
STATUS REPORT

1 July 2020 to 30 September 2020

Prepared 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 July 2020 to 30 September 2020;
- 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

AEMO issued 16,405 Dispatch Instructions to Market Participants during the reporting period.

Figure 1 shows the number of Dispatch Instructions issued during each Trading Month since 1 April 2019.

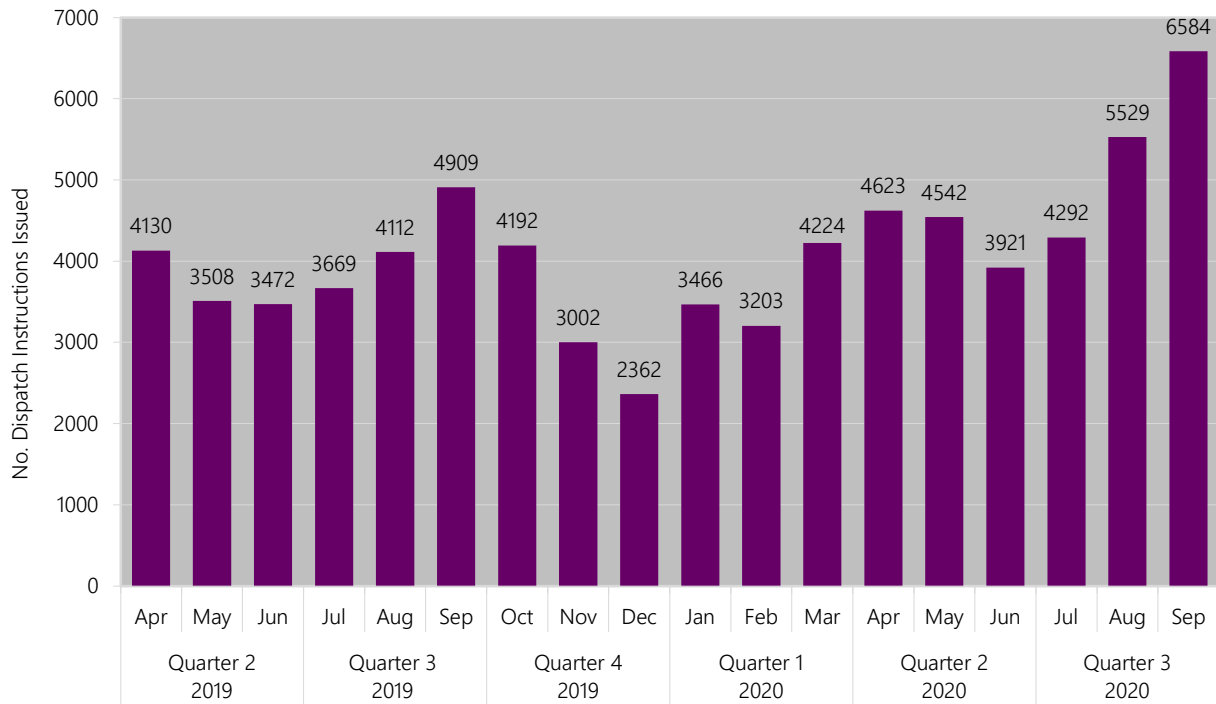


Figure 1: Dispatch Instructions per Trading Month

AEMO issued 5,069 Operating Instructions during the reporting period.

Four situations where AEMO may issue Operating Instructions under the WEM Rules are for Commissioning Tests, Reserve Capacity Tests, provision of services under the Network Control Service Contracts and issuance of retrospective Operating Instructions pursuant to clause 7.7.11.

Figure 2 below shows the number of Operating Instructions issued during each Trading Month since 1 April 2019.

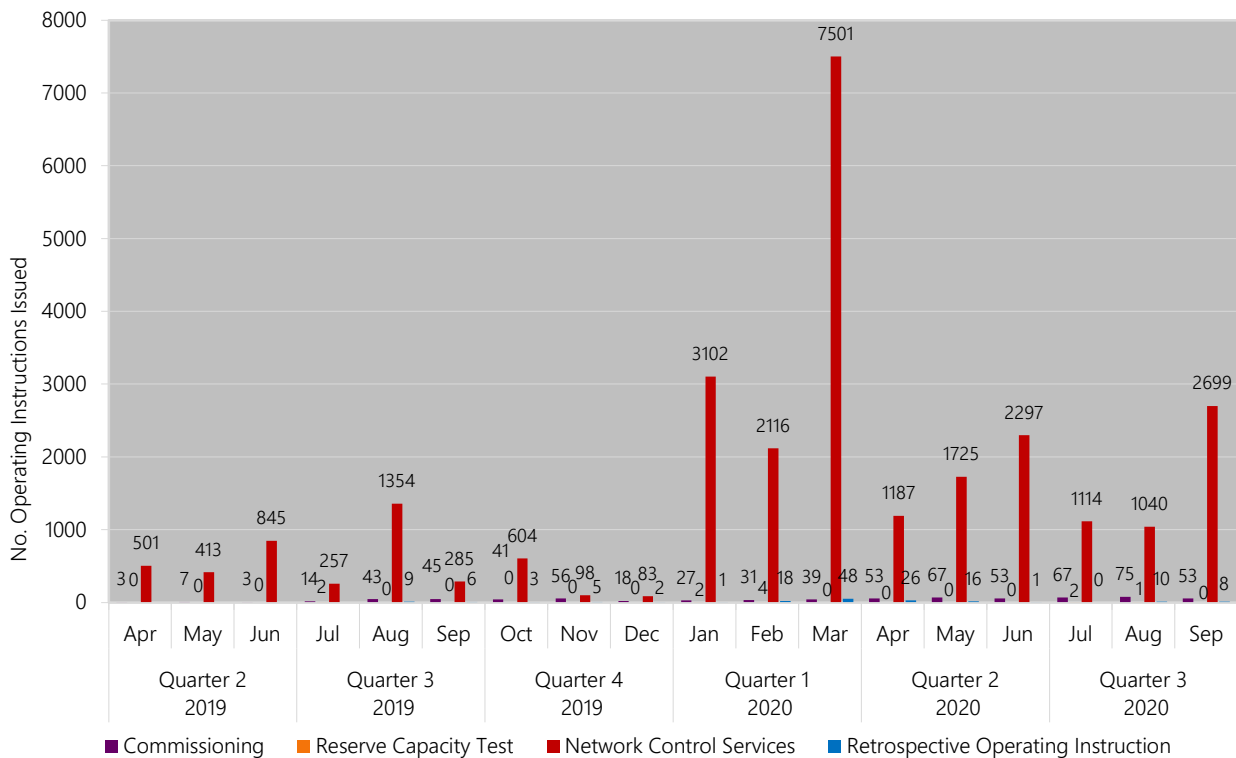


Figure 2: Operating Instructions per Trading Month

3. Non-Compliance with Dispatch Instructions and Operating Instructions¹

During the reporting period, AEMO issued 10,522 one-minute non-compliance notifications to Market Participants for non-compliance with Dispatch Instructions, taking into account the Tolerance Range, and any Facility Tolerance Ranges, where applicable.

During the reporting period, AEMO issued 719 one-minute non-compliance notifications to Market Participants for non-compliance with Operating Instructions, taking into account the Tolerance Range, and any Facility Tolerance Ranges, where applicable.

During the reporting period, there were 194 instances where a Market Participant did not confirm receipt of a Dispatch Instruction when required to do so under the WEM Rules and the Dispatch Power System Operation Procedure.

During the reporting period, there were 445 instances where a Market Participant did not confirm receipt of an Operating Instruction when required to do so under the WEM Rules and the Dispatch Power System Operation Procedure.

Figure 3 below provides historical non-compliance data since 1 April 2019.

¹ 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.

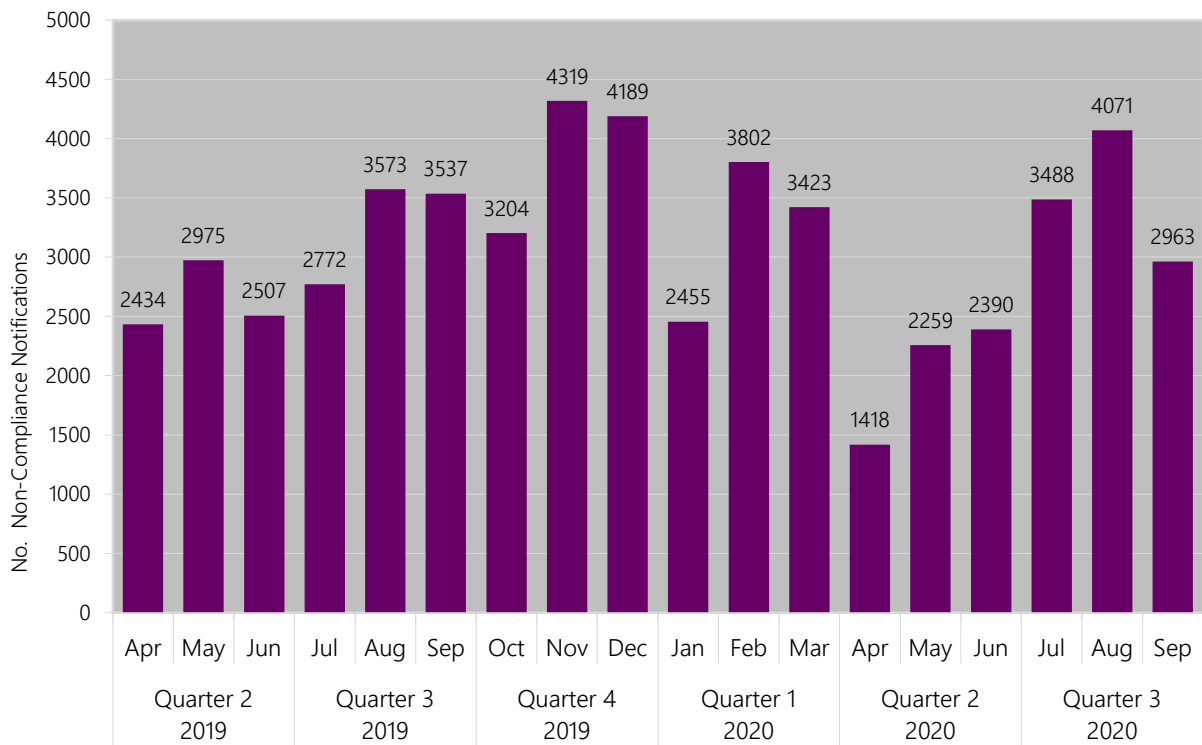


Figure 3: Dispatch Instruction non-compliance notifications

Figure 4 provides historical data for non-acknowledgement of Dispatch Instructions since 1 April 2019.

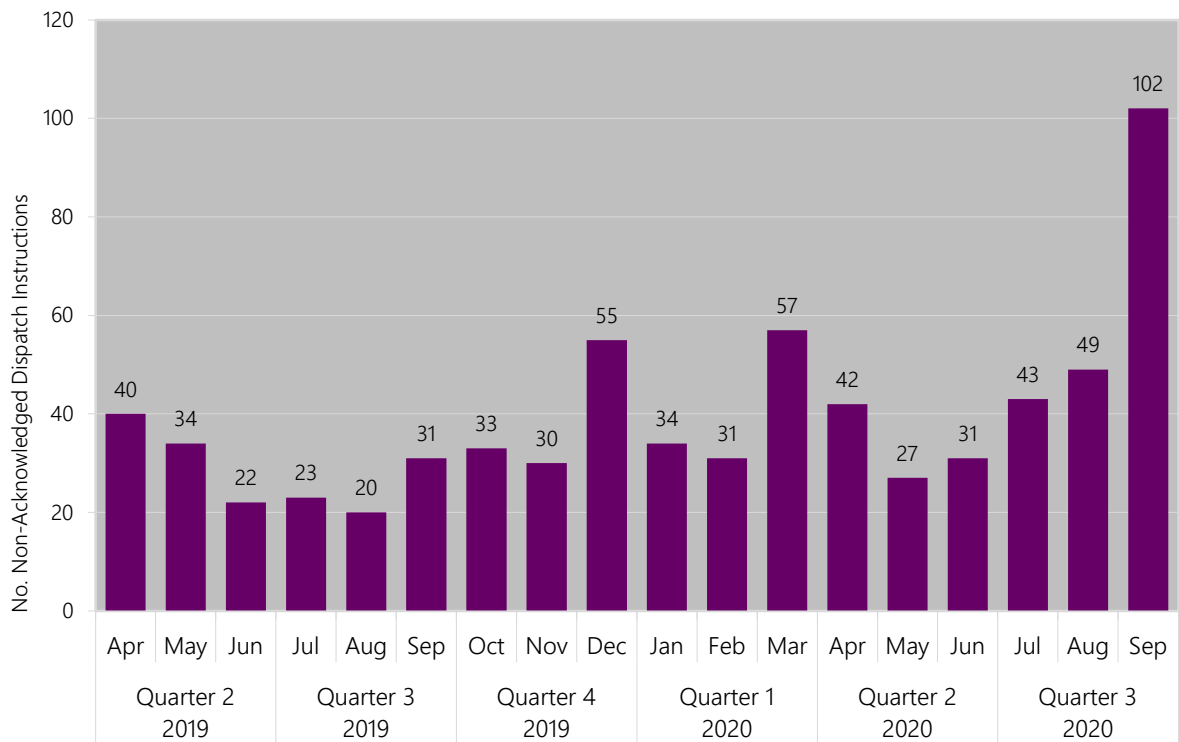


Figure 4: Non-acknowledged Dispatch Instructions

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, no instances were identified where Dispatch Instructions were issued to Balancing Facilities Out of Merit².

4.2 Other instances of Out of Merit dispatch

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. 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.

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:

- From Trading Interval 7:1 to Trading Interval 8:2 on 16 August 2020, the INVESTEC_COLLGAR_WF1 Facility became marginal and was required to be ramp-rate constrained to prevent frequency fluctuations on the network (Dispatch Advisory 207241).
- From Trading Interval 15:1 on 17 August 2020 to Trading Interval 6:2 on 19 August 2020, a planned network outage in the north country resulted in the need to constrain the ALINTA_WWF Facility (Dispatch Advisory 207242).
- From Trading Interval 15:1 on 17 August 2020 to Trading Interval 6:2 on 19 August 2020, a planned network outage in the north country resulted in the need to constrain the GREENOUGH_RIVER_PV1 Facility (Dispatch Advisory 207242).
- From Trading Interval 7:2 on 19 August 2020 to Trading Interval 8:1 on 20 August 2020, a planned network outage in the north country resulted in the need to constrain the ALINTA_WWF Facility (Dispatch Advisory 207242).
- From Trading Interval 7:2 on 19 August 2020 to Trading Interval 8:1 on 20 August 2020, a planned network outage in the north country resulted in the need to constrain the GREENOUGH_RIVER_PV1 Facility (Dispatch Advisory 207242).
- From Trading Interval 8:1 on 20 August 2020 to Trading Interval 16:1 on 21 August 2020, a planned network outage in the north country resulted in the need to constrain the MWF_MUMBIDA_WF1 Facility (Dispatch Advisory 207242)

² 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.

- From Trading Interval 2:2 on 21 September 2020 to Trading Interval 20:2 on 24 September 2020, multiple planned outages in the eastern goldfields region resulted in the need to constrain the PRK_AG Facility (207341).
- From Trading Interval 3:1 on 21 September 2020 to Trading Interval 20:2 on 24 September 2020, multiple planned outages in the eastern goldfields region resulted in the need to constrain the STHRNCRS_EG Facility (207341).

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

6.1 High Risk Operating State

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

Figure 5 provides historical data for High Risk Operating States that have occurred since 1 April 2019.

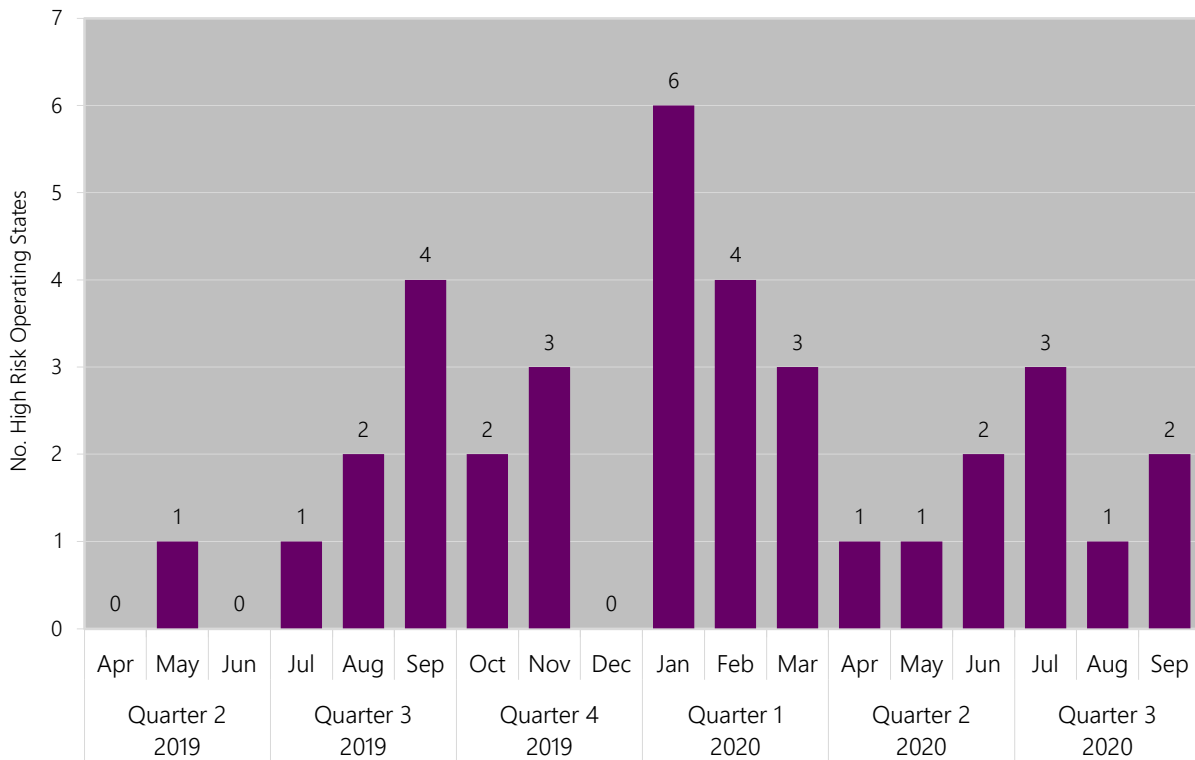


Figure 5: High Risk Operating States

Date/Interval/s	20 July 2020 / Trading Interval 11:2 to Trading Interval 14:2
Dispatch Advisory Number	207163
Details	AEMO experienced issues affecting SCADA XA/21. AEMO were also unable to access backup SCADA XA/21.

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AEMO action	AEMO was required to dispatch according to the latest available Balancing Merit Order to maintain Power System Security and Power System Reliability. There was no Out of Merit generation required.
Date/Interval/s	23 July 2020 / Trading Interval 10:2 to Trading Interval 12:2
Dispatch Advisory Number	207164
Details	AEMO experienced IT issues affecting SCADA XA/21 contingency analysis software.
AEMO action	AEMO was required to dispatch according to the latest available Balancing Merit Order to maintain Power System Security and Power System Reliability. There was no Out of Merit generation required.
Date/Interval/s	31 July 2020 / Trading Interval 10:2 to Trading Interval 13:1
Dispatch Advisory Number	207181
Details	AEMO experienced IT issues affecting the operation of the Real Time Dispatch Engine (RTDE).
AEMO action	AEMO was required to dispatch according to the latest Balancing Merit Order to maintain Power System Security and Power System Reliability. There was no Out of Merit generation required.
Date/Interval/s	28 August 2020 / Trading Interval 10:1
Dispatch Advisory Number	207282
Details	At 10:26, the BW1_BLUEWATERS_G2 Facility tripped, resulting in a loss of approximately 140MW and a frequency deviation to 49.60Hz. Frequency returned to a normal operating level within 8 seconds of the Facility tripping.
AEMO action	AEMO was required to dispatch according to the latest Balancing Merit Order to maintain Power System Security and Power System Reliability. There was no Out of Merit generation required.
Date/Interval/s	01 September 2020 / Trading Interval 19:1
Dispatch Advisory Number	207303
Details	At 19:12, the BW1_BLUEWATERS_G2 Facility tripped, resulting in a loss of approximately 199MW and a frequency deviation to 49.32Hz. Frequency returned to a normal operating level within 5 minutes and 28 second of the Facility tripping.

AEMO action	AEMO was required to dispatch according to the latest Balancing Merit Order to maintain Power System Security and Power System Reliability. There was no Out of Merit generation required.
Date/Interval/s	01 September 2020 / Trading Interval 19:1 to Trading Interval 20:2
Dispatch Advisory Number	207304
Details	A Dispatch Advisory was issued in error which incorrectly advised that due to the SWIS being in a High Risk Operating State (see Dispatch Advisory 207303 above) and Ancillary Service requirements not being met between 19:29 and 20:46, utilised System Restart Ancillary Services to bring the system back to a Normal Operating State.
AEMO action	No shortfall in Ancillary Services occurred. System Restart Services were not utilised, due to the power system remaining operable and sufficient System Restart Services being available. AEMO was required to dispatch according to the latest Balancing Merit Order to maintain Power System Security and Power System Reliability. There was no Out of Merit generation required.

6.2 Emergency Operating State

There were two instances of an Emergency Operating State during the reporting period.

Figure 6 provides historical data for Emergency Operating States that have occurred since 1 April 2019.

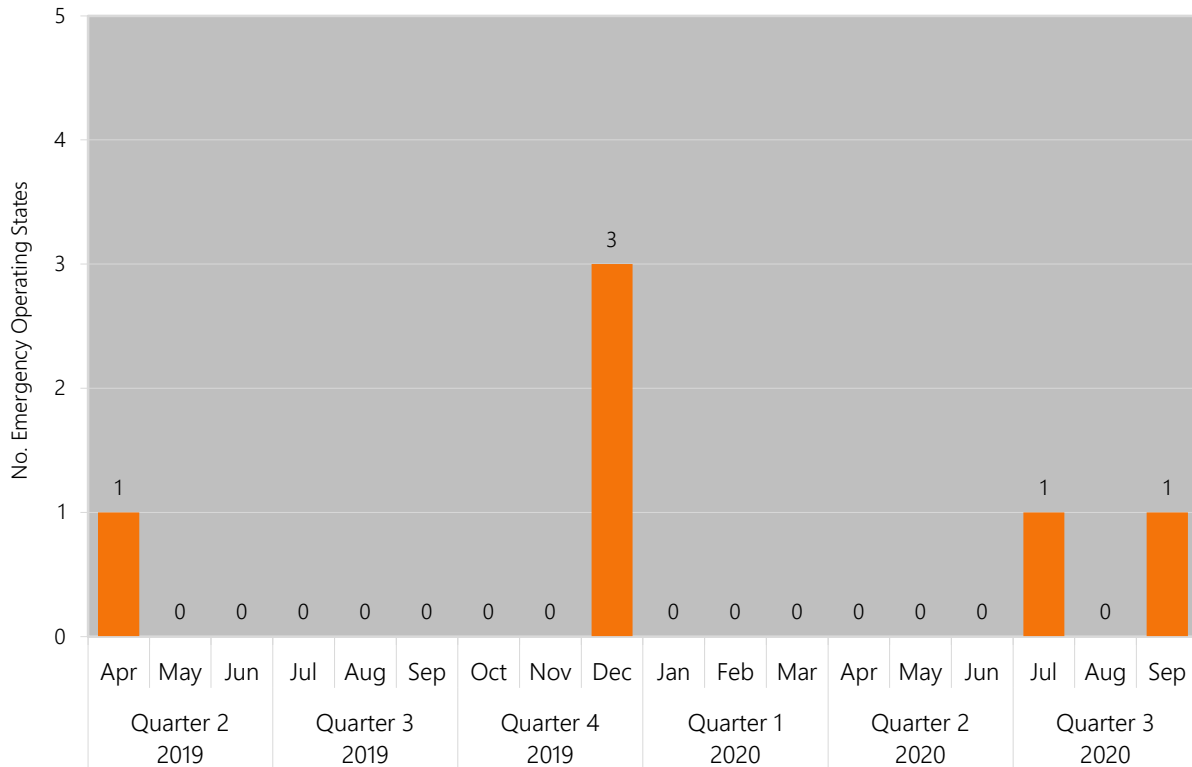


Figure 6: Emergency Operating States

Date/Interval/s	08 July 2020 / Trading Interval 1:1 to Trading Interval 1:2
Dispatch Advisory Number	207122
Details	AEMO was required to evacuate the primary operational facility as a result of an activation of building fire alarm systems.
AEMO action	AEMO was required to hand over frequency control and relocate to the backup Facility.

Date/Interval/s	09 September 2020 / Trading Interval 23:2 to 10 September 2020/ Trading Interval 0:2
Dispatch Advisory Number	207321
Details	AEMO was required to evacuate the primary operational facility as a result of an activation of building fire alarm systems.
AEMO action	AEMO was required to hand over frequency control and relocate to the backup Facility.

6.3 Shortfalls in Ancillary Services

During the reporting period there were 119 instances of a shortfall in Ancillary Services. A shortfall occurs when the Ancillary Service Requirements are not met within a Trading Interval.

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 Load Rejection Reserve Service is (relevantly) 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.

113 instances during the reporting period related to shortfalls of Load Rejection Reserve Service³. 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 Wholesale Electricity Market often means no action is the best response.

For every Trading Interval, System Management must activate each LFAS Facility for its full upward and downward LFAS Enablement to satisfy the LFAS Enablement Schedule. During the reporting period six instances of LFAS Enablement shortfall were reported where, for a variety of reasons, the required LFAS Enablement Schedule wasn’t achieved.

AEMO does not consider that any of the shortfalls threatened Power System Security or Power System Reliability or were significant enough to place the SWIS in a High Risk Operating State or an Emergency Operating State.

Figure 7 below provides data for shortfalls in Ancillary Services that have occurred since 1 April 2019.

³ As outlined in [AEMO’s Ancillary Services Report for the WEM 2020](#), AEMO has been conducting a Load Rejection Reserve (LRR) trial using a dynamic requirement in real time. The dynamic formulation incorporates physical aspects of the power system, including setting the upper limit of the LRR requirement 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, calculated using five-minute averages within a Trading Interval.

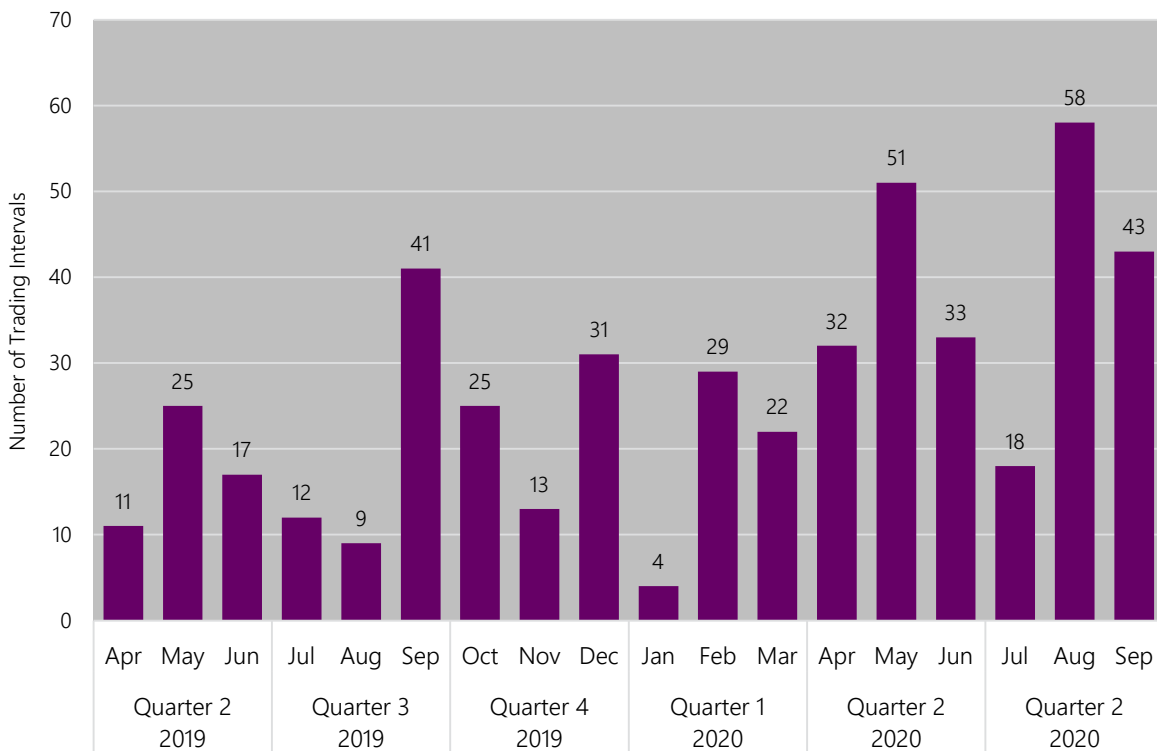


Figure 7: Number of Shortfalls in Ancillary Services

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 four 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	19 July 2020 / Trading Interval 6:2 to Trading Interval 14:1
Dispatch Advisory Number	207161
Details	AEMO required additional Load Following Ancillary Services due to the ALINTA_PNJ_U2 Facility being unable to provide LFAS as per the LFAS Merit Order.
AEMO action	AEMO was required to activate Load Following Ancillary Services from the Backup LFAS Provider to maintain Power System Security and Power System Reliability.

Date/Interval/s	25 July 2020 / Trading Interval 10:2 to Trading Interval 15:1
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Dispatch Advisory Number	207166
Details	AEMO required additional Load Following Ancillary Services due to fluctuations in frequency as a result of PV volatility.
AEMO action	AEMO was required to activate Load Following Ancillary Services from the Backup LFAS Provider to maintain Power System Security and Power System Reliability.

Date/Interval/s	01 September 2020 / Trading Interval 9:1 to Trading Interval 15:2
Dispatch Advisory Number	207301
Details	AEMO required additional Load Following Ancillary Services due to large fluctuations in non-scheduled generation.
AEMO action	AEMO was required to activate Load Following Ancillary Services from the Backup LFAS Provider to maintain Power System Security and Power System Reliability.

Date/Interval/s	21 September 2020 / Trading Interval 14:1 to Trading Interval 15:1
Dispatch Advisory Number	207342
Details	AEMO required additional Load Following Ancillary Services due to fluctuations in frequency as a result of PV volatility.
AEMO action	AEMO was required to activate Load Following Ancillary Services from the Backup LFAS Provider to maintain Power System Security and Power System Reliability.