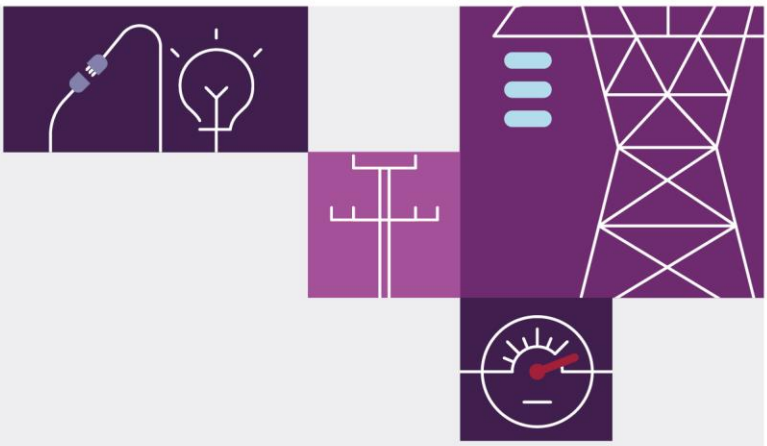
NEM Lack of Reserve Framework Report 1 October to 31 December 2021

January 2022

A report for the National Electricity Market on the operation of the Lack of Reserve Framework



Important notice

Purpose

AEMO has prepared this document under clause 4.8.4B of the National Electricity Rules to report on the operation of the NEM Lack of Reserve Framework for the period from 1 October to 31 December 2021.

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Version control

Version	Release date	Changes
1	27/01/2022	Initial release

Executive summary

This report has been published in accordance with clause 4.8.4B of the National Electricity Rules (NER).

In the reporting period 1 October to 31 December 2021 (Quarter 4 2021), AEMO declared 55 Lack of Reserve (LOR) conditions in the National Electricity Market (NEM)[1]:

- There were 29 forecast LOR1 conditions.
- There were 18 forecast LOR2 conditions.
- There were 7 actual LOR1 conditions.
- There were 1 actual LOR2 condition.

This compares with 69 LOR conditions declared in the previous reporting period (Quarter 3 2021), and 39 LOR conditions declared for the same period last year (Quarter 4 2020)[2].

Quarter 4 2021 covered the later spring months and first month of summer. Conditions warmed through this period peaking in December.

The LOR declarations in this quarter are mainly due to decreased generation availability, short notice outages and unplanned power system events.

- None of the actual LOR conditions were unanticipated.
- Many of the forecast LOR conditions did not eventuate into actual LOR conditions, mainly because the market response in the form of increased generation availability and revised forecast demand meant the actual demand was not as high as the forecast demand.
- The LOR conditions in New South Wales and Queensland were driven by reduced net import, high demand forecast and decreased generation availability.
- The LOR conditions in South Australia were mainly due to decreased generation availability and reduced net import.
- The LOR conditions in Tasmania were due to reduced net import (Basslink unavailable), network outages (multiple generating units on single contingency) and decreased generation availability.
- The only LOR declaration in Victoria was due to an error in constraint formulation which was corrected shortly after it was declared.

Of the 55 LOR declarations in Quarter 4 2021:

- For 36 declarations, the reserve requirement was set by the sum of the two largest credible risks (LCR2, for LOR1 thresholds). There were 10 declarations where the reserve requirement was set by the largest credible

[1] Forecast or actual LOR1, LOR2, or LOR3. LOR is described in clause 4.8.4 of the National Electricity Rules (NER). AEMO's considerations and methodology, and the LOR levels, are outlined in AEMO's Reserve Level Declaration Guidelines, at https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Security-and-reliability/Power-system-operation.

[2] In Quarter 3 2021, the declared LOR conditions were 28 forecast LOR1 conditions, 21 forecast LOR2 conditions, 16 actual LOR1 conditions and four actual LOR2 conditions; in Quarter 4 2020 the declared LOR conditions were 15 forecast LOR1 conditions, 10 forecast LOR2 conditions, 13 actual LOR1 conditions and one actual LOR2 condition. Previous quarterly reports are on AEMO's website at https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/power-system-operation/nem-lack-of-reserve-framework-quarterly-reports.

risk (LCR, for LOR2 thresholds). There were nine declarations where the reserve requirement was set by the Forecast Uncertainty Measure (FUM).

- This means 16% of LOR conditions were declared when the reserve requirement was being set by the FUM. For comparison, in Quarter 3 2021, 14 of the 69 LOR declarations were set by the FUM (20%), and in Quarter 4 2020, seven of the 39 LOR declarations was set by the FUM (18%).

The next report on the NEM Lack of Reserve Framework, for the reporting period 1 January to 31 March 2022, will be published by 30 April 2022.

Contents

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1 Introduction

This report has been published in accordance with clause 4.8.4B of the National Electricity Rules (NER), to provide a high-level analysis of how the Lack of Reserve (LOR) framework is operating. This report covers the period from 1 October to 31 December 2021 (Quarter 4 2021).

Unless otherwise noted, all times in this report are National Electricity Market (NEM) time (Australian Eastern Standard Time [AEST]).

The report is divided into three sections:

- **Reserve Level Declaration Guidelines** – a summary of changes to the Guidelines over the past quarter, and the retraining of the Bayesian Belief Network (BBN).
- **LOR conditions declared** – details of all LOR conditions declared or revised during the past quarter (based on market notices). For each condition declared, the report indicates the required reserve level and whether the requirement was set by the Forecast Uncertainty Measure (FUM), or the largest credible risk/s (LCR) in the region. The reserve requirement can be set by the largest credible risk (LCR, for LOR2 conditions) or the sum of the two largest credible risks (LCR2, for LOR1 thresholds). The FUM value for each relevant period is also provided.
- **Review of performance** – a review of the performance of the LOR framework and any observed trends, providing an assessment of FUM values compared to previous quarters, determinants of reserve level requirements, number of LOR declarations, and leading factors or causes of LOR declarations.

Please direct all LOR inquiries to www.aemo.com.au/Contact-us. In the inquiry form field '*What is your enquiry regarding?*', write "**LOR Framework Report**".

The next report on the NEM Lack of Reserve Framework, for the reporting period from 1 January to 31 March 2022 (Quarter 1 2022), will be published by 30 April 2022.

2 Reserve level declaration guidelines

2.1 Changes in the reporting period

During the reporting period, there were no changes to the Guidelines[3].

2.2 Retraining of the Bayesian Belief Network

The BBN is the algorithm which determines the FUM, which in turn can determine LOR levels. This process is summarised in the Guidelines. The intention of retraining the BBN is to update the network to include recent historical data since the last retraining. AEMO commenced the retraining in January 2022 to include data up to 31 December 2021. The retraining involves a three-stage process:

1. Extract-Transform-Load (ETL) stage, to extract historical data up to 31 December 2021, perform data validation and cleansing, and compile the data into the structured format required to incorporate into the network.
2. Analysis and modelling stage, to update the network and compile the network nodes.
3. Test and verification stage, to ensure the retrained network is suitable for production implementation.

AEMO is in the final stage of retraining, and plans to implement the retrained BBN into production around the end of January 2022, pending final verification and readiness checks in the pre-production environment.

2.2.1 Results from retraining

To verify the retraining, AEMO completed a backcast of all forecast intervals from October 2020 to September 2021, inclusive, using the existing BBN and the retrained BBN. The intention of the backcast is to provide an indication of the magnitude of changes to future maximum, minimum, and mean FUM values.

Changes in maximum and minimum FUM values between the existing and retrained BBN backcasts are common, as these are sensitive to unique events and limited sample sizes during the retraining quarter. These changes are listed below. Large differences in mean FUM values indicate a sustained change in uncertainty for a particular forecast horizon. Where material changes in the mean FUM have been identified, these have been investigated and investigation results summarised below. Minor changes were identified for some other forecast horizons and distribution statistics but are not listed here.

- New South Wales – maximum FUM values increased by 62 megawatts (MW) for the two hours ahead forecast horizon and decreased by 60 MW and 137 MW for the 12 and 60 hours ahead forecast horizon respectively. Mean FUM values were relatively unchanged. Minimum FUM values increased by 32 MW for the 12 hours ahead forecast horizon and decreased by 58 MW and 39 MW for the two and 60 hours ahead forecast horizons respectively.
- Queensland – maximum FUM values decreased by 54 MW for the 60 hours ahead forecast horizon. Mean and minimum FUM values were relatively unchanged.

[3] The Guidelines are at http://aemo.com.au/Electricity/National-Electricity-Market-NEM/Security-and-reliability/Power-system-operation.

- South Australia – maximum FUM values decreased by 57 MW, 33 MW and 203 MW for the six, 12 and 60 hours ahead forecast horizons respectively. Mean and minimum FUM values were relatively unchanged.
- Tasmania – maximum FUM values decreased by 48 MW, 33 MW, 18 MW and 104 MW for the two, six, 12 and 24 hours ahead forecast horizons respectively. Mean FUM values decreased by 14 MW and 9 MW for the two and 6 hours ahead forecast horizons respectively. Minimum FUM vales decreased by 7 MW for both the two and 12 hours ahead horizons.
  - A change to the Tasmania BBN retraining process was made when including data up to 31 December 2021. Up to the Q3 2021 retraining, the unconstrained intermittent generation forecast (UIGF) error component of Regional Excess Supply (RXS) error was based on a comparison of the forecast to actuals derived from 30-minute averaged SCADA readings.
  - For the Q4 2021 retraining, the actuals used for UIGF errors was changed to the most recent forecast created before the interval (30-minute ahead forecast). This change was made to ensure the calculation of the UIGF error component is consistent with the calculation of the available capacity of scheduled generating units error component also used in the Tasmania RXS calculation. This change resulted in the noted differences in mean FUM.
- Victoria – maximum FUM values increased by 169 MW, 44 MW and 67 MW for the 12, 24 and 60 hours ahead forecast horizons respectively. Minimum FUM values increased by 47 MW for the 60 hours ahead horizon. Mean FUM values were relatively unchanged.

3 Lack of Reserve conditions declared

Table 1 provides a high-level summary of the counts of forecast and actual LOR conditions based on the declaration count principles.

Table 2 lists all market notice declarations of forecast and actual LOR conditions over the reporting period from 1 October to 31 December 2021. Table 2 also identifies the market notices that communicated updates to, and cancellation of, either forecast or actual LOR conditions.

Declaration count principles

For the reporting period, AEMO determined the total count for LOR conditions based on the following principles:

- All market notices making the initial declaration of a forecast or actual LOR condition with an effective date during the reporting period were counted.
- Any market notices which updated previously issued forecast or actual LORs for a given effective date (in relation to the reserve requirement, reserve capacity available, or effective period) were not counted, to prevent double-counting of a continuing condition.
- In cases where forecast LORs were cancelled but subsequently re-issued with approximately the same effective period, re-issues were not counted, to prevent double-counting of effective periods.
- Updates to existing LOR conditions where the LOR level changed were counted as separate LOR conditions.
- Any forecast LORs which were subsequently declared as actual LORs at the same LOR level were counted once. In Table 2, these are shown as actual conditions only. For example:
  - Where a forecast LOR1 was issued and later an actual LOR1 was declared for a similar period, only the actual LOR1 was counted.
  - If the initial forecast was for a forecast LOR2 condition and this was later declared as an actual LOR1, this would be counted as two LOR conditions, due to the differing LOR levels.

Table 1 Summary of forecast and actual LOR conditions, with causing factors

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
11/11/2021	NSW		1					A forecast LOR1 condition was declared with an effective period of 16:30 - 18:00 (8 hour lead time[4]) due to an increase in forecast demand and decreased generation availability. The forecast LOR1 condition was cancelled due to increased generation availability and increased net import.
21/12/2021	NSW		1					A forecast LOR1 condition was declared with an effective period of 15:30 - 16:00 (19 hour lead time) due to an increase in forecast demand and reduced net import. An update to the forecast LOR1 condition was issued with an effective period of 15:30 - 16:00 (7 hour lead time). The forecast LOR1 condition worsened due to reduced net import. Another forecast LOR1 condition was declared with an effective period of 17:00 - 18:00 (20 hour lead time) due to an increase in forecast demand and reduced net import. An update to the forecast LOR1 condition was issued with an extended effective period of 16:30 - 18:00 (8 hour lead time). The forecast LOR1 condition worsened due to reduced net import. Another update to the forecast LOR1 condition was issued with an effective period of 17:00 - 18:00 (5 hour lead time). The forecast LOR1 condition improved due to a decrease in forecast demand and increased net import. The forecast LOR1 condition was cancelled due to a decrease in forecast demand and increased net import.
11/10/2021	QLD		1					A forecast LOR1 condition was declared with an effective period of 17:30 - 19:00 (5 hour lead time) due to decreased generation availability and reduced net import. The forecast LOR1 condition was cancelled due to a decrease in forecast demand and increased generation availability. A forecast LOR1 condition was later redeclared with an effective period of 18:30 - 19:00 (11 minute lead time) due to an increase in forecast demand and reduced net import. The forecast LOR1 condition was cancelled due to a decrease in forecast demand and increased net import.
14/10/2021	QLD	1						A forecast LOR1 condition was declared with an effective period of 18:30 - 19:00 (5 day lead time) due to decreased generation availability. The forecast LOR1 condition was cancelled due to a decrease in forecast demand and increased net import.

[4] Lead time: The amount of warning time, from when a forecast LOR condition was first declared (Market Notice issued) to the start time of the LOR effective period.

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								A forecast LOR1 condition was re-declared with an effective period of 17:30 - 20:00 (7 hour lead time) due to an increase in forecast demand and decreased generation availability. The forecast LOR1 condition was cancelled due to a decrease in forecast demand. An update to the forecast LOR1 condition was issued with an effective period of 17:30 - 19:00 and 19:30 - 20:00 (2 hour lead time). The forecast LOR1 condition improved due to increased generation availability, increased net import and a decrease in forecast demand. An actual LOR1 was later declared due to decreased generation availability. Actual conditions existed from 17:30 - 19:00.
24/10/2021	QLD		1		1			A forecast LOR1 condition was declared with an effective period of 17:30 - 19:00 (3 day lead time) due to an increase in forecast demand and decreased generation availability. An update to the forecast LOR1 condition was issued with an extended effective period of 17:30 - 19:30 (51 hour lead time). The forecast LOR1 condition worsened due to decreased generation availability. Another update to the forecast LOR1 condition was later issued with an effective period of 17:30 - 19:00 (29 hour lead time). The forecast LOR1 condition improved due to increased generation availability and increased net import. The forecast LOR1 condition was cancelled due to increased generation availability. A forecast LOR1 condition was later redeclared with an effective period of 18:00 - 18:30 (24 hour lead time) due to an increase in forecast demand and decreased generation availability. The forecast LOR1 condition was cancelled due to a decrease in forecast demand and increased net import. A forecast LOR2 condition was later declared with an effective period of 18:00 - 19:00 (3 day lead time) due to an increase in forecast demand and decreased generation availability. The forecast LOR2 condition was cancelled due to a decrease in forecast demand and increased generation availability.
25/10/2021	QLD		1					A forecast LOR1 condition was declared with an effective period of 18:30 - 19:00 (5 day lead time) due to decreased generation availability. The forecast LOR1 condition was cancelled due to increased generation availability. A forecast LOR1 condition was later redeclared with an effective period of 18:00 - 19:00 (3 day lead time) due to decreased generation availability. The LOR1 condition should have been cancelled.

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
26/10/2021	QLD	1						A forecast LOR1 condition was declared with an effective period of 18:00 - 19:00 (6 hour lead time) due to an increase in forecast demand and decreased generation availability. The forecast LOR1 condition was cancelled due to increased generation availability. A forecast LOR1 condition was later redeclared with an effective period of 18:00 - 19:00 (3 hour lead time) due to an increase in forecast demand and decreased generation availability. An actual LOR1 was declared due to decreased generation availability. Actual conditions existed from 18:00 - 19:00.
28/10/2021	QLD	1		1				A forecast LOR1 condition was declared with an effective period of 17:30 - 19:00 (11 minute lead time) due to an increase in forecast demand and decreased generation availability. An actual LOR1 was declared due to decreased generation availability. Actual conditions existed from 17:30 - 18:30. A forecast LOR2 condition was declared with an effective period of 18:30 - 19:00 (1 hr lead time) due to decreased generation availability and reduced net import. An actual LOR2 was declared due to decreased generation availability and reduced net import. Actual conditions existed from 18:00 - 19:00.
30/10/2021	QLD	1						A forecast LOR1 condition was declared with an effective period of 18:00 - 19:00 (3 hour lead time) due to an increase in forecast demand. An update to the forecast LOR1 condition was issued with an extended effective period of 17:30 - 19:30 (1 hour lead time). The forecast LOR1 condition worsened due to an increase in forecast demand. An actual LOR1 was declared due to decreased generation availability and an increase in demand. Actual conditions existed from 17:30 - 19:30.
08/11/2021	QLD	1			1			A forecast LOR1 condition was declared with an effective period of 18:30 - 19:00 (7 day lead time) due to decreased generation availability. An update to the forecast LOR1 condition was issued with an extended effective period of 17:30 - 19:00 (6 day lead time). The forecast LOR1 condition worsened due to an increase in forecast demand and decreased generation availability. The forecast LOR1 condition was cancelled due to increased generation availability. A forecast LOR1 condition was later redeclared with an effective period of 18:30 - 19:00 (30 hour lead time) due to reduced net import and decreased generation availability. The forecast LOR1 condition was cancelled due to increased generation availability. A forecast LOR1 condition was redeclared with an effective period of 18:30 - 19:00 (28 hour lead time) due to reduced net import. The forecast LOR1 condition was cancelled due to increased generation availability.

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								A forecast LOR1 condition was later redeclared with an effective period of 18:30 - 19:00 (22 hour lead time) due to an increase in forecast demand. An update to the forecast LOR1 condition was issued with an extended effective period of 18:00 - 19:00 (11 hour lead time). The forecast LOR1 condition worsened due to an increase in forecast demand and decreased generation availability. Another update to the forecast LOR1 condition was issued with an extended effective period of 17:30 - 19:30 (4 hour lead time). The forecast LOR1 condition worsened due to decreased generation availability. An update to the forecast LOR1 condition was later issued with an extended effective period of 17:00 - 20:00 (9 minute lead time). The effective period extended but the forecast reserve level improved due to a decrease in forecast demand and increased net import. An actual LOR1 was declared due to decreased generation availability. Actual conditions existed from 18:00 - 20:00. A forecast LOR2 condition was later declared with an effective period of 18:30 - 19:00 (4 hour lead time) due to an increase in forecast demand and decreased generation availability. An update to the forecast LOR2 condition was issued with an extended effective period of 18:00 - 19:00 (3 hour lead time). The forecast LOR2 condition worsened due to decreased generation availability. The forecast LOR2 condition was cancelled due to increased net import and increased generation availability.
09/11/2021	QLD		1					A forecast LOR1 condition was declared with an effective period of 17:30 - 19:30 (7 day lead time) due to decreased generation availability. An update to the forecast LOR1 condition was issued with an effective period of 18:30 - 19:00 (6 day lead time). The forecast LOR1 condition improved due to increased generation availability. The forecast LOR1 condition was cancelled due to increased generation availability.
11/11/2021	QLD		1					A forecast LOR1 condition was declared with an effective period of 18:30 - 19:00 (4 day lead time) due to reduced net import and an increase in forecast demand. An update to the forecast LOR1 condition was issued with an extended effective period of 17:30 - 19:30 (3 day lead time). The forecast LOR1 condition worsened due to an increase in forecast demand. An update to the forecast LOR1 condition was issued with an extended effective period of 17:00 - 20:00 (2 day lead time). The forecast LOR1 condition worsened due to a decrease in generation availability. The forecast LOR1 condition was cancelled due to an increase in generation availability and decrease in forecast demand.

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								A forecast LOR1 condition was redeclared with an effective period of 18:30 - 19:00 (8 hour lead time) due to decreased generation availability and reduced net import. An update to the forecast LOR1 condition was issued with an extended effective period of 17:30 - 19:00, 20:00 - 20:30 (5 hour lead time). The forecast LOR1 condition worsened due to a decrease in generation availability. The forecast LOR1 condition was cancelled due to decrease in forecast demand and increase in generation availability.
12/11/2021	QLD		1		1			A forecast LOR1 condition was declared with an effective period of 16:00 - 20:00 (4 day lead time) due to an increase in forecast demand and decreased generation availability. A forecast LOR2 condition was declared with an effective period of 16:30 - 17:00 (3 day lead time) due to reduced net import and an increase in the FUM. An update to the forecast LOR2 condition was issued with an extended effective period of 16:30 - 19:00 (3 day lead time). The forecast LOR2 condition was extended due to an increase in FUM. An update to the forecast LOR2 condition was issued with an extended effective period of 16:30 - 20:00 (3 day lead time). The forecast LOR2 condition was extended due to an increase in FUM. The forecast LOR2 condition was cancelled due to decrease in forecast demand, decrease in FUM and an increase in generation availability. An update to the forecast LOR1 condition was issued with a shortened effective period of 16:30 - 19:30 (2 day lead time). The forecast LOR1 condition improved due to decreased forecast demand. The forecast LOR1 condition was cancelled due to decrease in forecast demand and increase in generation availability.
22/11/2021	QLD		1		1			A forecast LOR1 condition was declared with an effective period of 17:30 - 19:30 (7 day lead time) due to high forecast demand. A forecast LOR2 condition was declared with an effective period of 17:30 - 19:30 (7 day lead time) due to further increase in forecast demand and decrease in generation availability. An update to the forecast LOR2 condition was issued with a shortened effective period of 18:00 - 19:00 (6 day lead time). The forecast LOR2 condition improved due to increased generation availability and decreased forecast demand. The forecast LOR2 condition was cancelled due to increase in generation availability. An update to the forecast LOR1 condition was issued with effective period of 16:30 - 20:00 (5 day lead time). The forecast LOR1 condition worsened due to an increase in forecast demand. The forecast LOR1 condition was cancelled due to decreased forecast demand.

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
23/11/2021	QLD		1		1			A forecast LOR2 condition was declared with an effective period of 17:30 - 19:30 (7 day lead time) due to high forecast demand. Consecutive hot days, 22nd 23rd, very high demand forecast. Forecast LOR1 conditions were declared with effective periods of 16:30 - 17:30, 19:30 - 20:30 (7 day lead time) due to high forecast demand. The forecast LOR2 condition was cancelled due to decreased forecast demand. An update to the forecast LOR1 condition was issued with effective period of 17:00 - 19:30 (5 day lead time). The forecast LOR1 condition improved due to decreased forecast demand. The forecast LOR1 condition was cancelled due to decreased forecast demand.
09/12/2021	QLD	1			1			A forecast LOR1 condition was declared with an effective period of 19:30 - 20:00 (3 day lead time) due to increase in forecast demand. The forecast LOR1 condition was cancelled due to a decrease in forecast demand. A forecast LOR1 condition was redeclared with an effective period of 18:30 - 19:30 (1 day lead time) due to decreased generation availability and increase in forecast demand. The forecast LOR1 condition was cancelled due to an increase in generation availability and decrease in forecast demand. A forecast LOR1 condition was redeclared with an effective period of 18:30 - 19:00 (4 hour lead time) due to increase in forecast demand. An update to the forecast LOR1 condition was issued with an extended effective period of 17:00 - 20:00. The forecast LOR1 condition worsened due to increase in forecast demand and decreased generation availability. An actual LOR1 was later declared due to decreased generation availability and increase in demand. A forecast LOR2 condition was declared with an effective period of 18:30 - 19:30 (1 hour lead time) due to increase in forecast demand and decreased generation availability. The forecast LOR2 condition was cancelled due to an increase in generation availability and decrease in forecast demand. Actual LOR1 conditions existed from 17:00 - 20:00.
11/12/2021	QLD		1					A forecast LOR1 condition was declared with an effective period of 18:30 - 20:00 (3 day lead time) due to decreased generation availability. The forecast LOR1 condition was cancelled due to decrease in forecast demand.
12/12/2021	QLD		1					A forecast LOR1 condition was declared with an effective period of 19:30 - 20:00 (3 day lead time) due to decreased generation availability. LOR1 condition should have been cancelled.

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
15/12/2021	QLD		1					A forecast LOR1 condition was declared with an effective period of 18:00 - 20:00 (7 day lead time) due to decreased generation availability and high forecast demand. An update to the forecast LOR1 condition was issued with an effective period of 18:30 - 19:00, 19:30 - 20:00 (6 day lead time). No significant change to previous LOR condition. LOR condition is due to decreased generation availability and high forecast demand. The forecast LOR1 condition was cancelled due to decrease in forecast demand and an increase in generation availability.
16/12/2021	QLD		1		1			A forecast LOR1 condition was declared with an effective period of 16:30 - 17:00, 17:30 - 20:00 (7 day lead time) due to decreased generation availability and high forecast demand. Forecast LOR2 conditions were declared with effective periods of 18:30 - 19:00, 19:30 - 20:00 (7 day lead time). LOR condition worsened due to increased forecast demand and decreased generation availability. The forecast LOR2 condition was cancelled due to an increase in generation availability and decrease in forecast demand.
20/12/2021	QLD	1			1			A forecast LOR2 condition was declared with an effective period of 19:30 - 20:00 (5 day lead time) due to increase in forecast demand and decreased generation availability. The forecast LOR2 condition was cancelled due to an increase in generation availability. A forecast LOR2 condition was later redeclared with an effective period of 19:30 - 20:00 (5 day lead time) due to further increase in forecast demand. A forecast LOR1 condition was declared with an effective period of 17:30 - 19:30 (5 day lead time) due to increased forecast demand and decreased generation availability. An update to the forecast LOR1 condition was issued with no significant changes (4 day lead time). The forecast LOR2 condition was cancelled due to an increase in generation availability and decrease in forecast demand. An update to the forecast LOR1 condition was issued with an effective period of 18:30 - 19:00, 19:30 - 20:00 (4 day lead time). The forecast LOR1 condition improved due to an increase in generation availability. An additional update to the forecast LOR1 condition was issued with a shortened effective period of 18:30 - 19:00 (3 day lead time). The forecast LOR1 condition improved due to an increase in generation availability. The forecast LOR1 condition was cancelled due to decrease in forecast demand and an increase in generation availability. Forecast LOR1 conditions were later redeclared with effective periods of 18:00 - 19:00, 19:30 - 20:00 (6 hour lead time) due to sudden decrease in generation availability.

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								The forecast LOR1 condition was cancelled due to an increase in generation availability. Forecast LOR1 conditions were later redeclared with effective periods of 18:00 - 19:00, 19:30 - 20:00 (6 hour lead time) due to further increase in forecast demand. An actual LOR1 was declared due to decreased generation availability and increase in demand. Actual conditions existed from 17:30 - 18:00.
21/12/2021	QLD		1					A forecast LOR1 condition was declared with an effective period of 18:00 - 20:00 (6 day lead time) due to increased forecast demand and decreased generation availability. An update to the forecast LOR1 condition was issued with no significant changes (5 day lead time). Another update to the forecast LOR1 condition was issued with an effective period of 18:30 - 19:00 (3 hour lead time). A further update to the forecast LOR1 condition was issued with an effective period of 18:00 - 19:00 (1 hour lead time). LOR condition is due to increase in forecast demand. The forecast LOR1 condition was cancelled due to an increase in net import.
22/12/2021	QLD		1		1			A forecast LOR2 condition was declared with an effective period of 17:30 - 19:30 (7 day lead time) due to high forecast demand and decreased generation availability. Forecast LOR1 conditions were declared with effective periods of 16:30 - 18:00, 19:00 - 20:00 (7 day lead time) due to increased forecast demand and decreased generation availability. An update to the forecast LOR2 condition was issued with a shortened effective period of 18:30 - 19:00 (7 day lead time). The forecast LOR2 condition improved due to increased generation availability and decreased forecast demand. An update to the forecast LOR1 condition was issued with a shortened effective period of 17:00 - 18:30, 19:00 - 20:00 (6 day lead time). The forecast LOR1 condition improved due to decreased forecast demand. The forecast LOR2 condition was cancelled due to an increase in generation availability and decrease in forecast demand.
11/10/2021	SA		1		1			A forecast LOR2 condition was declared with an effective period of 06:00 - 08:00 (4 day lead time) due to decreased generation availability. The forecast LOR2 was cancelled due to increased generation and import availability. A forecast LOR1 condition was declared with an effective period of 06:00 - 07:30 (4 day lead time) due to decreased generation availability. The forecast LOR1 condition was cancelled due to increased generation availability.
12/10/2021	SA		1		1			A forecast LOR1 condition was declared with an effective period of 05:30 - 06:00 and 07:00 - 07:30 (6 day lead time) due to decreased generation availability. A forecast LOR2 condition was declared with an effective period of 06:00 - 07:00 (6 day lead time) due to decreased generation availability.

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								The forecast LOR2 condition was cancelled due to a decrease in forecast demand. Several updates were issued for the forecast LOR1 conditions with changes in effective period due to decreased demand and generation availability (6 day lead time). The forecast LOR1 condition was cancelled due to an increase in generation and import availability.
27/10/2021	SA		1		1			A forecast LOR2 condition was declared with an effective period of 18:00 - 19:00 (5 day lead time) due to decreased generation availability. The forecast LOR2 condition was cancelled due to increased generation availability. A forecast LOR2 condition was declared with an effective period of 18:00 - 19:00 (4 day lead time) due to decreased generation availability. A forecast LOR1 condition was declared with an effective period of 17:00 - 18:00 (4 day lead time) due to decreased generation availability. Several updates were issued for the LOR2 forecast with changes in effective period and reserve levels (4, 3 and 2 day lead time) due to decreased generation availability and increased forecast uncertainty. The forecast LOR2 condition was cancelled due to increased generation availability. A forecast LOR2 condition was declared with an effective period of 17:30 - 18:00 and 18:30 - 20:00 (34 hour lead time) due to decreased generation availability. Several updates were issued to the forecast LOR1 and LOR2 conditions with changes in effective period and reserve levels (30, 31 and 29 hour lead time) due to decreased generation availability. The forecast LOR1 and LOR2 conditions were cancelled due to increased generation availability.

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
28/10/2021	SA		1		1			A forecast LOR2 condition was declared with an effective period of 05:30 - 07:30 (5 day lead time) due to decreased generation availability. A forecast LOR1 condition was declared with an effective period of 03:00 - 03:30 (5 day lead time) due to decreased generation availability. Updates were issued for the forecast LOR1 and LOR2 conditions with changes in effective period and reduced reserve (5 day lead time) due to decreased generation availability. The forecast LOR2 condition was cancelled due to increased generation availability. A forecast LOR2 condition was declared with an effective period of 06:00 - 07:00 (4 day lead time) due to decreased generation availability. The forecast LOR2 condition was cancelled due to increased generation availability. An update was issued for the LOR1 forecast with a change in effective period and reduced reserve level (4 day lead time) due to decreased generation availability. A forecast LOR2 condition was declared with an effective period of 05:30 - 06:00 (3 day lead time) due to decreased generation availability. Several updates were issued for the forecast LOR2 condition with changes in effective period and reserve levels (71, 69 and 68 hour lead time) due to decreased generation availability and increased forecast uncertainty. The forecast LOR1 and LOR2 conditions were cancelled due to increased generation availability.
03/11/2021	SA		1		1			A forecast LOR2 condition was declared with an effective period of 08:30 - 09:00 (21 hour lead time) due to decreased generation availability. A forecast LOR1 condition was declared with an effective period of 09:00 - 10:00 (20 hour lead time) due to decreased generation availability. An update was issued to the forecast LOR2 with the same effective period and decreased reserve level (20 hour lead time) due to decreased generation availability. The forecast LOR1 and LOR2 conditions were cancelled due to increased generation availability.
17/11/2021	SA				1			A forecast LOR2 condition was declared with an effective period of 16:30 - 18:00 (29 hour lead time) due to decreased generation and import availability. The forecast LOR2 condition was cancelled due to increased generation availability.
23/11/2021	SA		1		1			A forecast LOR2 condition was declared with an effective period of 12:30 - 15:00 (29 hour lead time) due to decreased generation and import availability. The forecast LOR2 condition was cancelled due to increased generation availability. A forecast LOR1 condition was declared with an effective period of 12:30 - 14:30 and 15:30 - 16:00 (26 hour lead time) due to decreased generation and import availability.

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								A forecast LOR2 condition was declared with an effective period of 14:30 - 15:00 (26 hour lead time) due to decreased generation and import availability. The forecast LOR2 and LOR1 conditions were cancelled due to increased generation availability.
30/11/2021	SA		1		1			A forecast LOR1 condition was declared with an effective period of 18:00 - 20:00 (4 day lead time) due to decreased generation availability and increased demand forecast. The forecast LOR1 condition was cancelled due to increased generation availability. A forecast LOR2 condition was declared with an effective period of 19:00 - 19:30 (61 hour lead time) due to decreased generation availability and increased demand forecast. The forecast LOR2 condition was cancelled due to increased generation availability. A forecast LOR2 condition was declared with an effective period of 18:30 - 19:30 (56 hour lead time) due to decreased generation availability and increased demand forecast. An update was issued to the forecast LOR2 condition with a change in effective period (53 hour lead time) due to decreased generation availability. A forecast LOR1 condition was declared with an effective period of 18:00 - 20:00 (45 hour lead time) due to decreased generation availability and increased demand forecast. An update was issued to the forecast LOR2 condition with a change in effective period and worsened reserve level (41 hour lead time) due to decreased generation availability. The forecast LOR2 and LOR1 conditions were cancelled due to increased generation availability.
12/12/2021	SA		1					A forecast LOR1 condition was declared with an effective period of 18:30 - 20:30 (31 hour lead time) due to decreased generation availability. Several updates were issued with a change in effective period and reserve levels due to decreased generation availability (26, 16 and 6 hour lead times). The forecast LOR1 condition was cancelled due to increased generation availability.
30/12/2021	SA		1					A forecast LOR1 condition was declared with an effective period of 17:30 - 20:00 (6 day lead time) due to increased demand and decreased generation availability. An update was issued to the LOR1 forecast (5 day lead time) with a change in effective period due to decreased generation availability. The forecast LOR1 condition was cancelled due to increased generation availability.

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
08/10/2021	TAS				1			A forecast LOR2 condition was declared with an effective period 09:00 - 11:00 (20 hour lead time) due to zero net import and constrained generation as a result of a planned outage of a major network element. Basslink was unavailable during this period. An update to the forecast LOR2 condition was issued with no significant changes (17 hour lead time). The forecast LOR2 condition was cancelled due to a decrease in FUM. Subsequent analysis revealed that the FUM value was too high for this power system configuration because FUM calculation for Tasmania does not factor in network outages.
12/10/2021	TAS		1					A forecast LOR1 condition was declared with an effective period of 07:00 - 07:30 (18 hour lead time) due to a decrease in net import and decreased generation availability. Basslink was unavailable during the effective period, net import into Tasmania was zero. The forecast LOR1 condition was cancelled due to an increase in net import (Basslink became available).
08/12/2021	TAS		1					A forecast LOR1 condition was declared with an effective period 07:00 - 08:00 (40 hour lead time) due to a network outage which placed multiple generating units on a single largest credible contingency. An update to the forecast LOR1 condition was issued with no significant changes (17 hour lead time). The forecast LOR1 condition was cancelled due to an increase in generation availability.
14/12/2021	TAS		1					A forecast LOR1 condition was declared with an effective period of 07:00 - 08:30 (14 hour lead time) due to decreased generation availability. The forecast LOR1 condition was cancelled due to an increase in generation availability.
15/12/2021	TAS		1					A forecast LOR1 condition was declared with an effective period of 06:30 - 07:30 (17 hour lead time) due to decreased generation availability. The forecast LOR1 condition was cancelled due to an increase in generation availability.
30/11/2021	VIC							A forecast LOR1 condition was declared with an effective period of 17:00 - 19:30 (1 hour lead time) due to reduced net import. An update to the forecast LOR1 condition was issued with an effective period of 18:00 - 18:30 (1 hour lead time). The forecast reserve condition improved due to an increase in generation availability. A market notice was issued (1 hour lead time) declaring the previous LOR1 forecast as suspect. Investigation found an issue with the VIC_NIL_1 constraint set which was reducing the VIC-NSW import limit. The forecast LOR1 condition was cancelled.
Total		7	29	1	18	0	0	

A. Effective date is the date on which the condition occurred or was expected to occur, and may differ from the date on which a market notice advising of the forecast or actual condition was issued.

Table 2 LOR notices declared during the reporting period from 1 October to 31 December 2021

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
New South Wales region									
11/11/2021 16:30 - 18:00	92329	11/11/2021 08:52	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand and decreased generation availability.	1,430	1,290	756	LCR2
11/11/2021	92340	11/11/2021 14:16	LOR1	Cancelled	This cancelled MN 92329. Forecast LOR1 cancelled due to increased generation availability and increased net import.	1,430	1,646	575	LCR2
21/12/2021 15:30 - 16:00	93317	20/12/2021 20:51	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand and reduced net import.	1,475	1,471	1,028	LCR2
21/12/2021 17:00 - 18:00	93317	20/12/2021 20:51	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand and reduced net import.	1,398	1,301	1,032	LCR2
21/12/2021 15:30 - 16:00	93319	21/12/2021 08:52	LOR1	Update	Update to MN 93317 due to change in forecast reserve level. The forecast LOR1 condition worsened due to reduced net import.	1,449	1,367	842	LCR2
21/12/2021 16:30 - 18:00	93319	21/12/2021 08:52	LOR1	Update	Update to MN 93317 due to change in effective period and forecast reserve level. The forecast LOR1 condition worsened due to reduced net import.	1,415	1,186	838	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
21/12/2021 17:00 - 18:00	93320	21/12/2021 11:51	LOR1	Update	Update to MN 93319 due to change in effective period and forecast reserve level. The forecast LOR1 condition improved due to a decrease in forecast demand and increased net import.	1,390	1,255	813	LCR2
21/12/2021	93325	21/12/2021 14:27	LOR1	Cancelled	This cancelled MN 93320. Forecast LOR1 cancelled due to a decrease in forecast demand and increased net import.	1,390	1,441	637	LCR2
Queensland region									
11/10/2021 17:30 - 19:00	91626	11/10/2021 12:23	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability and reduced net import.	1,163	1,123	430	LCR2
11/10/2021	91635	11/10/2021 14:26	LOR1	Cancelled	This cancelled MN 91626. Forecast LOR1 cancelled due to a decrease in forecast demand and increased generation availability.	1,186	1,211	404	LCR2
11/10/2021 18:30 - 19:00	91643	11/10/2021 18:19	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand and reduced net import.	1,186	1,166	238	LCR2
11/10/2021	91644	11/10/2021 18:46	LOR1	Cancelled	This cancelled MN 91643. Forecast LOR1 cancelled due to a decrease in forecast demand and increased net import.	1,186	1,238	160	LCR2
14/10/2021 18:30 - 19:00	91569	09/10/2021 15:17	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	1,163	1,140	n/a – forecast > 72 hrs ahead	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
14/10/2021	91618	10/10/2021 14:24	LOR1	Cancelled	This cancelled MN 91569. Forecast LOR1 cancelled due to a decrease in forecast demand and increased net import.	1,163	1,237	n/a – forecast > 72 hrs ahead	LCR2
14/10/2021 17:30 - 20:00	91688	14/10/2021 10:19	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand and decreased generation availability.	1,104	769	385	LCR2
14/10/2021 17:30 - 19:00; 19:30 - 20:00	91697	14/10/2021 15:13	LOR1	Update	Update to MN 91688 due to change in effective period and forecast reserve level. The forecast LOR1 condition improved due to increased generation availability, increased net import and a decrease in forecast demand.	1,103	971	424	LCR2
14/10/2021 17:30 - 19:00	91707	14/10/2021 17:41	LOR1	Actual	Actual LOR1 declared. Decreased generation availability caused an actual LOR1 condition.	1,132	1,044	268	LCR2
14/10/2021	91712	14/10/2021 18:49	LOR1	Cancelled	This cancelled MN 91707. Actual LOR1 cancelled due to a decrease in demand and increased generation availability, and the condition cleared after effective period.	1,170	1,195	160	LCR2
24/10/2021 17:30 - 19:00	91866	21/10/2021 14:27	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand and decreased generation availability.	914	755	n/a – forecast > 72 hrs ahead	LCR2
24/10/2021 18:00 - 19:00	91868	21/10/2021 19:47	LOR2	Forecast	Forecast LOR2 declared due to an increase in forecast demand and decreased generation availability.	756	740	756	FUM

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
24/10/2021	91869	22/10/2021 01:30	LOR2	Cancelled	This cancelled MN 91868. Forecast LOR2 cancelled due to a decrease in forecast demand and increased generation availability.	686	788	686	FUM
24/10/2021 17:30 - 19:30	91872	22/10/2021 14:33	LOR1	Update	Update to MN 91866 due to change in effective period and forecast reserve level. The forecast LOR1 condition worsened due to decreased generation availability.	942	681	658	LCR2
24/10/2021 17:30 - 19:00	91901	23/10/2021 12:53	LOR1	Update	Update to MN 91872 due to change in effective period and forecast reserve level. The forecast LOR1 condition improved due to increased generation availability and increased net import.	978	905	612	LCR2
24/10/2021	91913	23/10/2021 17:22	LOR1	Cancelled	This cancelled MN 91901. Forecast LOR1 cancelled due to increased generation availability.	942	943	550	LCR2
24/10/2021 18:00 - 18:30	91914	23/10/2021 17:49	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand and decreased generation availability.	942	935	526	LCR2
24/10/2021	91922	24/10/2021 09:17	LOR1	Cancelled	This cancelled MN 91914. Forecast LOR1 cancelled due to a decrease in forecast demand and increased net import.	1,053	1,072	393	LCR2
25/10/2021 18:30 - 19:00	91838	20/10/2021 14:43	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	914	879	n/a – forecast > 72 hrs ahead	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
25/10/2021	91860	21/10/2021 14:27	LOR1	Cancelled	This cancelled MN 91838. Forecast LOR1 cancelled due to increased generation availability.	914	947	n/a – forecast > 72 hrs ahead	LCR2
25/10/2021 18:00 - 19:00	91872	22/10/2021 14:33	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	914	867	n/a – forecast > 72 hrs ahead	LCR2
26/10/2021 18:00 - 19:00	91959	26/10/2021 11:52	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand and decreased generation availability.	1,186	1,140	405	LCR2
26/10/2021	91967	26/10/2021 13:56	LOR1	Cancelled	This cancelled MN 91959. Forecast LOR1 cancelled due to increased generation availability.	1,186	1,236	415	LCR2
26/10/2021 18:00 - 19:00	91970	26/10/2021 14:50	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand and decreased generation availability.	1,186	1,133	404	LCR2
26/10/2021 18:00 - 19:00	91976	26/10/2021 18:25	LOR1	Actual	Actual LOR1 declared. Decreased generation availability caused an actual LOR1 condition.	942	844	205	LCR2
26/10/2021	91978	26/10/2021 19:50	LOR1	Cancelled	This cancelled MN 91976. Actual LOR1 cancelled as condition cleared after effective period.	942	968	160	LCR2
28/10/2021 17:30 - 19:00	92008	28/10/2021 17:18	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand and decreased generation availability.	1,005	586	306	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
28/10/2021 17:30 - 18:30	92009	28/10/2021 17:48	LOR1	Actual	Actual LOR1 declared. Decreased generation availability caused an actual LOR1 condition.	1,004	602	160	LCR2
28/10/2021 18:30 - 19:00	92010	28/10/2021 17:51	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability and reduced net import.	535	460	265	LCR
28/10/2021 18:00 - 19:00	92012	28/10/2021 18:19	LOR2	Actual	Actual LOR2 declared. Decreased generation availability and reduced net import caused an actual LOR2 condition.	551	440	238	LCR
28/10/2021	92014	28/10/2021 18:49	LOR2	Cancelled	This cancelled MN 92012. Actual LOR2 cancelled due to a decrease in demand and the condition cleared after effective period.	558	559	160	LCR
28/10/2021	92020	28/10/2021 20:19	LOR1	Cancelled	This cancelled MN 92009. Actual LOR1 cancelled as condition cleared after effective period.	982	1,324	160	LCR2
30/10/2021 18:00 - 19:00	92056	30/10/2021 15:19	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand.	1,020	860	389	LCR2
30/10/2021 17:30 - 19:30	92061	30/10/2021 16:23	LOR1	Update	Update to MN 92056 due to change in effective period and forecast reserve level. The forecast LOR1 condition worsened due to an increase in forecast demand.	1,022	788	356	LCR2
30/10/2021 17:30 - 19:30	92063	30/10/2021 17:49	LOR1	Actual	Actual LOR1 declared. Decreased generation availability and an increase in demand caused an actual LOR1 condition.	1,015	813	238	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
30/10/2021	92065	30/10/2021 19:18	LOR1	Cancelled	This cancelled MN 92063. Actual LOR1 cancelled as condition cleared after effective period.	1,008	1,067	160	LCR2
08/11/2021 18:30 - 19:00	92108	01/11/2021 14:38	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	911	848	n/a – forecast > 72 hrs ahead	LCR2
08/11/2021 17:30 - 19:00	92117	02/11/2021 14:41	LOR1	Update	Update to MN 92108 due to change in effective period and forecast reserve level. The forecast LOR1 condition worsened due to an increase in forecast demand and decreased generation availability.	918	771	n/a – forecast > 72 hrs ahead	LCR2
08/11/2021	92138	03/11/2021 14:45	LOR1	Cancelled	This cancelled MN 92117. Forecast LOR1 cancelled due to increased generation availability.	917	1,014	n/a – forecast > 72 hrs ahead	LCR2
08/11/2021 18:30 - 19:00	92191	07/11/2021 12:51	LOR1	Forecast	Forecast LOR1 declared due to reduced net import and decreased generation availability.	1,163	1,129	607	LCR2
08/11/2021	92193	07/11/2021 13:51	LOR1	Cancelled	This cancelled MN 92191. Forecast LOR1 cancelled due to increased generation availability.	1,163	1,166	585	LCR2
08/11/2021 18:30 - 19:00	92196	07/11/2021 14:48	LOR1	Forecast	Forecast LOR1 declared due to reduced net import.	1,163	1,135	560	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
08/11/2021	92204	07/11/2021 17:20	LOR1	Cancelled	This cancelled MN 92196. Forecast LOR1 cancelled due to increased generation availability.	1,186	1,223	522	LCR2
08/11/2021 18:30 - 19:00	92210	07/11/2021 20:46	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand.	1,186	1,129	589	LCR2
8/11/2021 18:00 - 19:00	92220	08/11/2021 07:20	LOR1	Update	Update to MN 92210 due to change in effective period and forecast reserve level. The forecast LOR1 condition worsened due to an increase in forecast demand and decreased generation availability.	1,186	1,003	472	LCR2
8/11/2021 17:30 - 19:30	92224	08/11/2021 13:04	LOR1	Update	Update to MN 92220 due to change in effective period and forecast reserve level. The forecast LOR1 condition worsened due to decreased generation availability.	1,186	788	425	LCR2
8/11/2021 18:30 - 19:00	92231	08/11/2021 14:23	LOR2	Forecast	Forecast LOR2 declared due to an increase in forecast demand and decreased generation availability.	720	687	452	LCR
8/11/2021 18:00 - 19:00	92238	08/11/2021 15:18	LOR2	Update	Update to MN 92231 due to change in effective period and forecast reserve level. The forecast LOR2 condition worsened due to decreased generation availability.	720	540	389	LCR
08/11/2021	92244	08/11/2021 15:56	LOR2	Cancelled	This cancelled MN 92238. Forecast LOR2 cancelled due to increased net import and increased generation availability.	720	909	372	LCR

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
8/11/2021 17:00 - 20:00	92249	08/11/2021 16:50	LOR1	Update	Update to MN 92224 due to change in effective period and forecast reserve level. The effective period extended but the forecast reserve level improved due to a decrease in forecast demand and increased net import.	1,186	970	321	LCR2
8/11/2021 18:00 - 20:00	92253	08/11/2021 18:23	LOR1	Actual	Actual LOR1 declared. Decreased generation availability caused an actual LOR1 condition.	1,186	952	238	LCR2
08/11/2021	92254	08/11/2021 19:26	LOR1	Cancelled	This cancelled MN 92253. Actual LOR1 cancelled as condition cleared after effective period.	1,186	1,219	160	LCR2
08/11/2021	92255	08/11/2021 19:30	LOR1	Cancelled	This cancelled MN 92249. Forecast LOR1 cancelled due to a decrease in demand and increased generation availability.	1,186	1,219	160	LCR2
09/11/2021 17:30 - 19:30	92117	02/11/2021 14:41	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	1,077	849	n/a – forecast > 72 hrs ahead	LCR2
09/11/2021 18:30 - 19:00	92138	03/11/2021 14:45	LOR1	Update	Update to MN 92117 due to change in effective period and forecast reserve level. The forecast LOR1 condition improved due to increased generation availability.	1,100	1,083	n/a – forecast > 72 hrs ahead	LCR2
09/11/2021	92148	04/11/2021 14:44	LOR1	Cancelled	This cancelled MN 92138. Forecast LOR1 cancelled due to increased generation availability.	1,117	1,297	n/a – forecast > 72 hrs ahead	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
09/11/2021 17:30 - 19:00	92257	9/11/2021 06:17	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability and reduced net import.	1,186	1,111	482	LCR2
09/11/2021 17:00 - 20:00	92262	9/11/2021 12:47	LOR1	Update	Update to MN 92257 due to change in effective period and forecast reserve level. The forecast LOR1 condition worsened due to a decrease in generation availability.	1,186	980	426	LCR2
9/11/2021	92281	9/11/2021 18:45	LOR1	Cancelled	This cancelled MN 92262. Forecast LOR1 cancelled due to decrease in forecast demand and an increase in generation availability.	1,117	1,199	272	LCR
11/11/2021 18:30 - 19:00	92195	07/11/2021 14:19	LOR1	Forecast	Forecast LOR1 declared due to reduced net import and an increase in forecast demand.	1,148	1,128	n/a – forecast > 72 hrs ahead	LCR2
11/11/2021 17:30 - 19:30	92232	08/11/2021 14:47	LOR1	Update	Update to MN 92195 due to change in effective period and forecast reserve level. The forecast LOR1 condition worsened due to an increase in forecast demand.	1,186	976	n/a – forecast > 72 hrs ahead	LCR2
11/11/2021 17:00 - 20:00	92268	9/11/2021 14:50	LOR1	Update	Update to MN 92232 due to change in effective period and forecast reserve level. The forecast LOR1 condition worsened due to a decrease in generation availability.	1,145	811	731	LCR2
11/11/2021	92296	10/11/2021 14:49	LOR1	Cancelled	This cancelled MN 92268. Forecast LOR1 cancelled due to an increase in generation availability and decrease in forecast demand.	1,129	1,201	607	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
11/11/2021 18:30 - 19:00	92331	11/11/2021 10:16	LOR1	Forecast	Forecast LOR1 redeclared due to decreased generation availability and reduced net import.	1,184	1,115	409	LCR2
11/11/2021 17:30 - 19:00, 20:00 - 20:30	92337	11/11/2021 12:37	LOR1	Update	Update to MN 92331 due to change in effective period. The forecast LOR1 condition worsened due to a decrease in generation availability.	1,184	1,041	418	LCR2
11/11/2021	92345	11/11/2021 15:25	LOR1	Cancelled	This cancelled MN 92337. Forecast LOR1 cancelled due to decrease in forecast demand and increase in generation availability.	1,183	1,206	389	LCR2
12/11/2021 16:00 - 20:00	92233	08/11/2021 14:48	LOR1	Forecast	Forecast LOR1 declared due to an increase in forecast demand and decreased generation availability.	1,083	704	n/a – forecast > 72 hrs ahead	LCR2
12/11/2021 16:30 - 17:00	92279	9/11/2021 17:27	LOR2	Forecast	Forecast LOR2 declared due to reduced net import and an increase in the FUM.	774	735	774	FUM
12/11/2021 16:30 - 19:00	92282	9/11/2021 19:32	LOR2	Update	Update to MN 92279 due to change in effective period and forecast reserve level. The forecast LOR2 condition was extended as this period rolled into the 72 hour period where FUM applies.	842	719	842	FUM
12/11/2021 16:30 - 20:00	92284	9/11/2021 21:20	LOR2	Update	Update to MN 92282 due to change in effective period. The forecast LOR2 condition was extended as this period rolled into the 72 hour period where FUM applies.	809	713	809	FUM
12/11/2021	92288	10/11/2021 00:21	LOR2	Cancelled	This cancelled MN 92284. Forecast LOR2 cancelled due to decrease in forecast demand,	717	762	717	FUM

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
					decrease in FUM and an increase in generation availability.				
12/11/2021 16:30 - 19:30	92297	10/11/2021 14:50	LOR1	Update	Update to MN 92233 due to change in effective period. The forecast LOR1 condition improved due to decreased forecast demand.	1,083	881	703	LCR2
12/11/2021	92343	11/11/2021 14:54	LOR1	Cancelled	This cancelled MN 92297. Forecast LOR1 cancelled due to decrease in forecast demand and increase in generation availability.	1,088	1,308	592	LCR2
22/11/2021 17:30 - 19:30	92423	15/11/2021 14:38	LOR1	Forecast	Forecast LOR1 declared due to high forecast demand.	914	614	n/a – forecast > 72 hrs ahead	LCR2
22/11/2021 17:30 - 19:30	92431	16/11/2021 00:37	LOR2	Forecast	Forecast LOR2 declared due to further increase in forecast demand and decrease in generation availability.	487	329	n/a – forecast > 72 hrs ahead	LCR
22/11/2021 18:00 - 19:00	92439	16/11/2021 08:49	LOR2	Update	Update to MN 92431 due to change in effective period and forecast reserve level. The forecast LOR2 condition improved due to increased generation availability and decreased forecast demand.	487	362	n/a – forecast > 72 hrs ahead	LCR
22/11/2021	92442	16/11/2021 10:37	LOR2	Cancelled	This cancelled MN 92439. Forecast LOR2 cancelled due to increase in generation availability.	479	488	n/a – forecast > 72 hrs ahead	LCR

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
22/11/2021 16:30 - 20:00	92484	17/11/2021 14:51	LOR1	Update	Update to MN 92423 due to change in effective period. The forecast LOR1 condition worsened due to an increase in forecast demand.	914	556	n/a – forecast > 72 hrs ahead	LCR2
22/11/2021	92537	18/11/2021 14:29	LOR1	Cancelled	This cancelled MN 92484. Forecast LOR1 cancelled due to decreased forecast demand.	870	1025	n/a – forecast > 72 hrs ahead	LCR2
23/11/2021 17:30 - 19:30	92446	16/11/2021 13:40	LOR2	Forecast	Forecast LOR2 declared due to high forecast demand.	487	258	n/a – forecast > 72 hrs ahead	LCR
23/11/2021 16:30 - 17:30, 19:30 - 20:30	92450	16/11/2021 14:43	LOR1	Forecast	Forecast LOR1 declared due to high forecast demand.	914	584	n/a – forecast > 72 hrs ahead	LCR2
23/11/2021	92458	16/11/2021 15:37	LOR2	Cancelled	This cancelled MN 92446. Forecast LOR2 cancelled due to decreased forecast demand.	479	517	n/a – forecast > 72 hrs ahead	LCR
23/11/2021 17:00 - 19:30	92485	17/11/2021 14:52	LOR1	Update	Update to MN 92450 due to change in effective period and forecast reserve level. The forecast LOR1 condition improved due to decreased forecast demand.	914	778	n/a – forecast > 72 hrs ahead	LCR2
23/11/2021	92538	18/11/2021 14:30	LOR1	Cancelled	This cancelled MN 92485. Forecast LOR1 cancelled due to decreased forecast demand.	914	1324	n/a – forecast > 72 hrs ahead	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
9/12/2021 19:30 - 20:00	92977	6/12/2021 14:43	LOR1	Forecast	Forecast LOR1 declared due to increase in forecast demand.	892	835	n/a – forecast > 72 hrs ahead	LCR2
9/12/2021	93001	8/12/2021 07:22	LOR1	Cancelled	This cancelled MN 92977. Forecast LOR1 cancelled due to a decrease in forecast demand.	892	1020	680	LCR2
9/12/2021 18:30 - 19:30	93022	8/12/2021 14:28	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability and increase in forecast demand.	930	850	576	LCR2
9/12/2021	93037	8/12/2021 23:57	LOR1	Cancelled	This cancelled MN 93022. Forecast LOR1 cancelled due to an increase in generation availability and decrease in forecast demand.	946	1,006	474	LCR2
9/12/2021 18:30 - 19:00	93046	9/12/2021 14:10	LOR1	Forecast	Forecast LOR1 declared due to increase in forecast demand.	1,004	986	440	LCR2
9/12/2021 18:30 - 19:30	93050	9/12/2021 14:55	LOR1	Correction	Correction to MN 88523. The market notice type was corrected to Reserve Notice from Market Intervention.	995	949	402	LCR2
9/12/2021 17:00 - 20:00	93065	9/12/2021 16:58	LOR1	Update	Update to the LOR1 condition forecast in MN 93050 with changes in effective period due to increase in forecast demand and decreased generation availability.	1,092	888	265	LCR2
9/12/2021 17:00 - 20:00	93066	9/12/2021 17:19	LOR1	Actual	Actual LOR1 declared. Decreased generation availability and increase in demand caused an actual LOR1 condition.	1,089	763	265	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
9/12/2021 18:30 - 19:30	93072	9/12/2021 17:51	LOR2	Forecast	Forecast LOR2 declared due to increase in forecast demand and decreased generation availability.	606	578	265	LCR
9/12/2021	93073	9/12/2021 18:21	LOR2	Cancelled	This cancelled MN 93072. Forecast LOR2 cancelled due to an increase in generation availability and decrease in forecast demand.	539	672	272	LCR
9/12/2021	93078	9/12/2021 19:48	LOR1	Cancelled	This cancelled MN 93066. The actual LOR1 was cancelled when the effective period elapsed.	1,096	1,324	160	LCR2
11/12/2021 18:30 - 20:00	93023	8/12/2021 14:42	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	892	733	n/a – forecast > 72 hrs ahead	LCR2
11/12/2021	93049	9/12/2021 15:06	LOR1	Cancelled	This cancelled MN 93023. Forecast LOR1 cancelled due to decrease in forecast demand.	892	908	731	LCR2
12/12/2021 19:30 - 20:00	93047	9/12/2021 15:06	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	892	870	n/a – forecast > 72 hrs ahead	LCR2
15/12/2021 18:00 - 20:00	93023	8/12/2021 14:42	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability and high forecast demand.	892	733	n/a – forecast > 72 hrs ahead	LCR2
15/12/2021 18:30 - 19:00, 19:30 - 20:00	93047	9/12/2021 15:06	LOR1	Update	Update to MN 93023. Forecast LOR1 declared due to decreased generation availability and high forecast demand.	892	798	n/a – forecast > 72 hrs ahead	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
15/12/2021	93105	10/12/2021 14:52	LOR1	Cancelled	This cancelled MN 93047. Forecast LOR1 cancelled due to decrease in forecast demand and an increase in generation availability.	892	1,243	n/a – forecast > 72 hrs ahead	LCR2
16/12/2021 16:30 - 17:00, 17:30 - 20:00	93047	9/12/2021 15:06	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability and high forecast demand.	892	604	n/a – forecast > 72 hrs ahead	LCR2
16/12/2021 18:00 - 19:00, 19:30 - 20:00	93064	9/12/2021 17:13	LOR2	Forecast	Forecast LOR2 declared due to increased forecast demand and decreased generation availability.	457	421	n/a – forecast > 72 hrs ahead	LCR
16/12/2021	93102	10/12/2021 07:42	LOR2	Cancelled	This cancelled MN 93064. Forecast LOR2 cancelled due to an increase in generation availability and decrease in forecast demand.	457	562	n/a – forecast > 72 hrs ahead	LCR
20/12/2021 19:30 - 20:00	93189	15/12/2021 07:38	LOR2	Forecast	Forecast LOR2 declared due to increase in forecast demand and decreased generation availability.	457	444	n/a – forecast > 72 hrs ahead	LCR
20/12/2021	93192	15/12/2021 10:55	LOR2	Cancelled	This cancelled MN 93189. Forecast LOR2 cancelled due to an increase in generation availability.	457	465	n/a – forecast > 72 hrs ahead	LCR
20/12/2021 19:30 - 20:00	93193	15/12/2021 12:40	LOR2	Forecast	Forecast LOR2 declared due to increased forecast demand.	457	455	n/a – forecast > 72 hrs ahead	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
20/12/2021 17:30 - 19:30	93197	15/12/2021 14:40	LOR1	Forecast	Forecast LOR1 declared due to increased forecast demand and decreased generation availability.	1,016	776	n/a – forecast > 72 hrs ahead	LCR2
20/12/2021 17:30 - 19:30	93203	16/12/2021 06:03	LOR1	Update	Update to MN 93197 due to change in forecast reserve level. The forecast LOR1 condition worsened due to decreased generation availability.	892	739	n/a – forecast > 72 hrs ahead	LCR2
20/12/2021	93204	16/12/2021 07:46	LOR2	Cancelled	This cancelled MN 93193. Forecast LOR2 cancelled due to an increase in generation availability and decrease in forecast demand.	457	805	n/a – forecast > 72 hrs ahead	LCR
20/12/2021 18:30 - 19:00, 19:30 - 20:00	93208	16/12/2021 14:56	LOR1	Update	Update to MN 93203 due to change in effective period and forecast reserve level. The forecast condition worsened due to an increase in forecast demand.	892	680	n/a – forecast > 72 hrs ahead	LCR2
20/12/2021 18:30 - 19:00	93226	17/12/2021 14:30	LOR1	Update	Update to MN 93208 due to change in effective period and forecast reserve level. The forecast LOR1 condition improved due to an increase in generation availability.	1,077	1,056	n/a – forecast > 72 hrs ahead	LCR2
20/12/2021	93267	18/12/2021 15:05	LOR1	Cancelled	This cancelled MN 93226. Forecast LOR1 cancelled due to decrease in forecast demand and an increase in generation availability.	1,062	1,315	759	LCR2
20/12/2021 18:00 - 19:00, 19:30 - 20:00	93305	20/12/2021 12:10	LOR1	Forecast	Forecast LOR1 declared due to sudden decrease in generation availability.	1,110	945	413	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
20/12/2021	93306	20/12/2021 12:50	LOR1	Cancelled	This cancelled MN 93305. Forecast LOR1 cancelled due to an increase in generation availability.	1,108	1,126	425	LCR2
20/12/2021 18:30 - 19:00	93314	20/12/2021 16:36	LOR1	Forecast	Forecast LOR1 declared due to further increase in forecast demand.	1,131	1,066	413	LCR2
20/12/2021 17:30 - 18:00	93315	20/12/2021 17:49	LOR1	Actual	Actual LOR1 declared. Decreased generation availability and increase in demand caused an actual LOR1 condition.	1,058	992	160	LCR2
20/12/2021	93316	20/12/2021 19:25	LOR1	Cancelled	This cancelled MN 93315. The actual LOR1 was cancelled when the effective period elapsed.	1,053	1,142	160	LCR2
21/12/2021 18:00 - 20:00	93197	15/12/2021 14:40	LOR1	Forecast	Forecast LOR1 declared due to increased forecast demand and decreased generation availability.	988	821	n/a – forecast > 72 hrs ahead	LCR2
21/12/2021 18:00 - 20:00	93203	16/12/2021 06:03	LOR1	Update	Update to MN 93197 due to change in forecast reserve level. Forecast LOR1 condition worsened due to decreased generation availability.	892	736	n/a – forecast > 72 hrs ahead	LCR2
21/12/2021 18:30 - 19:00	93327	21/12/2021 15:52	LOR1	Forecast	Forecast LOR1 declared due to increase in forecast demand.	1,154	1,115	374	LCR2
21/12/2021 18:00 - 19:00	93332	21/12/2021 17:25	LOR1	Forecast	Forecast LOR1 declared due to increase in forecast demand.	1,176	1,040	306	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
21/12/2021	93333	21/12/2021 18:20	LOR1	Cancelled	This cancelled MN 93332. Forecast LOR1 cancelled due to an increase in net import.	1,078	1,133	238	LCR2
22/12/2021 17:30 - 19:00	93195	15/12/2021 12:40	LOR2	Forecast	Forecast LOR2 declared due to high forecast demand and decreased generation availability.	562	296	n/a – forecast > 72 hrs ahead	LCR2
22/12/2021 16:30 - 18:00, 22/12/2021 19:00 - 20:00	93197	15/12/2021 14:40	LOR1	Forecast	Forecast LOR1 declared due to increased forecast demand and decreased generation availability.	973	561	n/a – forecast > 72 hrs ahead	LCR
22/12/2021 18:30 - 19:00	93202	16/12/2021 06:01	LOR2	Update	Update to MN 931951 due to change in forecast reserve level. The forecast LOR2 condition improved due to increased generation availability and decreased forecast demand.	551	491	n/a – forecast > 72 hrs ahead	LCR
22/12/2021 17:00 - 18:30, 19:00 - 20:00	93203	16/12/2021 06:03	LOR1	Update	Update to MN 93197 due to change in forecast reserve level. The forecast LOR1 condition improved due to decreased forecast demand.	983	575	n/a – forecast > 72 hrs ahead	LCR2
22/12/2021	93205	16/12/2021 07:58	LOR2	Cancelled	This cancelled MN 93193. Forecast LOR2 cancelled due to an increase in generation availability and decrease in forecast demand.	545	928	n/a – forecast > 72 hrs ahead	LCR
South Australia region									
11/10/2021 06:00 - 08:00	91524	7/10/2021 11:00	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	250	118	n/a – forecast > 72 hrs ahead	LCR

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
11/10/2021	91526	7/10/2021 13:50	LOR2	Cancelled	This cancelled MN 91524. Forecast LOR2 cancelled due to increased generation and import availability.	250	374	n/a – forecast > 72 hrs ahead	LCR
11/10/2021 06:00 - 07:30	91530	7/10/2021 15:10	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	440	375	n/a – forecast > 72 hrs ahead	LCR2
11/10/2021	91557	8/10/2021 14:29	LOR1	Cancelled	This cancelled MN 915930. Forecast LOR1 cancelled due to increased generation and import availability.	461	715	446	LCR2
12/10/2021 05:30 - 06:00 07:00 - 07:30	91508	6/10/2021 04:28	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	447	338	n/a – forecast > 72 hrs ahead	LCR2
12/10/2021 06:00 - 07:00	91509	6/10/2021 04:29	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	250	199	n/a – forecast > 72 hrs ahead	LCR
12/10/2021	91510	6/10/2021 06:37	LOR2	Cancelled	This cancelled MN 91509. Forecast LOR2 cancelled due to a reduction in forecast demand.	250	283	n/a – forecast > 72 hrs ahead	LCR
12/10/2021 05:30 - 07:30	91511	6/10/2021 06:38	LOR1	Update	Update to the forecast LOR1 in MN 91508 with a change in effective period due to a reduction in forecast demand.	445	284	n/a – forecast > 72 hrs ahead	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
12/10/2021 06:00 - 07:30	91520	6/10/2021 14:40	LOR1	Update	Update to the LOR1 conditions forecast in MN 91508 with a change in effective period due to decreased generation availability.	444	298	n/a – forecast > 72 hrs ahead	LCR2
12/10/2021	91529	7/10/2021 15:09	LOR1	Cancelled	This cancelled MN 91520. Forecast LOR1 cancelled due to increased generation and import availability.	447	745	n/a – forecast > 72 hrs ahead	LCR2
27/10/2021 18:00 - 19:00	91880	22/10/2021 23:35	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	194	92	n/a – forecast > 72 hrs ahead	LCR
27/10/2021	91881	23/10/2021 05:49	LOR2	Cancelled	This cancelled MN 91880. Forecast LOR2 cancelled due to increased generation availability.	196	320	n/a – forecast > 72 hrs ahead	LCR
27/10/2021 18:00 - 19:00	91891	23/10/2021 11:22	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	176	145	n/a – forecast > 72 hrs ahead	LCR
27/10/2021 17:00 - 18:00	91906	23/10/2021 15:28	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability	351	239	n/a – forecast > 72 hrs ahead	LCR2
27/10/2021 18:00 - 19:00	91907	23/10/2021 15:29	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	176	136	n/a – forecast > 72 hrs ahead	LCR
27/10/2021 18:30 - 19:00	91932	24/10/2021 20:29	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	399	360	399	FUM

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
27/10/2021 17:30 - 19:00	91934	25/10/2021 07:15	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	485	262	485	FUM
27/10/2021 18:00 - 19:00	91935	25/10/2021 08:07	LOR2	Update	Update to the forecast LOR2 conditions in MN 91934 with a change in effective period and decreased reserves due to decreased generation availability and increased forecast uncertainty.	433	246	433	FUM
27/10/2021 18:00 - 19:00	91936	25/10/2021 10:00	LOR2	Update	Update to the forecast LOR2 conditions in MN 91934 with decreased reserves due to decreased generation availability and increased forecast uncertainty.	417	239	417	FUM
27/10/2021	91937	25/10/2021 10:44	LOR2	Cancelled	This cancelled the MN 91936. Forecast LOR2 condition was cancelled due to increased generation availability.	416	546	416	FUM
27/10/2021 17:30 - 18:00 18:30 - 20:00	91956	26/10/2021 09:43	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	366	305	366	FUM
27/10/2021 17:30 - 18:00 18:30 - 19:00	91958	26/10/2021 11:37	LOR2	Update	Update to the forecast LOR2 conditions in MN 91956 with a change in effective period and decreased reserves due to decreased generation availability.	335	255	335	FUM
27/10/2021 19:30 - 20:00	91961	26/10/2021 13:00	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	375	334	303	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
27/10/2021 17:30 - 18:00 18:30 - 19:30	91960	26/10/2021 13:01	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	321	249	321	FUM
27/10/2021	91971	26/10/2021 15:18	LOR2	Cancelled	This cancelled MN 91960. Forecast LOR2 conditions cancelled due to increased generation availability.	317	365	317	LCR
27/10/2021	91972	26/10/2021 15:19	LOR1	Cancelled	This cancelled MN 91961. Forecast LOR1 condition cancelled due to increased generation availability.	343	365	317	LCR2
28/10/2021 05:30 - 07:30	91891	23/10/2021 11:22	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	182	94	n/a – forecast > 72 hrs ahead	LCR
28/10/2021 03:00 - 03:30	91906	23/10/2021 15:28	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	340	332	n/a – forecast > 72 hrs ahead	LCR2
28/10/2021 04:00 - 05:30	91906	23/10/2021 15:28	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	358	262	n/a – forecast > 72 hrs ahead	LCR2
28/10/2021 05:30 - 07:30	91907	23/10/2021 15:29	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	183	89	n/a – forecast > 72 hrs ahead	LCR

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
28/10/2021	91921	24/10/2021 05:52	LOR2	Cancelled	This cancelled MN 91907. Forecast LOR2 cancelled due to increased generation availability.	183	223	n/a – forecast > 72 hrs ahead	LCR
28/10/2021 06:00 - 07:00	91923	24/10/2021 10:43	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	184	159	n/a – forecast > 72 hrs ahead	LCR
28/10/2021	91930	24/10/2021 15:42	LOR2	Cancelled	This cancelled MN 91923. Forecast LOR2 cancelled due to increased generation availability.	184	186	n/a – forecast > 72 hrs ahead	LCR
28/10/2021 05:00 - 07:30	91931	24/10/2021 15:51	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	358	186	n/a – forecast > 72 hrs ahead	LCR2
28/10/2021 05:30 - 06:00	91934	25/10/2021 07:15	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	373	284	373	FUM
28/10/2021 05:30 - 07:00	91935	25/10/2021 08:07	LOR2	Update	Update to the forecast LOR2 conditions in MN 91934 with a change in effective period and decreased reserves due to decreased generation availability and increased forecast uncertainty.	399	237	399	FUM
28/10/2021 04:30 - 07:30	91936	25/10/2021 10:00	LOR2	Update	Update to the forecast LOR2 conditions in MN 91934 with a change in effective period and decreased reserves due to decreased generation availability and increased forecast uncertainty.	425	235	425	FUM

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
28/10/2021 06:00 - 07:00	91937	25/10/2021 10:44	LOR2	Update	Update to the LOR2 condition forecast in MN 91936 with a change in effective period due to decreased generation availability and increased forecast uncertainty.	451	449	451	FUM
28/10/2021	91938	25/10/2021 13:50	LOR2	Cancelled	This cancelled MN 91937. Forecast LOR2 cancelled due to increased generation availability.	490	503	490	FUM
28/10/2021	91943	25/10/2021 14:39	LOR1	Cancelled	This cancelled MN 91931. Forecast LOR1 cancelled due to increased generation availability.	490	502	490	FUM
03/11/2021 08:30 - 09:00	92114	2/11/2021 11:46	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	304	279	304	FUM
03/11/2021 09:00 - 10:00	92116	2/11/2021 13:06	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	361	283	258	LCR2
03/11/2021 08:30 - 09:00	92115	2/11/2021 13:07	LOR2	Update	Update to LOR2 conditions forecast in MN 92114 with the same effective period and decreased reserves due to decreased generation availability.	265	197	265	FUM
03/11/2021	92124	2/11/2021 17:57	LOR2	Cancelled	This cancelled MN 92115. Forecast LOR2 conditions cancelled due to increased generation availability.	198	398	198	FUM

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
03/11/2021	92125	2/11/2021 18:00	LOR1	Cancelled	This cancelled MN 92116. Forecast LOR1 conditions cancelled due to increased generation availability.	405	496	207	LCR2
17/11/2021 16:30 - 18:00	92445	16/11/2021 12:55	LOR2	Forecast	Forecast LOR2 declared due to decreased generation and decreased import availability.	328	229	328	FUM
17/11/2021	92449	16/11/2021 14:19	LOR2	Cancelled	This cancelled MN 92445. Forecast LOR2 conditions cancelled due to increased generation availability.	318	407	318	FUM
23/11/2021 12:30 - 15:00	92667	22/11/2021 09:24	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	326	240	326	FUM
23/11/2021	92668	22/11/2021 11:02	LOR2	Cancelled	This cancelled MN 92667. Forecast LOR2 cancelled due to increased generation availability.	303	419	303	FUM
23/11/2021 12:30 - 14:30 15:30 - 16:00	92670	22/11/2021 12:59	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	418	310	295	LCR2
23/11/2021 14:30 - 15:00	92671	22/11/2021 13:00	LOR2	Forecast	Forecast LOR2 declared due to decreased generation availability.	299	288	299	FUM
23/11/2021	92678	22/11/2021 16:33	LOR2	Cancelled	Forecast LOR2 condition cancelled due to increased generation availability.	252	441	252	FUM
23/11/2021	92679	22/11/2021 17:17	LOR1	Cancelled	Forecast LOR1 condition cancelled due to increased generation availability.	399	475	236	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
30/11/2021 18:00 - 20:00	92766	26/11/2021 14:51	LOR1	Forecast	Forecast LOR1 declared due to increased demand forecast and decreased generation availability.	449	349	n/a – forecast > 72 hrs ahead	LCR2
30/11/2021	92783	27/11/2021 14:29	LOR1	Cancelled	This cancelled MN 92766. Forecast LOR1 cancelled due to increased generation availability.	450	530	n/a – forecast > 72 hrs ahead	LCR2
30/11/2021 19:00 - 19:30	92794	28/11/2021 06:28	LOR2	Forecast	Forecast LOR2 declared due to increased demand forecast and decreased generation availability.	445	438	445	FUM
30/11/2021	92795	28/11/2021 08:27	LOR2	Cancelled	This cancelled MN 92794. Forecast LOR2 cancelled due to a decrease in the forecast uncertainty.	393	397	393	FUM
30/11/2021 18:30 - 19:30	92796	28/11/2021 10:32	LOR2	Forecast	Forecast LOR2 declared due to increased demand forecast and decreased generation availability.	393	353	393	FUM
30/11/2021 18:00 - 20:00	92802	28/11/2021 14:25	LOR2	Update	Update to the LOR2 conditions forecast in MN 92796 with a change in effective period due to decreased generation availability.	417	343	417	FUM
30/11/2021	92813	28/11/2021 21:37	LOR2	Cancelled	This cancelled MN 92802. Forecast LOR2 conditions cancelled due to increased generation availability and reduced demand forecast.	375	367	375	FUM

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
30/11/2021 18:00 - 20:00	92814	28/11/2021 21:51	LOR1	Forecast	Forecast LOR1 declared due to increased demand forecast and decreased generation availability.	449	369	349	LCR2
30/11/2021 18:00 - 19:30	92816	29/11/2021 01:44	LOR2	Forecast	Forecast LOR2 declared due to increased demand forecast and decreased generation availability.	360	311	360	FUM
30/11/2021	92817	29/11/2021 12:50	LOR2	Cancelled	This cancelled MN 92816. Forecast LOR2 conditions cancelled due to increased import availability.	350	799	289	LCR
30/11/2021	92822	29/11/2021 14:15	LOR1	Cancelled	This cancelled MN 92814. Forecast LOR1 conditions cancelled due to increased import availability.	600	799	289	LCR2
12/12/2021 18:30 - 20:30	93123	11/12/2021 12:53	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	600	519	290	LCR2
12/12/2021 18:30 - 19:30	93139	11/12/2021 17:22	LOR1	Update	Update to the forecast LOR1 conditions in MN 93123 with a change in effective period due to decreased generation availability.	600	585	299	LCR2
12/12/2021 18:30 - 20:30	93147	12/12/2021 04:25	LOR1	Update	Update to the forecast LOR1 conditions in MN 93139 with a change in effective period due to decreased generation availability.	585	545	218	LCR2
12/12/2021 19:00 - 19:30	93156	12/12/2021 13:19	LOR1	Update	Update to the forecast LOR1 in MN 93147 with a change in effective period due to decreased generation availability.	475	457	207	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
12/12/2021	93169	12/12/2021 16:21	LOR1	Cancelled	This cancelled MN 93156. Forecast LOR1 cancelled due to increased generation availability.	554	570	202	LCR2
30/12/2021 17:30 - 20:00	93376	24/12/2021 14:34	LOR1	Forecast	Forecast LOR1 declared due to increased demand forecast and decreased generation availability.	545	409	n/a – forecast > 72 hrs ahead	LCR2
30/12/2021 18:00 - 19:30	93399	25/12/2021 14:36	LOR1	Update	Update to LOR1 conditions forecast in MN 93376 with a change in effective period due to decreased generation availability.	538	491	n/a – forecast > 72 hrs ahead	LCR2
30/12/2021	93429	26/12/2021 14:20	LOR1	Cancelled	This cancelled MN 93399. Forecast LOR1 cancelled due to increased generation availability.	538	654	n/a – forecast > 72 hrs ahead	LCR2
Tasmania region									
8/10/2021 9:00 - 11:00	91525	7/10/2021 13:29	LOR2	Forecast	Forecast LOR2 declared due to decrease in net import and decreased generation availability.	177	164	177	FUM
8/10/2021 9:00 - 11:00	91534	7/10/2021 15:54	LOR2	Update	General update to MN 91525. There was no significant change in the LOR2 effective period.	184	162	184	FUM
8/10/2021	91542	7/10/2021 18:32	LOR2	Cancelled	This cancelled MN 91534. Forecast LOR2 cancelled due to a decrease in FUM.	155	182	155	FUM
12/10/2021 7:00 - 7:30	91627	11/10/2021 13:17	LOR1	Forecast	Forecast LOR1 declared due to decrease in net import and decreased generation availability.	240	224	138	LCR2

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
12/10/2021	91633	11/10/2021 14:16	LOR1	Cancelled	This cancelled MN 91627. Forecast LOR1 cancelled due to an increase in net import.	751	899	136	LCR2
8/12/2021 7:00 - 8:00	92976	6/12/2021 14:42	LOR1	Forecast	Forecast LOR1 declared due to network outage which puts multiple generating units on a single largest credible contingency.	922	890	165	LCR2
8/12/2021 7:00 - 7:30	92999	7/12/2021 13:50	LOR1	Update	General update to MN 92976. There was no significant change in the LOR1 effective period.	922	909	138	LCR2
8/12/2021	93004	7/12/2021 17:21	LOR1	Cancelled	This cancelled MN 91627. Forecast LOR1 cancelled due to an increase in generation availability.	922	1017	130	LCR2
14/12/2021 7:00 - 8:30	93180	13/12/2021 17:13	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	637	615	137	LCR2
14/12/2021	93181	13/12/2021 19:13	LOR1	Cancelled	This cancelled MN 93180. Forecast LOR1 cancelled due to an increase in generation availability.	637	680	130	LCR2
15/12/2021 6:30 - 7:30	93185	14/12/2021 13:29	LOR1	Forecast	Forecast LOR1 declared due to decreased generation availability.	649	640	139	LCR
15/12/2021	93188	14/12/2021 16:08	LOR1	Cancelled	This cancelled MN 93188. Forecast LOR1 cancelled due to an increase in generation availability.	649	696	133	LCR2
Victoria region									

Effective date and time	Market Notice ID	Issue date and time	Level	Actual, forecast, update or cancel	Comments	Reserve requirement (MW)[A]		FUM value (MW)[B]	Reserve requirement set by
						Required	Available		
30/11/2021 17:00 - 19:30	92833	30/11/2021 16:15	LOR1	Forecast	Forecast LOR1 declared due to a decrease in import availability.	1,160	973	387	LCR2
30/11/2021 18:00 - 18:30	92836	30/11/2021 16:49	LOR1	Update	Update to MN 92833 with a change in effective period due to an increase in generation availability.	1,160	1,136	352	LCR2
30/11/2021 18:00 - 19:00	92837	30/11/2021 17:07	LOR1	Update	The forecast LOR1 conditions in MN 92833 and 92836 have been declared suspect by AEMO and are being investigated.	1,160	1,127	352	LCR2
30/11/2021	92838	30/11/2021 17:45	LOR1	Cancelled	This cancelled MN 92833 and 92836. The suspect forecast LOR1 condition was cancelled due to fixing an issue with the VIC_NIL_1 constraint set which was reducing the VIC-NSW import limit.	1,160	1,170	293	LCR2

A. Reserve Required and Reserve Available are the values that correspond to the trading interval in the effective period with the lowest reserve available.
B. The value in this field represents the FUM value for the trading interval during which the minimum available reserve occurred (see Reserve Requirement (MW) – Available field).

4 Review of performance

4.1 Forecast Uncertainty Measure values

This section compares the mean, minimum, and maximum FUM values for this reporting period to those for each quarter from Quarter 4 2020 to Quarter 4 2021 (Figure 1 to Figure 5). Maximum FUM values can at times change significantly between re-trainings, in part due to limited sample sizes. Mean FUM values decreasing is indicative of the distribution tightening with decreasing forecast uncertainty.

The most material changes in FUM values between Quarter 3 2021 and Quarter 4 2021 are summarised in this section. For forecast horizons not mentioned, the changes from Quarter 3 2021 were minor:

- New South Wales – the mean FUM values decreased for the 48 and 60 hours ahead forecast horizons. The minimum FUM values decreased for the 12 and 60 hours ahead forecast horizons. The maximum FUM values increased for 2, 6, 12 and 24 hours ahead forecast horizons and decreased for the 48 and 60 hours ahead forecast horizons.
- Queensland – the maximum FUM values decreased for the 12 hours ahead forecast horizons and increased for the 24, 48 and 60 hours ahead forecast horizons. The mean and minimum FUM values were relatively unchanged.
- South Australia – the maximum FUM values decreased for the 12 hours ahead forecast horizons and increased for the 48 and 60 hours ahead forecast horizons. The mean and minimum FUM values were relatively unchanged.
- Tasmania – the minimum FUM value increased for the six hours ahead forecast horizon. The mean and maximum FUM values decreased for all forecast horizons.
  - In October 2021, a configuration change was made to improve the input feed for the Aggregate Semi-Scheduled (SS) Output forecasts used in the BBN models of all NEM regions. Prior to this change, this input used the aggregate SS UIGF for the region, and was changed to use the aggregate SS capacity produced by the PASA engine, in line with the Reserve Level Declaration Guidelines.
  - This change lowered the Aggregate SS Output used in the BBN relative to the previously used UIGF, due to the constraints and optimisation used in PASA.
  - Holding other inputs constant, the FUM will increase with increasing forecast SS generation due to the inherent uncertainty in the weather that fuels them. The lower SS forecasts following the October 2021 change therefore had the impact of lowering the Tasmania FUM output during Q4 2021.
  - Mainland NEM regions did not experience a notable reduction in FUM values in Q4 2021. This is likely attributed to more installed capacity of SS generation in Q4 2021 compared to Tasmania offsetting the reduction in Aggregate Semi-Scheduled Output forecasts.
- Victoria – the maximum FUM values increased for the 12 and 24 hours ahead forecast horizon and decreased for the 2 and 60 hours ahead forecast horizon. The mean and minimum FUM values were relatively unchanged.

Figure 1 New South Wales region: maximum, minimum, and mean FUM values for the reporting period, and compared to previous four quarters

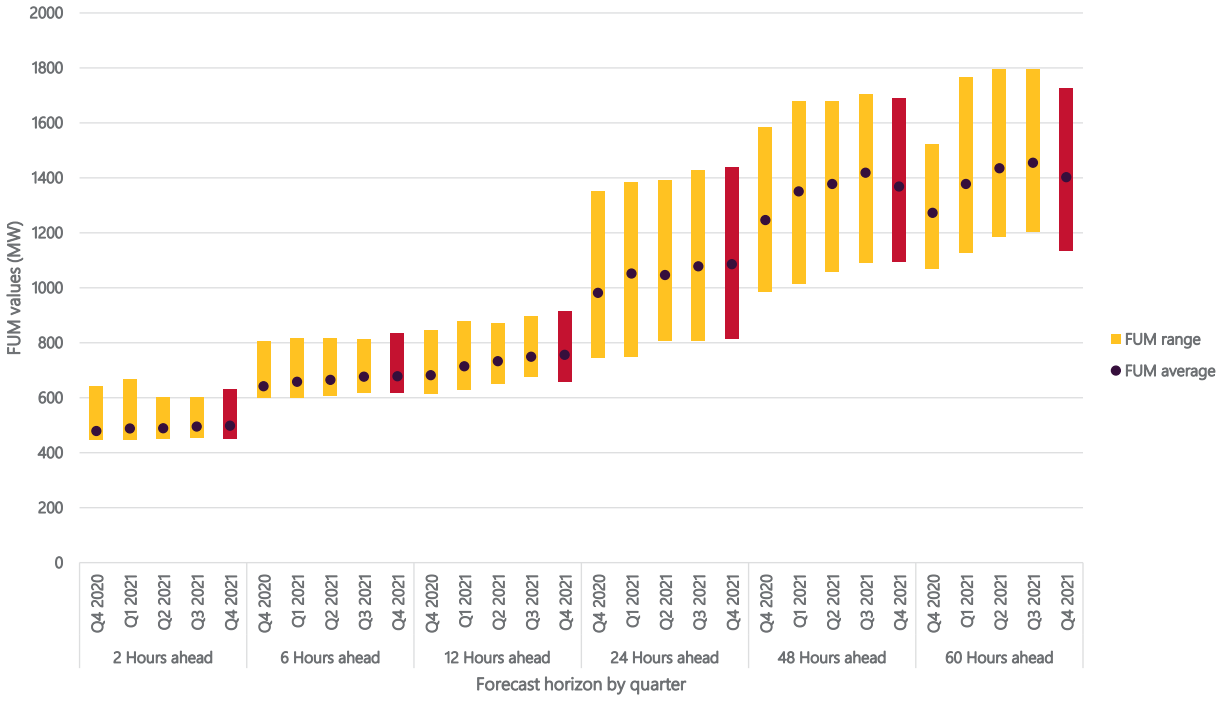


Figure 2 Queensland region: maximum, minimum, and mean FUM values for the reporting period, and compared to previous four quarters

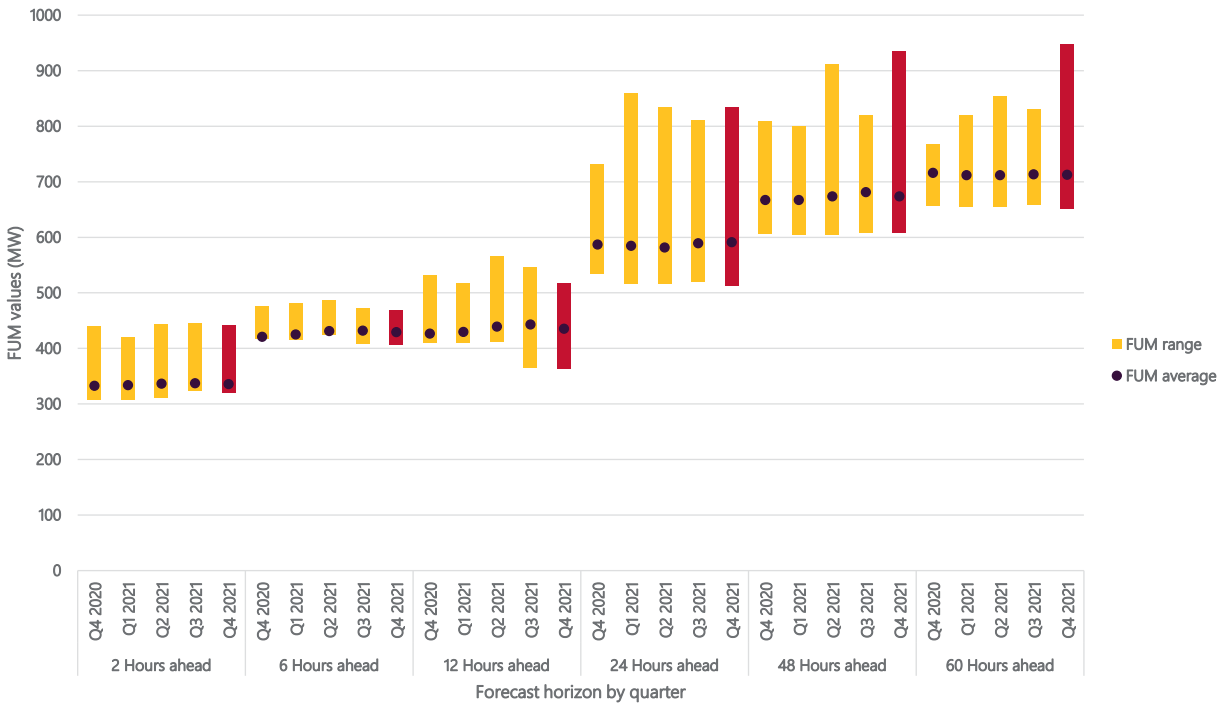


Figure 3 South Australia region: maximum, minimum, and mean FUM values for the reporting period, and compared to previous four quarters

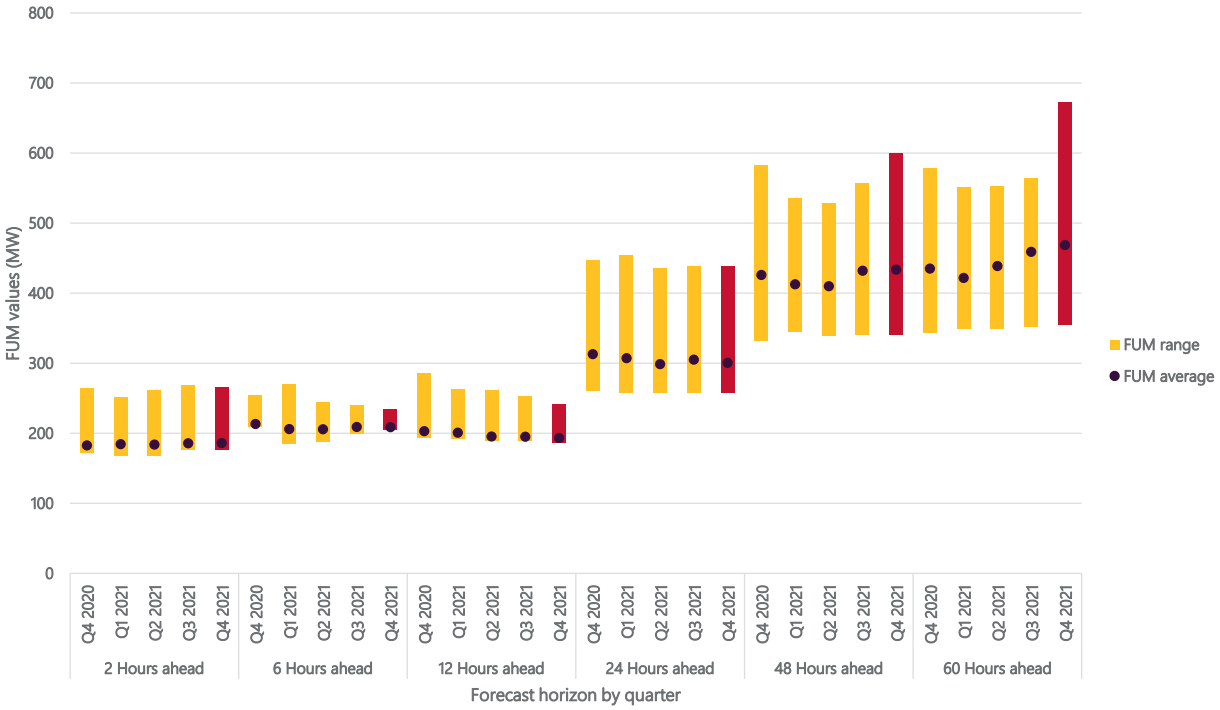


Figure 4 Tasmania region: maximum, minimum, and mean FUM values for the reporting period, and compared to previous four quarters

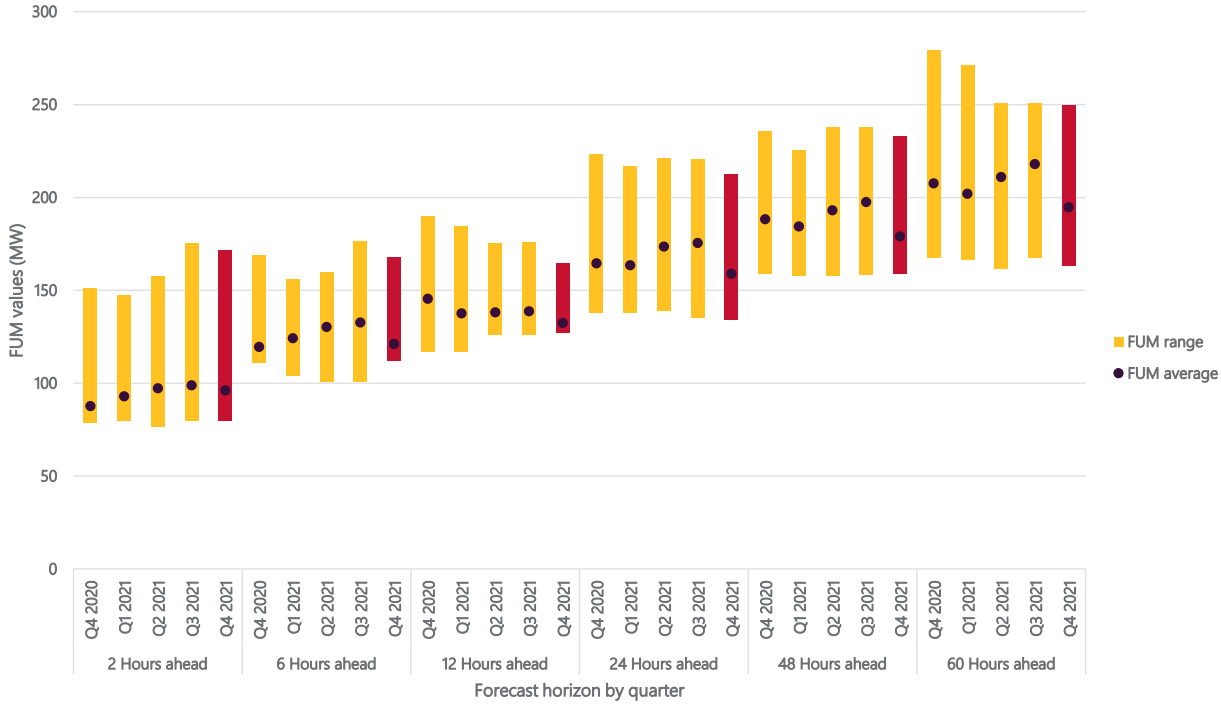
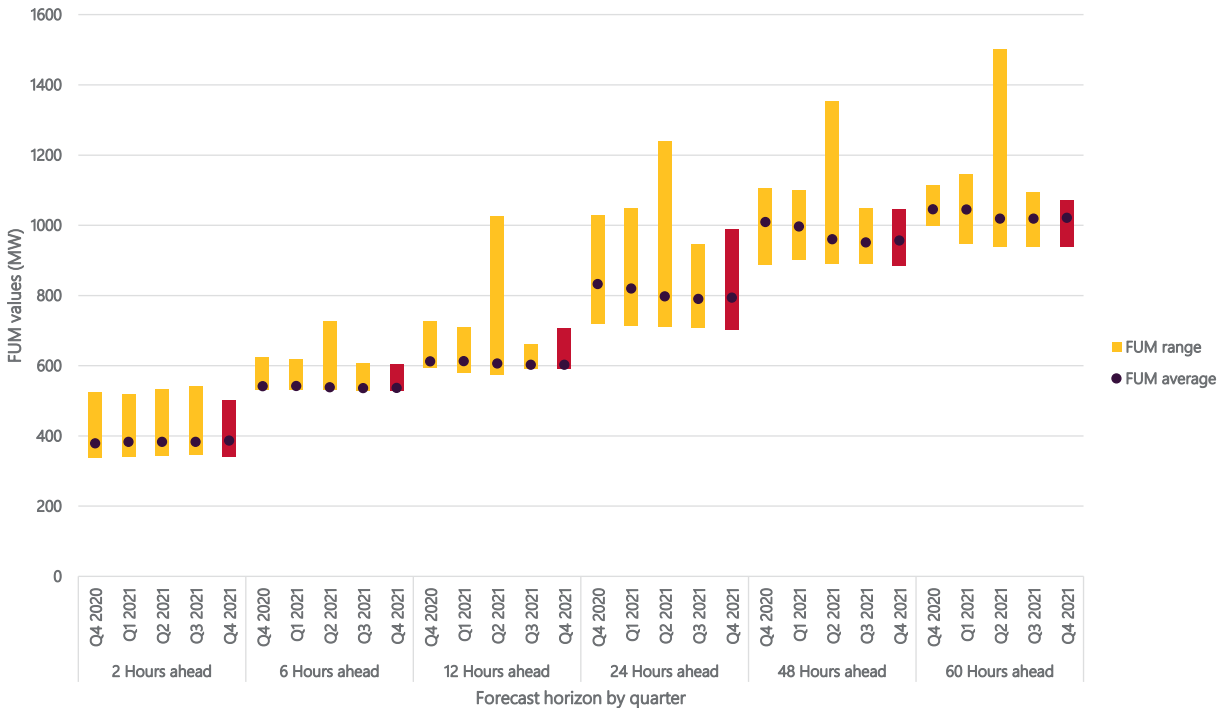


Figure 5 Victoria region: maximum, minimum, and mean FUM values for the reporting period, and compared to previous four quarters



4.2 Forecast and actual LOR declarations

A summary of the count and causes of declared forecast and actual LOR conditions can be found in Table 1 in Section 3 of this report.

During the reporting period from 1 October to 31 December 2021, there were 55 LOR declarations. Of these declarations, 47 were for forecast LOR conditions:

- 29 forecast LOR1 conditions were declared.
- 18 forecast LOR2 conditions were declared.
- None of the forecast LOR1 conditions was set by the FUM.
- Nine forecast LOR2 conditions were set by the FUM.

A total of seven actual LOR1 conditions were declared during the reporting period. All were observed as forecast LOR1 prior to being declared as an actual, therefore not counted as a forecast declaration based on the declaration count principles outlined in Section 3.

There was one actual LOR2 condition declared during the reporting period. This was observed as a forecast LOR2 condition prior to being declared as an actual.

By comparison, 69 LOR declarations were made in Quarter 3 2021 (49 forecast LOR events and 20 actual LOR events) and 39 LOR declarations were made in Quarter 4 2020 (25 forecast LOR events and 14 actual events).

There were nine LOR declarations in the reporting period set by the FUM, so the percentage of LOR conditions where the FUM set the reserve requirement was 16%. In Quarter 3 2021 the percentage was 20%, while in Quarter 4 2020 it was 18%.

There were no forecast LOR3 conditions during the current reporting period.

Table 3 LORs declared during the reporting period by trigger (FUM or LCR)

Effective period	LOR1	LOR2	LOR3
New South Wales (NSW)			
11/11/2021	Forecast		
21/12/2021	Forecast		
Queensland (QLD)			
11/10/2021	Forecast		
14/10/2021	Forecast then Actual		
24/10/2021	Forecast	Forecast	
25/10/2021	Forecast		
26/10/2021	Forecast then Actual		
28/10/2021	Forecast then Actual	Forecast then Actual	
30/10/2021	Forecast then Actual		
08/11/2021	Forecast then Actual	Forecast	
09/11/2021	Forecast		
11/11/2021	Forecast		
12/11/2021	Forecast	Forecast	
22/11/2021	Forecast	Forecast	
23/11/2021	Forecast	Forecast	
09/12/2021	Forecast then Actual	Forecast	
11/12/2021	Forecast		
12/12/2021	Forecast		
15/12/2021	Forecast		
16/12/2021	Forecast	Forecast	
20/12/2021	Forecast then Actual	Forecast	
21/12/2021	Forecast		
22/12/2021	Forecast	Forecast	
South Australia (SA)			
11/10/2021	Forecast	Forecast	
12/10/2021	Forecast	Forecast	
27/10/2021	Forecast	Forecast	
28/10/2021	Forecast	Forecast	
03/11/2021	Forecast	Forecast	
17/11/2021		Forecast	
23/11/2021	Forecast	Forecast	
30/11/2021	Forecast	Forecast	
12/12/2021	Forecast		
30/12/2021	Forecast		
Tasmania (TAS)			
08/10/2021		Forecast	

Effective period	LOR1	LOR2	LOR3
12/10/2021	Forecast		
08/12/2021	Forecast		
14/12/2021	Forecast		
15/12/2021	Forecast		
Victoria (VIC)			
NIL			

Note. Yellow shading indicates the requirement was set by the LCR or LCR2, and orange indicates the requirement was set by the FUM.

4.3 LOR declaration of reserve requirement

Of the 36 forecast LOR1 conditions declared, seven resulted in actual LOR1 conditions. These were counted as actual LOR1 conditions based on the declaration count principles outlined in Section 3.

Of the 19 forecast LOR2 conditions declared, one resulted in an actual LOR2 condition. It was counted as actual LOR2 condition based on the declaration count principles outlined in Section 3.

There were 29 forecast LOR1 conditions that did not develop into actual LOR1 conditions, and 18 forecast LOR2 conditions that did not develop into actual LOR2 conditions. The reasons were either a market response following the issue of the forecast market notice, or changes to the net import or changes in forecast demand. The market response generally took the form of increased available generation and transmission network service providers (TNSPs) rescheduling planned transmission outages.

4.4 Number and cause of LOR declarations

As summarised in Table 1, a total of 55 LOR conditions were declared during the current reporting period: 47 forecast and eight actual LOR conditions.

This is slightly lower than the 69 LOR declarations recorded in the previous reporting period (1 July 2021 to 30 September 2021) but higher than 39 LOR conditions declared for the same period last year (Quarter 4 2020). Quarter 4 2021 covered the later spring months and first month of summer. Weather conditions warmed through this period peaking in December.

As Table 3 shows, there were no instances where actual LOR conditions occurred with no prior forecast; all of the actual LOR conditions had some degree of anticipation and lead time for the market and TNSPs to respond.

Many of the forecast LOR conditions did not eventuate into actual LOR conditions mainly due to market response in the form of increased generation availability and decreased forecast demand.

- The LOR conditions in New South Wales and Queensland were driven by reduced net import, high demand forecast and decreased generation availability.
- The LOR conditions in South Australia were mainly due to decreased generation availability and reduced net import.
- The LOR conditions in Tasmania were due to reduced net import (Basslink unavailable), network outages (multiple generating units on single contingency) and decreased generation availability.
- The only LOR declaration in Victoria was due to an error in constraint formulation which was corrected shortly after it was declared.

Glossary

This document uses many terms that have meanings defined in the NER. The NER meanings are adopted unless otherwise specified.

For each of the terms below, refer to the Reserve Level Declaration Guidelines[5] for further information.

Term	Definition
BBN	Bayesian Belief Network[6]
FUM	Forecast Uncertainty Measure (the number of MW representing the level of forecasting uncertainty)
Guidelines	The Reserve Level Declaration Guidelines published by AEMO under clause 4.8.4A of the NER
LCR	Largest Credible Risk – the single largest credible risk in the region
LCR2	Largest Credible Risk 2 – the sum of the two largest credible risks in the region
LOR1	Lack of Reserve level 1. The threshold for an LOR1 is determined by the larger value of either the FUM or the sum of the two largest credible risks in the region (LCR2).
LOR2	Lack of Reserve level 2. The threshold for an LOR2 is determined by the larger value of either the FUM or the largest credible risk in the region (LCR).
LOR3	Lack of Reserve level 3. The threshold for an LOR3 condition is when the forecast reserve for a region is at or below zero.
PASA	Projected Assessment of System Adequacy[7]
TNSP	Transmission network service provider

[5] See AEMO's reserve level declaration guidelines, at https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/power_system_ops/reserve-level-declaration-guidelines.pdf.

[6] More detail regarding Bayesian Belief Networks is available in the Appendix of AEMO's reserve level declaration guidelines document in the link above.

[7] See AEMO's Projected Assessment of System Adequacy (PASA) principles, at https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-reliability/projected-assessment-of-system-adequacy.