
STATUS REPORT

1 January 2019 to 31 March 2019

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 January 2019 to 31 March 2019;
- 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 13,485 Dispatch Instructions to Market Participants during the reporting period.

Figure 1 shows the number of Dispatch Instructions issued during each Trading Month since 1 October 2017.

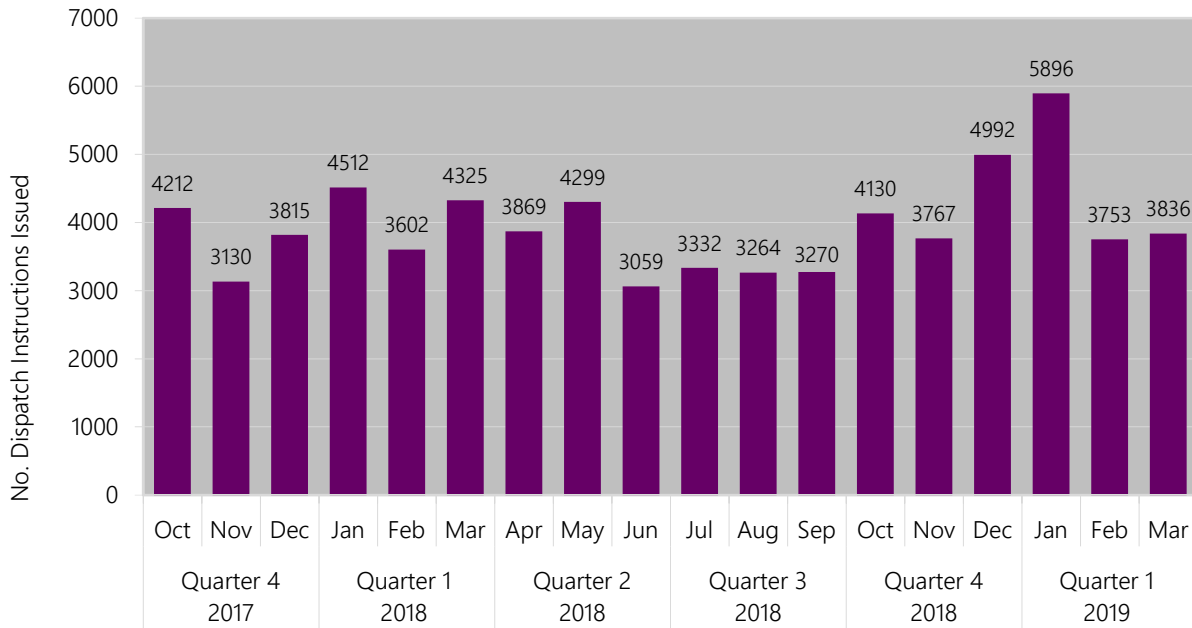


Figure 1: Dispatch Instructions per Trading Month

AEMO issued 1350 Operating Instructions during the reporting period. The increase from previous quarters is due to the operation of Network Control Services including Generator Interim Access arrangements.

Three situations where AEMO may issue Operating Instructions under the WEM Rules are for Commissioning Tests, Reserve Capacity Tests and provision of services under the Network Control Service Contracts.

Figure 2 shows the number of Operating Instructions issued during each Trading Month since 1 October 2017.

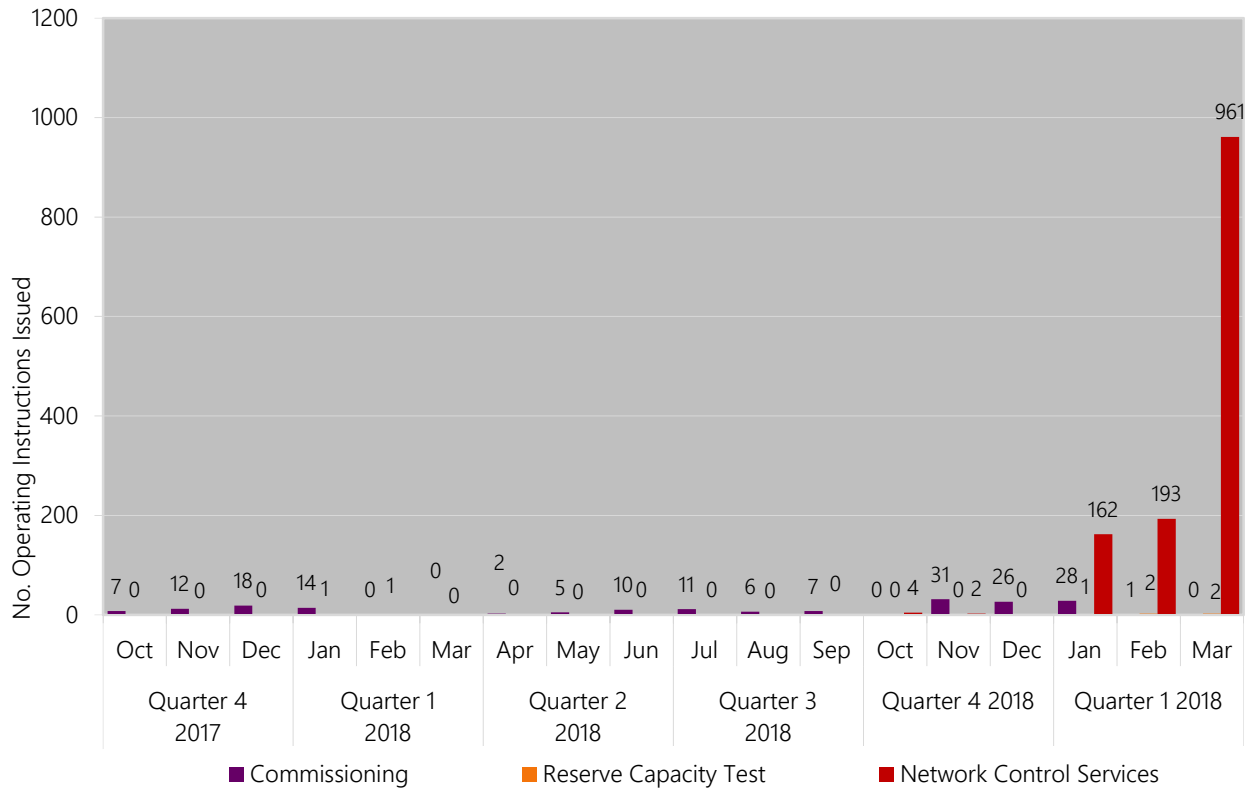


Figure 2: Operating Instructions per Trading Month

3. Non-Compliance with Dispatch Instructions and Operating Instructions¹

During the reporting period, AEMO issued 8,630 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, there were 98 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 170 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 October 2017.

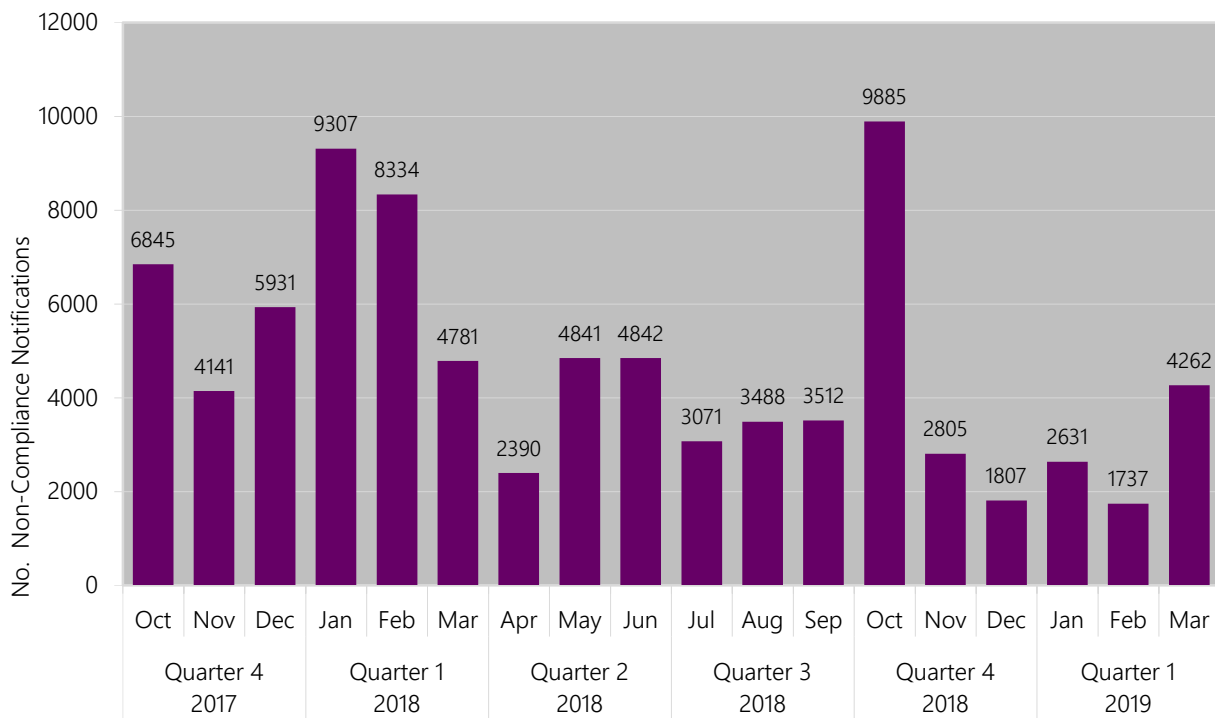


Figure 3: Dispatch Instruction non-compliance notifications

Figure 4 provides historical data for non-acknowledgement of Dispatch Instructions since 1 October 2017.

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.

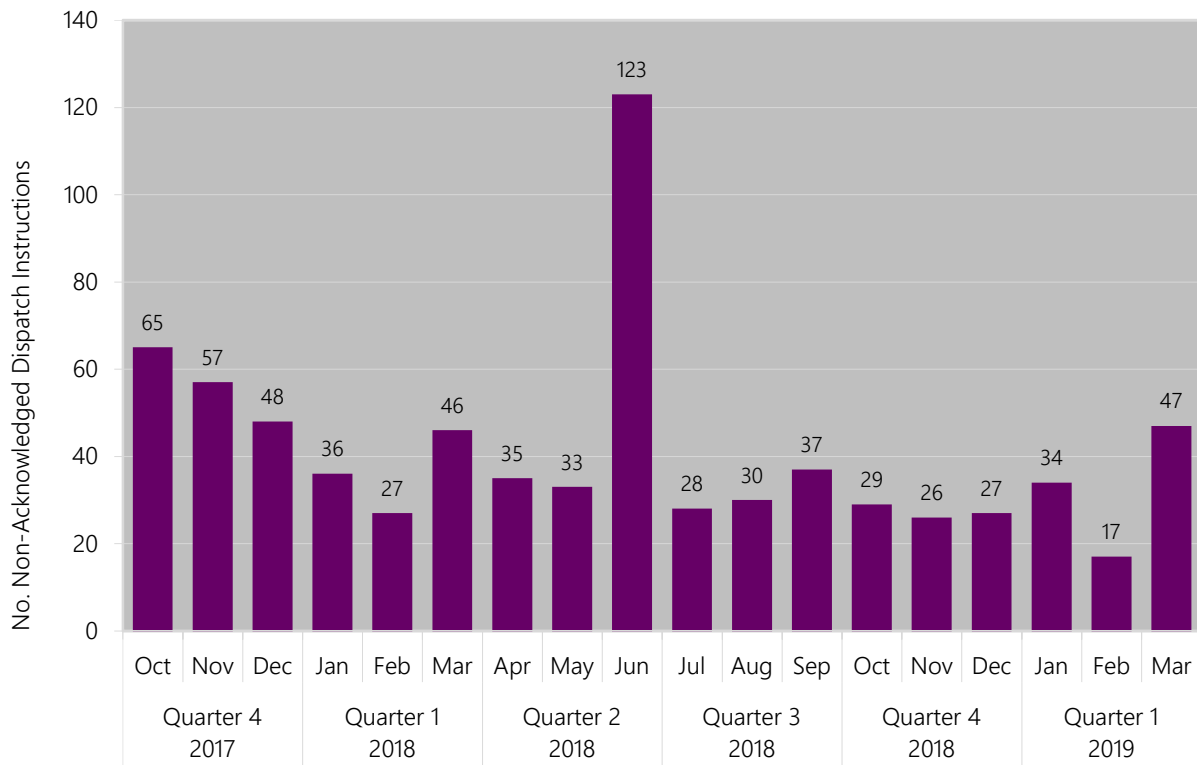


Figure 4: Non-acknowledged Dispatch Instructions

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, there were no instances 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 provides 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.

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.

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 9:1 on 19 January 2019, a planned network outage on the MGA - GTN81 transmission line, resulted in the need to constrain the GREENOUGH_RIVER_PV1 Facility (Dispatch Advisory 18434).
 - The GREENOUGH_RIVER_PV1 Facility was constrained to 0MW for 5 Trading Intervals.
- From Trading Interval 16:2 on 23 January 2019 to Trading Interval 15:2 on 24 January 2019, anti-islanding issues resulted in the need to constrain the ALCOA_WGP Facility (Dispatch Advisory 18437).
 - The ALCOA_WGP Facility was constrained to 0MW for 47 Trading Intervals.
- From Trading Interval 13:1 to Trading Interval 16:1 on 11 March 2019, a trip on the 220Kv transmission line in the Eastern Goldfields region resulted in the need to constrain the STHRNCRS_EG Facility (Dispatch Advisory 18508).
 - The STHRNCRS_EG Facility was constrained to 0MW for 7 Trading Intervals
- From Trading Interval 8:1 to Trading Interval 9:2 on 14 March 2019, a planned network outage resulted in the need to constrain the GRASMERE_WF1 Facility (Dispatch Advisory 18510).
 - The GRASMERE_WF1 Facility was constrained to 0MW for 4 Trading Intervals
- From Trading Interval 8:1 to Trading Interval 9:2 on 14 March 2019, a planned network outage resulted in the need to constrain the ALBANY_WF1 Facility (Dispatch Advisory 18510).
 - The ALBANY_WF1 Facility was constrained to 0MW for 4 Trading Intervals
- From Trading Interval 10:1 to Trading Interval 12:1 on 14 March 2019, a planned network outage resulted in the need to constrain the GRASMERE_WF1 Facility (Dispatch Advisory 18510).
 - The GRASMERE_WF1 Facility was constrained to 0MW for 4 Trading Intervals
- From Trading Interval 10:1 to Trading Interval 12:1 on 14 March 2019, a planned network outage resulted in the need to constrain the ALBANY_WF1 Facility (Dispatch Advisory 18510).
 - The ALBANY_WF1 Facility was constrained to 0MW for 4 Trading Intervals
- From Trading Interval 14:1 to Trading Interval 15:1 on 14 March 2019, a trip on the 220Kv transmission line in the Eastern Goldfields region resulted in the need to constrain the STHRNCRS_EG Facility (Dispatch Advisory 18511).
 - The STHRNCRS_EG Facility was constrained to 0MW for 2 Trading Intervals
- From Trading Interval 4:2 to Trading Interval 21:2 on 27 March 2019, a planned network outage on the 220Kv transmission line in the Eastern Goldfields region resulted in the need to constrain on the STHRNCRS_EG Facility (Dispatch Advisory 18568).
 - The STHRNCRS_EG Facility was constrained to 23MW for 34 Trading Intervals
- From Trading Interval 8:2 to Trading Interval 21:2 on 27 March 2019, a planned network outage on the MRT-CGT-YGN/WKT transmission line resulted in the need to constrain on the PRK_AG Facility (Dispatch Advisory 18568).
 - The PRK_AG Facility was constrained on between 10MW and 20MW for 26 Trading Intervals

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

6.1 High Risk Operating State

There were eight 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 October 2017.

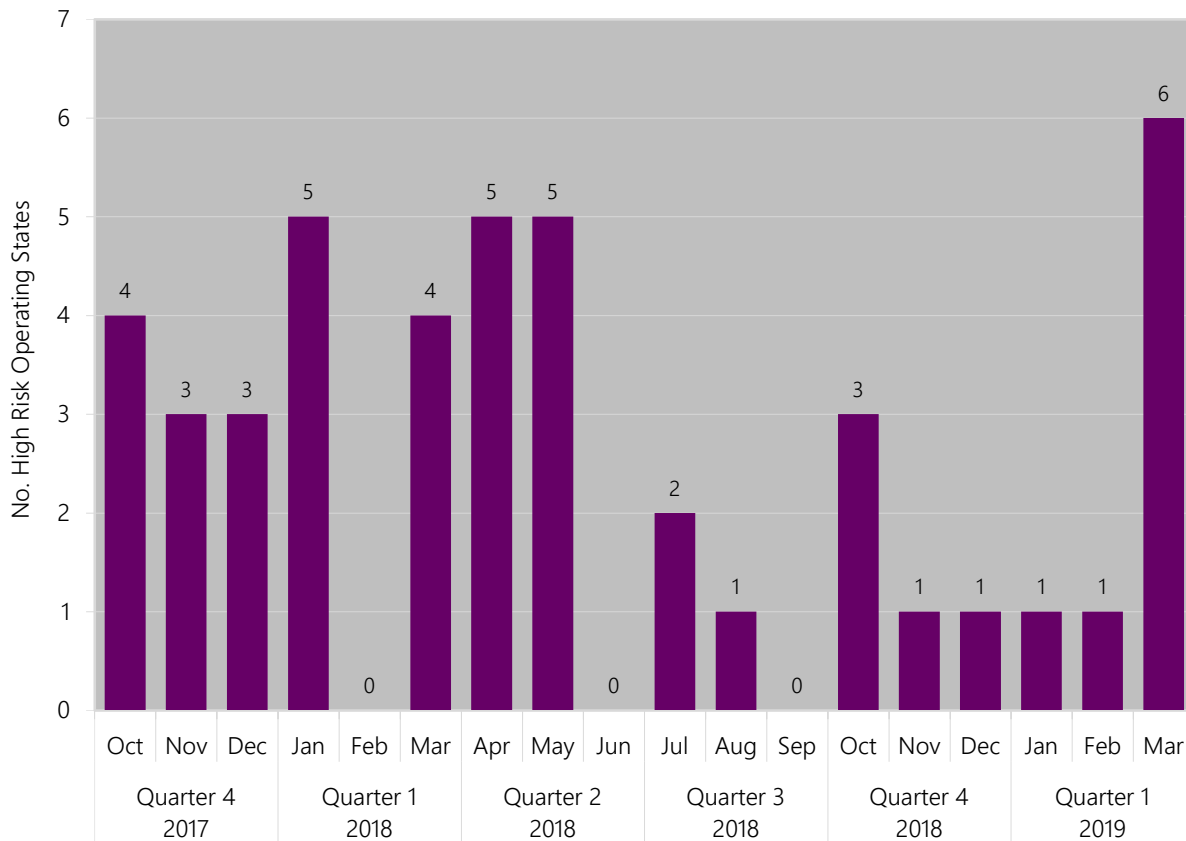


Figure 5: High Risk Operating States

Date/Interval/s	16 January 2019 / Trading Interval 11:2
Dispatch Advisory Number	18428
Details	At 11:58, the BW1_BLUEWATERS_G2 Facility tripped, resulting in a loss of approximately 188MW and a frequency deviation to 49.50Hz. Frequency returned to a Normal Operating level within 15 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.

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Date/Interval/s	25 February 2019 / Trading Interval 12:1
Dispatch Advisory Number	18488
Details	Between 12:05 and 12:25, the SCADA system experienced significant degradation limiting AEMO and the Network Operator's ability to control the power system.
AEMO action	AEMO was required to follow back up processes and maintain Power System Security and Power System Reliability.

Date/Interval/s	11 March 2019 / Trading Interval 12:2 to 16:2
Dispatch Advisory Number	18508
Details	At 12:56, the 220kV transmission line in the Eastern Goldfields region tripped resulting in the need to constrain the STHRNCRS_EG Facility. AEMO invoked the Network Control Services (NCS) for WEST_KALGOORLIE_GT2 and WEST_KALGOORLIE_GT3 to maintain frequency support in the islanded region.
AEMO action	AEMO was required to constrain the STHRNCRS_EG and PRK_AG Facilities required to maintain Power System Security and Power System Reliability. AEMO Invoked the NCS for WEST_KALGOORLIE_GT2 and WEST_KALGOORLIE_GT3 to maintain frequency in the islanded region.

Date/Interval/s	14 March 2019 / Trading Interval 14:1 to 15:2
Dispatch Advisory Number	18511
Details	At 14:13, the 220kV line in the Eastern Goldfields region tripped, resulting in the need to constrain the STHRNCRS_EG Facility.
AEMO action	AEMO was required to constrain the STHRNCRS_EG Facility to 0MW to maintain Power System Security and Power System Reliability.

Date/Interval/s	16 March 2019 / Trading Interval 23:2
Dispatch Advisory Number	18528
Details	At 22:31, the ALINTA_WGP_U2 Facility tripped resulting in a loss of approximately 165MW and a frequency deviation to 49.562Hz. Frequency returned to a Normal Operating level within one minute 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.

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Date/Interval/s	19 March 2019 / Trading Interval 11:1 to 11:2
Dispatch Advisory Number	18532
Details	AEMO experienced an IT systems failure.
AEMO action	AEMO was required to assume frequency control at the back up facility to maintain Power System Security and Power System Reliability.

Date/Interval/s	20 March 2019 / Trading Interval 8:1
Dispatch Advisory Number	18533
Details	At 08:03, the ALINTA_WGP_U2 Facility tripped resulting in a loss of approximately 140MW and a frequency deviation to 49.64Hz. Frequency was outside of the Normal Operating level between 08:03 and 08:08.
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	20 March 2019 / Trading Interval 21:1
Dispatch Advisory Number	18534
Details	AEMO experienced an IT systems failure.
AEMO action	AEMO was required to assume frequency control at the back up facility 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 provides historical data for Emergency Operating States that have occurred since 1 October 2017.

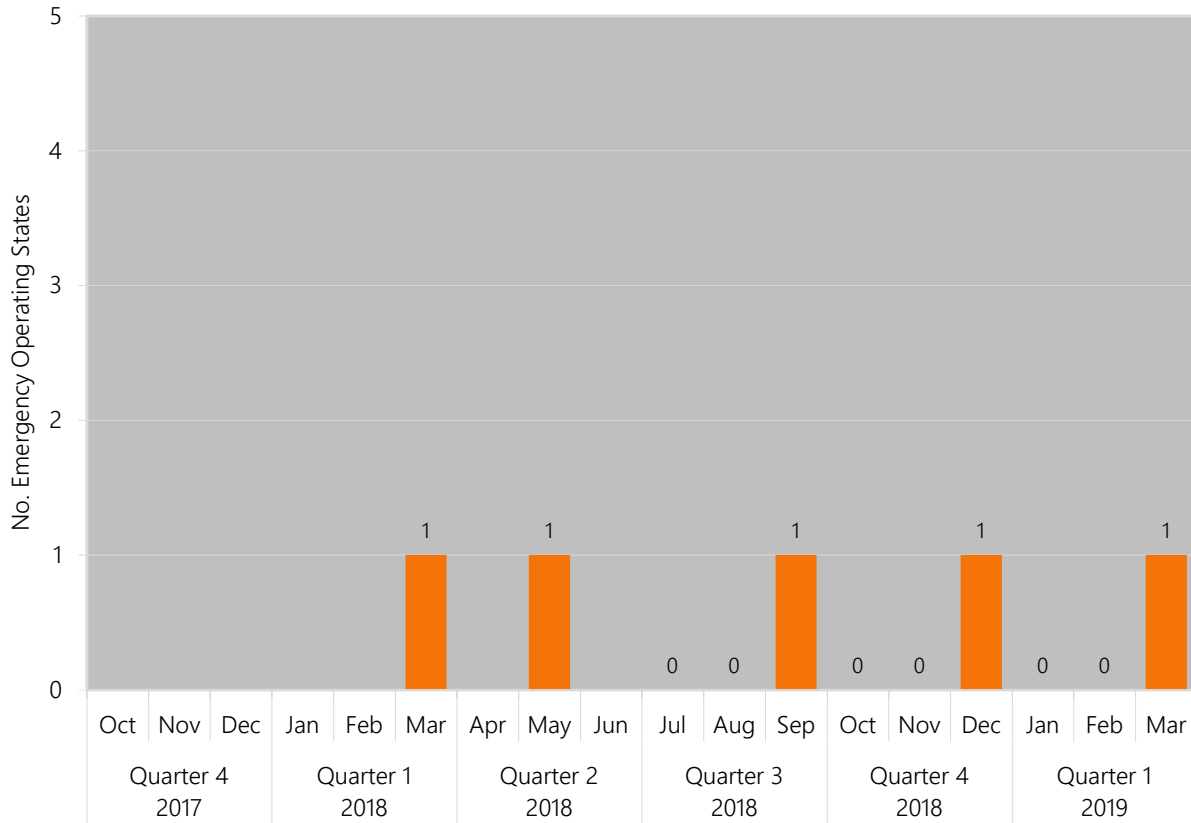


Figure 6: Emergency Operating States

Date/Interval/s	19 March 2019 / Trading Interval 8:2 to 9:1
Dispatch Advisory Number	18530
Details	At 08:57, the COCKBURN_CCG1 Facility tripped resulting in a loss of approximately 225MW. At 08:59, the ALINTA_WGP_U2 Facility tripped resulting in a loss of approximately 146MW. Both Facilities tripping caused a frequency deviation to approximately 49.05Hz, with frequency outside of Normal Operating values from 08:57 to 09:06.
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.

6.3 Shortfalls in Ancillary Services

There were 314 instances of a shortfall in Ancillary Services during the reporting period.

Figure 7 below provides data for shortfalls in Ancillary Services that have occurred since 1 October 2017.

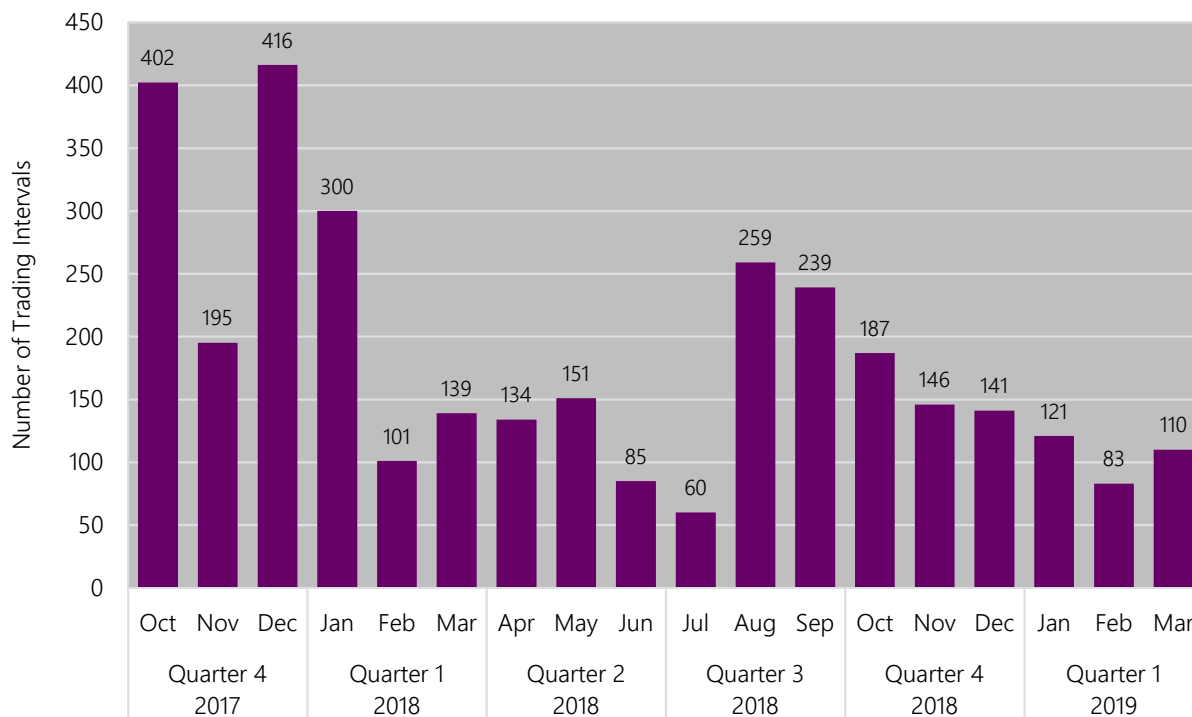


Figure 7: Number of Shortfalls in Ancillary Services

The 314 instances related to the Load Rejection Reserve Service³. 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.

A shortfall occurs when the Ancillary Service Requirements are not met within a Trading Interval. AEMO does not consider that any of the shortfalls threatened Power System Security or Power System Reliability or placed the SWIS in a High Risk Operating State or an Emergency Operating State.

Consistent with last quarter, a large number of shortfalls within the period occurred during periods of high volatility of 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.

6.4 Involuntary curtailment of load

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

³ Data is based on the number of Trading Intervals where Load Rejection Reserve of less than 90MW occurred, calculated using five-minute averages.

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

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

Date/Interval/s	13 February 2019 / Trading Interval 11:1
Dispatch Advisory Number	18469
Details	AEMO required additional Load Following Ancillary Services due to high volatility of wind and PV generation.
AEMO action	AEMO was required to activate back up Load Following Ancillary Services to maintain Power System Security and Power System Reliability.

Date/Interval/s	22 January 2019 / Trading Interval 01:1 to 05:2
Dispatch Advisory Number	18436
Details	The ALINTA_PNJ_U1 Facility was unable to provide their cleared LFAS quantity as per the LFAS merit order.
AEMO action	AEMO was required to activate back up Load Following Ancillary Services to maintain Power System Security and Power System Reliability.