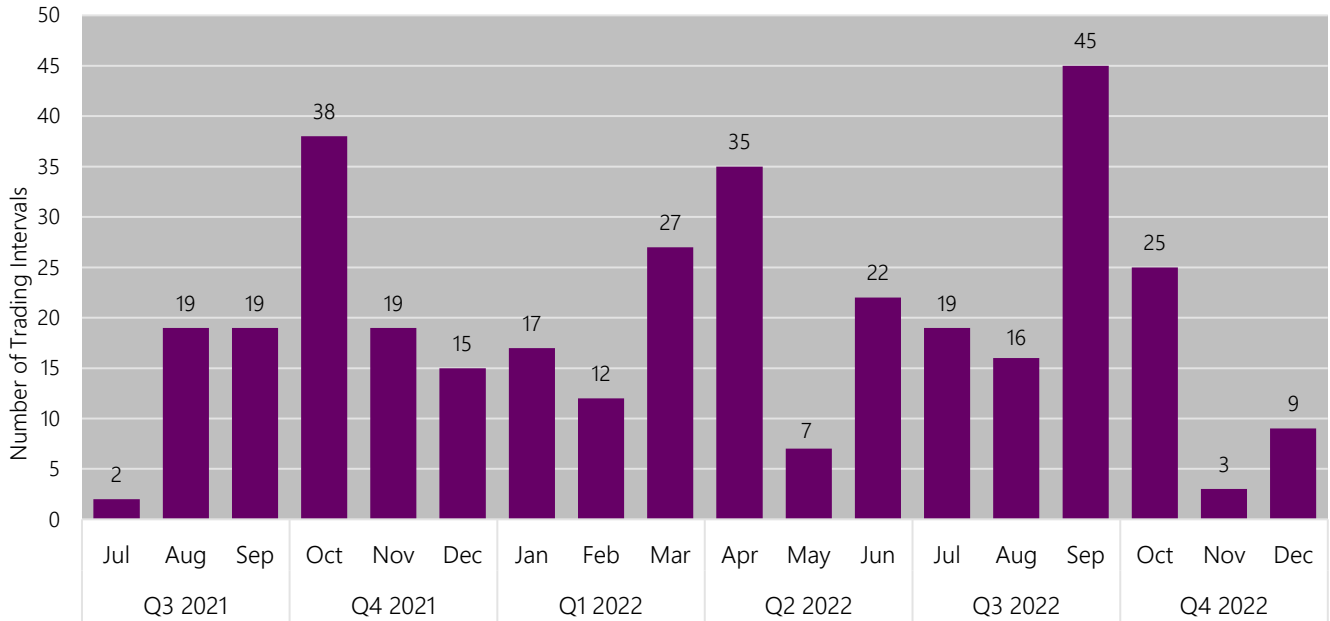
For every Trading Interval, AEMO must activate each LFAS Facility for its full upward and downward LFAS Enablement to satisfy the LFAS Enablement Schedule. During the reporting period, 2 Trading Intervals of LFAS Enablement shortfall (greater than 1 interval) were reported.

Spinning Reserve Ancillary Services (SRAS)

SRAS is the service of holding capacity associated with a synchronised Scheduled Generator or Interruptible Load in reserve, so that the relevant Facility is able to respond appropriately in situations outlined in clause 3.9.2 of the WEM Rules. During the reporting period, there were no instances relating to SRAS shortfall.

⁴ As outlined in [AEMO's Ancillary Services Report for the WEM 2022](#), AEMO's dynamic LRR, including setting the upper limit of the LRR requirement, is based on the largest credible contingency in real time. Data is based on the number of Trading Intervals where Load Rejection Reserve was less than the dynamic requirement, averaged over a Trading Interval.

Figure 7 Shortfalls in Ancillary Services that have occurred since 1 July 2021.



One LRRS shortfall placed the SWIS in a High Risk Operating State as defined under WEM Rule 3.4.1. Refer to Dispatch Advisory 209256 in section 6.1.

6.4 Involuntary curtailment of load

There were no instances of involuntary curtailment of load during the reporting period.

7 Selection and use of LFAS Facilities other than in accordance with LFAS Merit Order

During the reporting period, there were three instances where AEMO was required to use LFAS Facilities outside of the LFAS Enablement Schedule to operate the SWIS in a reliable and safe manner under clause 7B.3.8 of the WEM Rules.

Date/Interval/s	16 Oct 2022 / Trading Interval 12:2
Dispatch Advisory #	209257
Details	AEMO required backup LFAS due to ALINTA_PNJ_U1 being unavailable to provide their cleared LFAS quantity as per the LFAS Merit Order.
AEMO Action	AEMO was required to activate LFAS from the Backup LFAS Provider to maintain Power System Security and Power System Reliability.

Date/Interval/s	22 Nov 2022 / Trading Interval 11:2
Dispatch Advisory #	209362
Details	AEMO required backup LFAS due to ALINTA_PNJ_U1 being unavailable to provide their cleared LFAS quantity as per the LFAS Merit Order.
AEMO Action	AEMO was required to activate LFAS from the Backup LFAS Provider to maintain Power System Security and Power System Reliability.

Date/Interval/s	29 Nov 2022 / Trading Interval 1:1 to Trading Interval 4:1
Dispatch Advisory #	209378
Details	AEMO required backup LFAS due to ALINTA_PNJ_U1 being unavailable to provide their cleared LFAS quantity as per the LFAS Merit Order.
AEMO Action	AEMO was required to activate LFAS from the Backup LFAS Provider to maintain Power System Security and Power System Reliability.