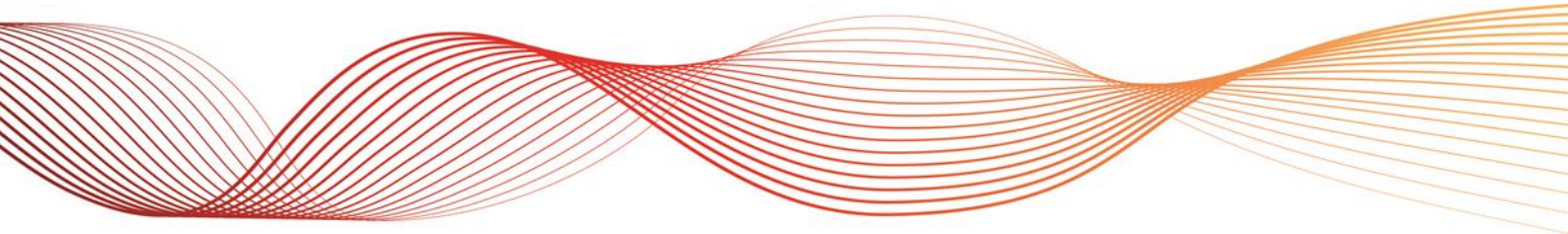




# STATUS REPORT

Prepared under clause 7.12 of the WEM Rules

1 October 2017 to 31 December 2017





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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 2017 to 31 December 2017;
- 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 11,157 Dispatch Instructions to Market Participants during the reporting period.

Figure 1 below shows the number of Dispatch Instructions issued during each Trading Month since 1 July 2016.

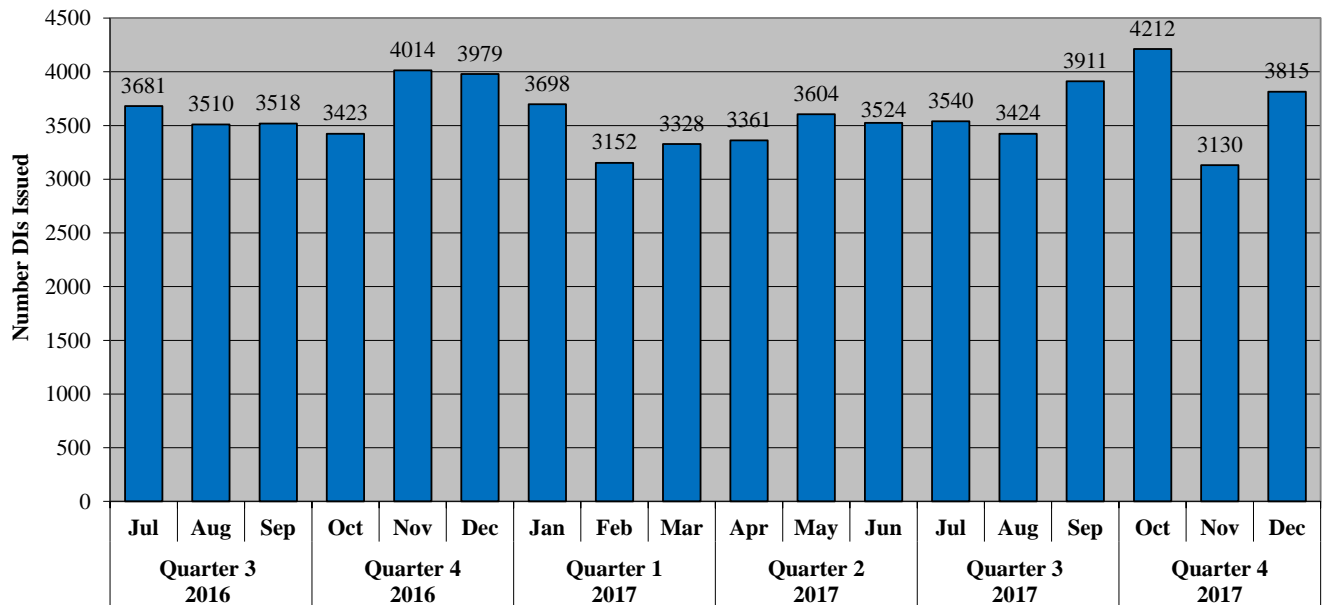


Figure 1: Dispatch Instructions per Trading Month

AEMO issued 37 Operating Instructions during the reporting period.

Two situations where AEMO may issue Operating Instructions under the WEM Rules are for Commissioning Tests and Reserve Capacity Tests.

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

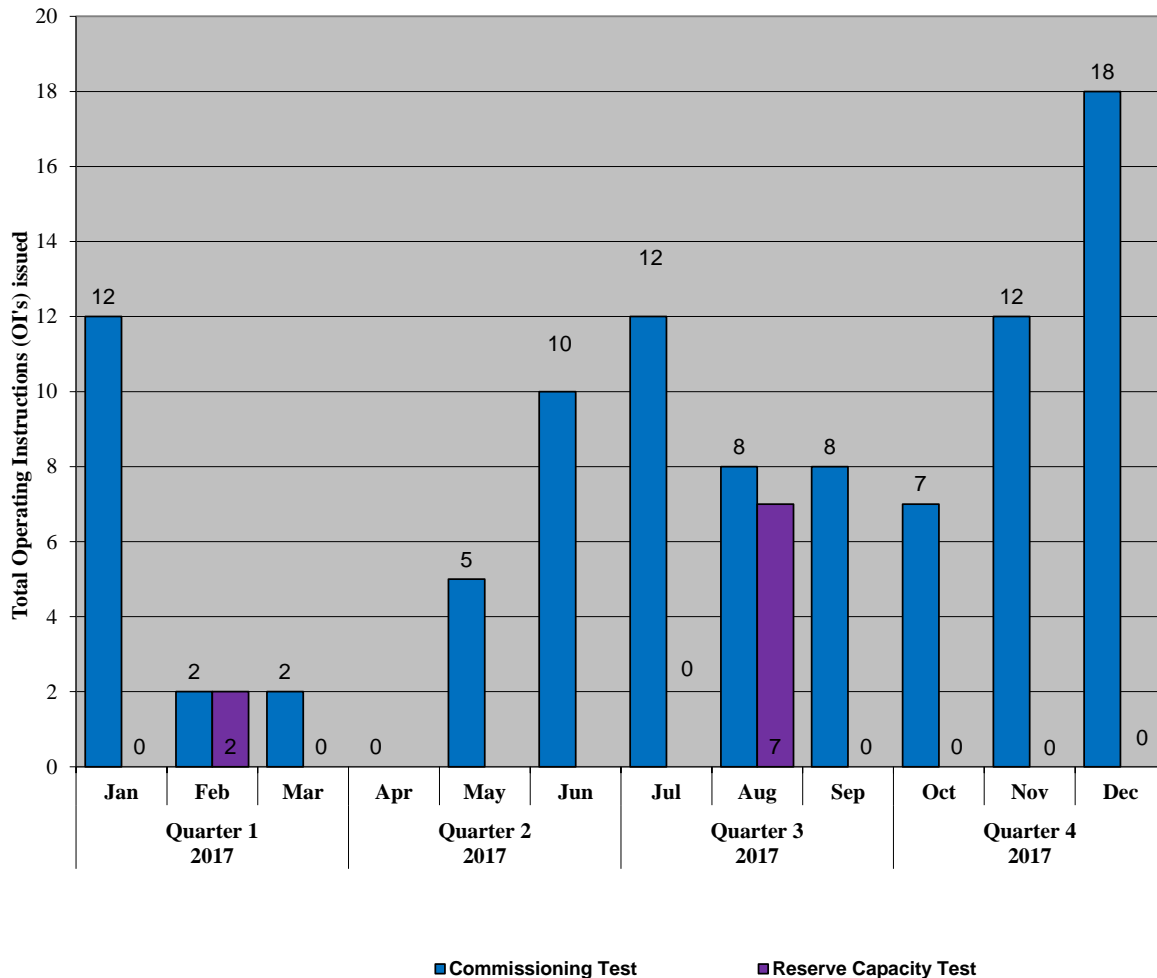


Figure 2: Operating Instructions per Trading Month

### 3. Non-Compliance with Dispatch Instructions and Operating Instructions

During the reporting period, System Management issued 16,377 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 170 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 report period, there were two instances where a Market Participant did not confirm receipt of an Operating Instruction.

Figure 3 below provides historical non-compliance data since 1 July 2016.

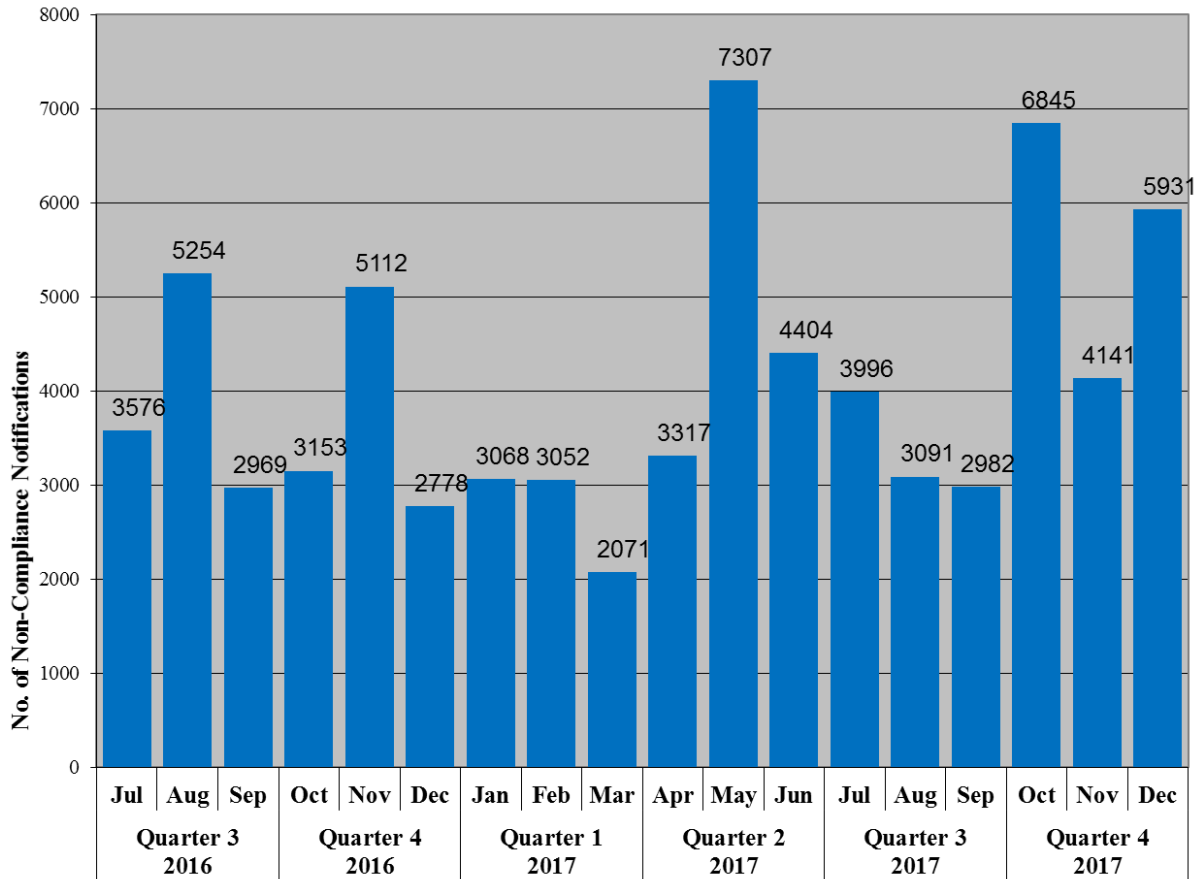
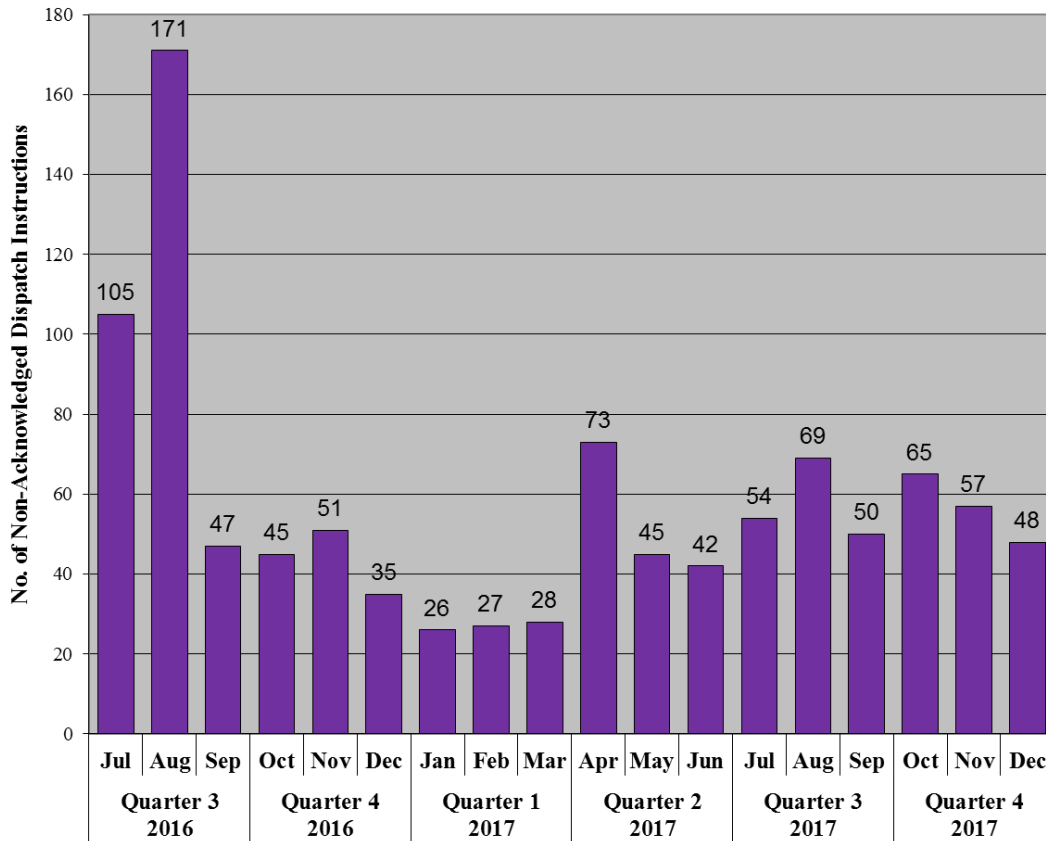


Figure 3: Dispatch Instruction non-compliance notifications

Figure 4 below provides historical non-acknowledgement data for Dispatch Instructions since 1 July 2016.



**Figure 4: Non-acknowledged Dispatch Instructions**

## 4. Issuance of Dispatch Instructions to Balancing Facilities Out of Merit

### 4.1 Instances of Out of Merit dispatch identified by AEMO

During the reporting period, no Dispatch Instructions were issued to Balancing Facilities Out of Merit.<sup>1</sup>

### 4.2 Other instances of Out of Merit dispatch

Section 5 of this report contains information about Facilities that were affected by transmission constraints during the reporting period. Where a transmission constraint reported in section 5 of this report has resulted in a Facility or Facilities being dispatched to a position that differs from the applicable Balancing Merit Order then these instances will constitute Out of Merit dispatch. Dispatch Advisory notifications are released for these transmission constraint-related instances.

<sup>1</sup> Clause 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.

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.

System Management has identified the following transmission constraints during the reporting period:

- On 3 October 2017, commencing Trading Interval 13:2 and ending Trading Interval 16:2, high winds and the risk of exceeding line overload limits required the MWF\_MUMBIDA\_WF1 Facility to be constrained (Dispatch Advisory 17360).
  - The MWF\_MUMBIDA\_WF1 Facility was constrained to between 40MW and 45MW for 7 Trading Intervals.
- On 13 October 2017, commencing Trading Interval 15:2 and ending on 14 October 2017, Trading Interval 15:2, storm activity on the MGA-TS 132kV transmission line resulted in the MWF\_MUMBIDA\_WF1 and ALINTA\_WWF Facilities being constrained (Dispatch Advisories 17384 and 17382).
  - The MWF\_MUMBIDA\_WF1 Facility was constrained to 0MW for 49 Trading Intervals.
  - The ALINTA\_WWF Facility was constrained to 0MW for 49 Trading Intervals.
- On 17 October 2017, commencing Trading Interval 17:1 and ending on 18 October 2017, Trading Interval 13:2, due to the loss of the SNR-APJ/WGP line the ALCOA\_WGP Facility was on radial and constrained to 0MW (Dispatch Advisory 17388).
  - The ALCOA\_WGP Facility was constrained to 0MW for 42 Trading Intervals.
- On 14 November 2017, commencing Trading Interval 9:1 and ending 15 November 2017, Trading Interval 20:1, due to an issue with the anti-islanding scheme on the Eastern Goldfields supply the PRK\_AG and ALCOA\_WGP Facilities were constrained (Dispatch Advisories 17446, 17447, 17448 and 17449).
  - The PRK\_AG Facility was constrained to between 5MW and 30MW for 12 Trading Intervals.
  - The ALCOA\_WGP Facility was constrained to 0MW for 15 Trading Intervals.
- On 11 December 2017, commencing Trading Interval 16:1 and ending Trading Interval 19:1, due to the loss of the 220k line in the Eastern Goldfields region, Accelerated Power Level Detection (APLD) operated, causing the STHRNCRS\_EG, PRK\_EG and INVESTEC COLLGAR Facilities to be constrained to 0MW (Dispatch Advisory 17502).
  - The STHRNCRS\_EG Facility was constrained to 0MW for 5 Trading Intervals.
  - The PRK\_EG Facility was constrained to 0MW for 5 Trading Intervals.
  - The INVESTEC\_COLLGAR\_WF1 Facility was constrained to 0MW for 8 Trading Intervals.
- On 13 December 2017, commencing Trading Interval 15:2 and ending Trading Interval 16:1, unplanned maintenance on the MUBTT3 line performed by Western Power resulted in the INVESTEC\_COLLGAR\_WF1 and NAMKKN\_MERR\_SG1 Facilities being constrained. No Dispatch Advisory was issued by System Management.
  - The NAMKKN\_MERR\_SG1 Facility was constrained to 0MW for 2 Trading Intervals.
  - The INVESTEC\_COLLGAR\_WF1 Facility was constrained to 0MW for 2 Trading Intervals.



- On 14 December 2017, commencing Trading Interval 9:2 and ending Trading Interval 15:1, a MU BTT3 equipment failure that was connected to the 22kV network resulted in the INVESTEC\_COLLGAR\_WF1 Facility being constrained (Dispatch Advisory 17505).
  - The INVESTEC\_COLLGAR\_WF1 Facility was constrained to 0MW for 11 Trading Intervals.
- On 17 December 2017, commencing Trading Interval 7:2 and ending Trading Interval 13:2, an anti-islanding issue on the Western Power network resulted in the INVESTEC\_COLLGAR\_WF1 Facility being constrained to 0MW (Dispatch Advisories 17521 and 17523).
  - The INVESTEC\_COLLGAR\_WF1 Facility was constrained to 0MW for 11 Trading Intervals.
  - The INVESTEC\_COLLGAR\_WF1 Facility was constrained to between 25MW to 150MW for 2 Trading Intervals.

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

### 6.1 High Risk Operating State

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

Figure 5 below provides historical data for High Risk Operating States that have occurred since 1 July 2016.

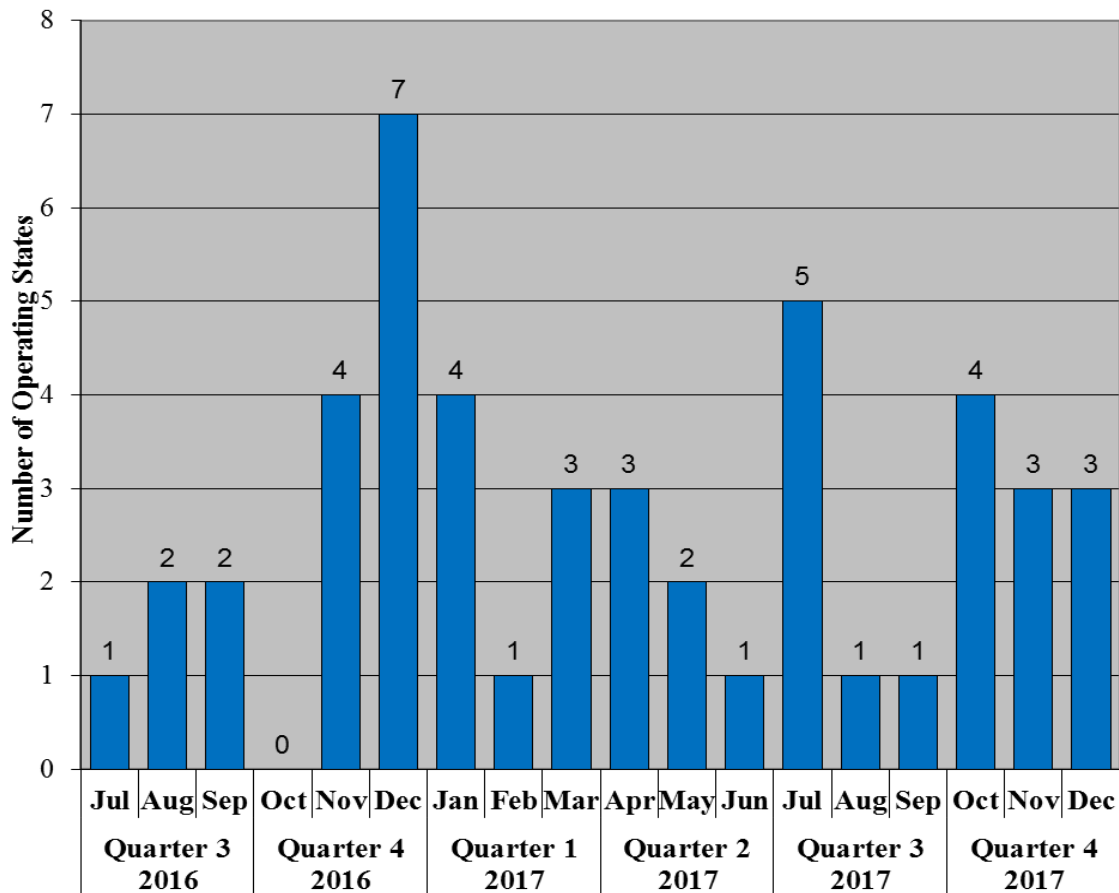


Figure 5: Number of High Risk Operating States

<b>Date/Interval/s</b>	17 October 2017 Trading Interval 17:1 to 18 October 2017 Trading Interval 14:1
<b>DA Number</b>	DA 17388
<b>Details</b>	The SNR-APJ/WGP line tripped at 3.07 pm and as a result the ALOCA_WGP Facility was on radial and constrained to 0MW from 5.00 pm.
<b>System Management action</b>	System Management constrained the ALCOA_WGP Facility to 0MW.

<b>Date/Interval/s</b>	29 October 2017 Trading Interval 14:2 to Trading Interval 16:2
<b>DA Number</b>	DA 17392
<b>Details</b>	AEMO evacuated its primary operational facility and relocated to the backup facility.
<b>System Management action</b>	System Management controllers relocated to the backup facility. They monitored the frequency control and dispatched Facilities as per the latest Balancing Merit Order.

<b>Date/Interval/s</b>	30 October 2017 Trading Interval 15:1 to Trading Interval 15:2
<b>DA Number</b>	DA 17424
<b>Details</b>	At 3.30 pm the ALINTA_WGP_GT Facility tripped, resulting in the loss of approximately 170MW of generation and a reduction of the SWIS system frequency to 49.63Hz. Frequency was restored to a normal operating level at 3.33 pm.
<b>System Management action</b>	System Management dispatched as per the latest Balancing Merit Order.

<b>Date/Interval/s</b>	30 October 2017 Trading Interval 19:1 to 31 October 2017 Trading Interval 16:1
<b>DA Number</b>	DA 17425

<b>Details</b>	After a routine data centre failover test, System Management continued to operate at the primary operational facility, but the backup IT communication systems were unavailable. There were no issues with the primary IT communication systems, so System Management was not required to relocate to the backup facility.
<b>System Management action</b>	System Management continued to operate the control systems from the primary operational facility and dispatched Facilities as per the latest Balancing Merit Order.

<b>Date/Interval/s</b>	6 November 2017 Trading Interval 14:1
<b>DA Number</b>	DA 17441
<b>Details</b>	At 2.10 pm the MUJA_G6 Facility tripped, resulting in the loss of approximately 160MW of generation and a reduction of the SWIS system frequency to 49.67Hz. Frequency was restored to a normal operating level at 2.19 pm.
<b>System Management action</b>	System Management dispatched as per the latest Balancing Merit Order.

<b>Date/Interval/s</b>	15 November 2017 Trading Interval 12:2 to Trading Interval 20:1
<b>DA Number</b>	DA 17449
<b>Details</b>	Anti-islanding issues occurred, which resulted in the ALOCA_WGP Facility being constrained to 0MW from 12.30 pm.
<b>System Management action</b>	System Management constrained the ALOCA_WGP Facility to 0MW and otherwise dispatched as per the latest Balancing Merit Order.

<b>Date/Interval/s</b>	21 November 2017 Trading Interval 16:2
<b>DA Number</b>	DA 17450

<b>Details</b>	At 4:44pm the ALINTA_WGP_GT2 Facility tripped, resulting in the loss of approximately 170MW of generation and a reduction of the SWIS system frequency to 49.58Hz. Frequency was restored to a normal operating level at 4.50 pm.
<b>System Management action</b>	System Management dispatched as per the latest Balancing Merit Order.

<b>Date/Interval/s</b>	2 December 2017 Trading Interval 12:2 to Trading Interval 15:1
<b>DA Number</b>	DA 17463
<b>Details</b>	During a routine Western Power primary data link test, System Management continued to operate at the primary operational facility, in circumstances where only the backup data link was available. There were no issues with the backup data link during the test period.
<b>System Management action</b>	System Management dispatched as per the latest Balancing Merit Order.

<b>Date/Interval/s</b>	9 December 2017 Trading Interval 15:2 to Trading Interval 21:1
<b>DA Number</b>	DA 17501
<b>Details</b>	Lightning and storm activity in the North Country caused the MBA_TS81 and MGA-TS81 lines to trip and reclose multiple times. This placed the North Country at risk of being islanded.
<b>System Management action</b>	System Management dispatched the MUNGARRA_GT2 Facility and otherwise dispatched as per the latest Balancing Merit Order.

<b>Date/Interval/s</b>	17 December 2017 Trading Interval 7:2 to Trading Interval 12:2
<b>DA Number</b>	DA 17521
<b>Details</b>	An anti-islanding issue on the Western Power network required the INVESTEC_COLLGAR_WF1 Facility to be constrained to 0MW.
<b>System Management action</b>	System Management constrained the INVESTEC_COLLGAR_WF1 Facility to 0MW.

## 6.2 Emergency Operating State

There were no instances of an Emergency Operating State during the reporting period.

Figure 6 below provides historical data for Emergency Operating States that have occurred since 1 July 2016.

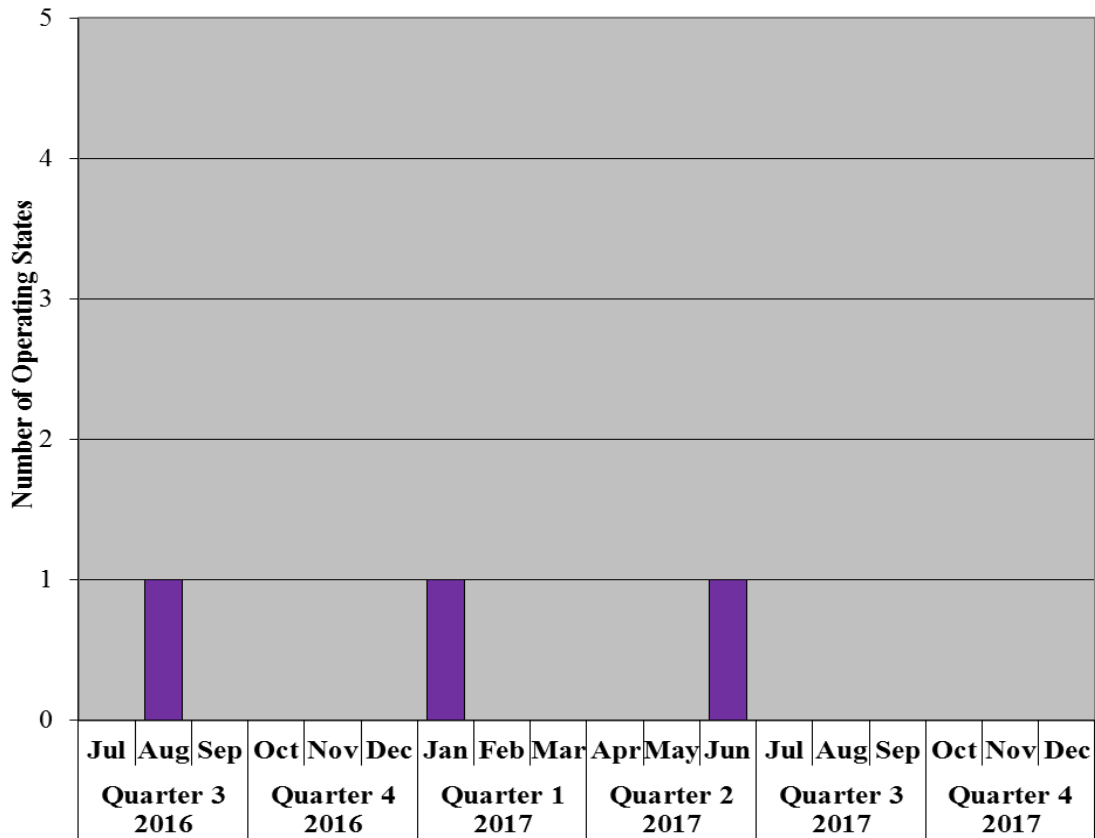
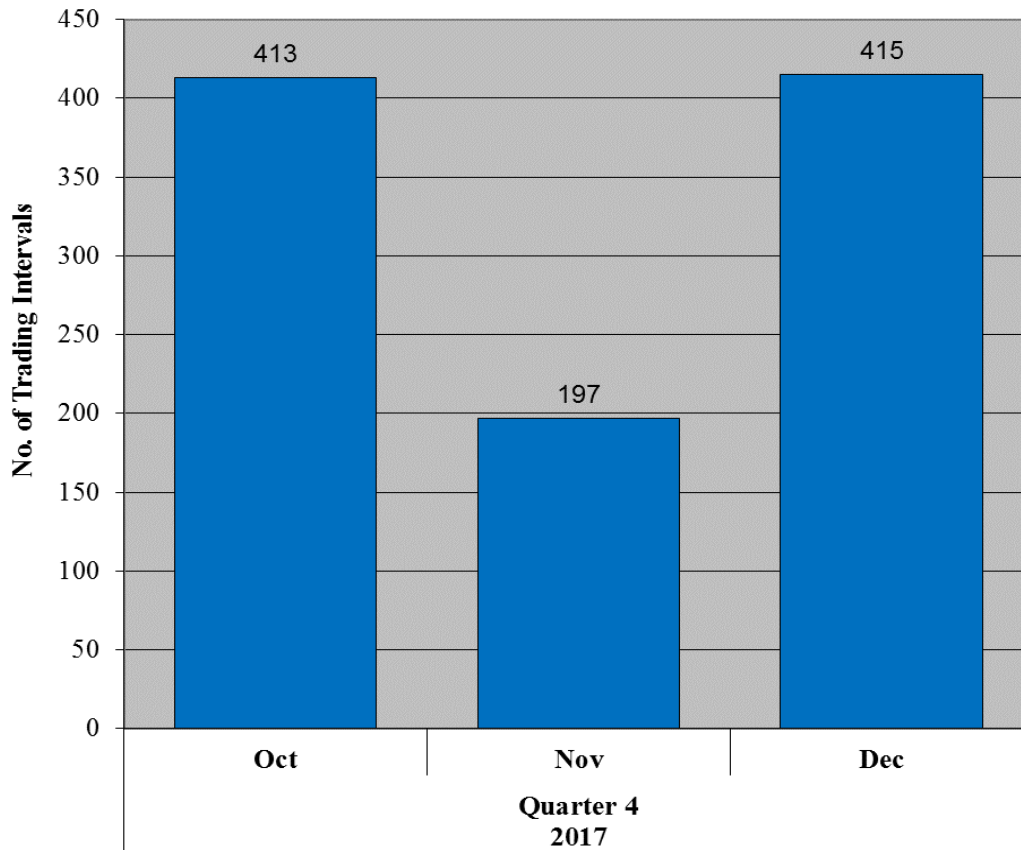


Figure 6: Number of Emergency Operating States

### 6.3 Shortfalls in Ancillary Services

There were 1025 instances of shortfalls 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**

All of the 1025 instances related to the Load Rejection Reserve Ancillary Services. 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). Load Rejection Reserve Service is the service of holding capacity of a Scheduled Generator online so that the Scheduled Generator can reduce output rapidly in response to a sudden decrease (large step change) in SWIS load.

Figure 7 above indicates the number of Trading Intervals during the reporting period where there was a shortfall in Ancillary Services. A shortfall occurs when Ancillary Service Requirements are not met. AEMO does not consider that any of the shortfalls in Ancillary Services during the reporting period threatened Power System Security or Power System Reliability, or placed the SWIS in a High Risk Operating State or Emergency Operating State. The primary cause is the steadily decreasing day-time system load. While the daily peak remains largely unchanged, the increase in roof-top PV and other factors has reduced the daily minimum load to unprecedented levels. In these situations, quite often no action is the best response to ensure Power System Security and Power System Reliability is maintained and to minimise costs to the Wholesale Electricity Market.

AEMO has modified its processes to dispatch the Balancing Portfolio to meet the Load Rejection Reserve requirements are met. AEMO will consider the current Ancillary Services Requirements and investigate possible alternatives for the provision of Ancillary Services. The current Ancillary Services Requirement has set a minimum requirement of 120MW for Load Rejection Reserve and allows that



amount to be relaxed by 25% to 90MW in situations where AEMO considers that the probability of transmission faults is low.

## **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 no instances where System Management 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.