NEM Lack of Reserve Framework Report 1 January to 31 March 2024

April 2024

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 January to 31 March 2024.

Disclaimer

This document or the information in it may be subsequently updated or amended. This document does not constitute legal or business advice and should not be relied on as a substitute for obtaining detailed advice about the National Electricity Law, the National Electricity Rules, or any other applicable laws, procedures or policies. AEMO has made reasonable efforts to ensure the quality of the information in this report but cannot guarantee its accuracy or completeness.

Accordingly, to the maximum extent permitted by law, AEMO and its officers, employees and consultants involved in the preparation of this document:

- make no representation or warranty, express or implied, as to the currency, accuracy, reliability or completeness of the information in this document; and
- are not liable (whether by reason of negligence or otherwise) for any statements or representations in this document, or any omissions from it, or for any use or reliance on the information in it.

Copyright

Version control

Version	Release date	Changes
1	29/4/2024	Initial release

AEMO acknowledges the Traditional Owners of country throughout Australia and recognises their continuing connection to land, waters and culture. We pay respect to Elders past and present.

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 January to 31 March 2024 (Quarter 1 2024), AEMO declared 75 individual Lack of Reserve (LOR) conditions in total in the National Electricity Market (NEM)[1].

Table 1 shows the number and type of LOR conditions declared in Quarter 1 2024.

Table 1 LOR conditions declared in Quarter 1 2024

LOR declarations		Total
LOR1	**Actual**	15
	Forecast	31
LOR2	**Actual**	0
	Forecast	28
LOR3	**Actual**	1
	Forecast	0
Total		**75**

This compares with 54 LOR conditions declared in the previous reporting period (Quarter 4 2023), and 65 LOR conditions declared in Quarter 1 2023.

Quarter 1 2024 covered the mid-to-late summer months and the first month of autumn:

- The LOR conditions in New South Wales, Queensland, South Australia, and Victoria were mainly driven by decreased generation availability and increased demand.
- Many of the forecast LOR conditions did not eventuate into actual LOR conditions, mainly because additional generation was made available, or transmission network service providers (TNSPs) were able to reschedule planned transmission outages.
- There were no LOR conditions declared in Tasmania.

Of the 75 LOR declarations in Quarter 1 2024:

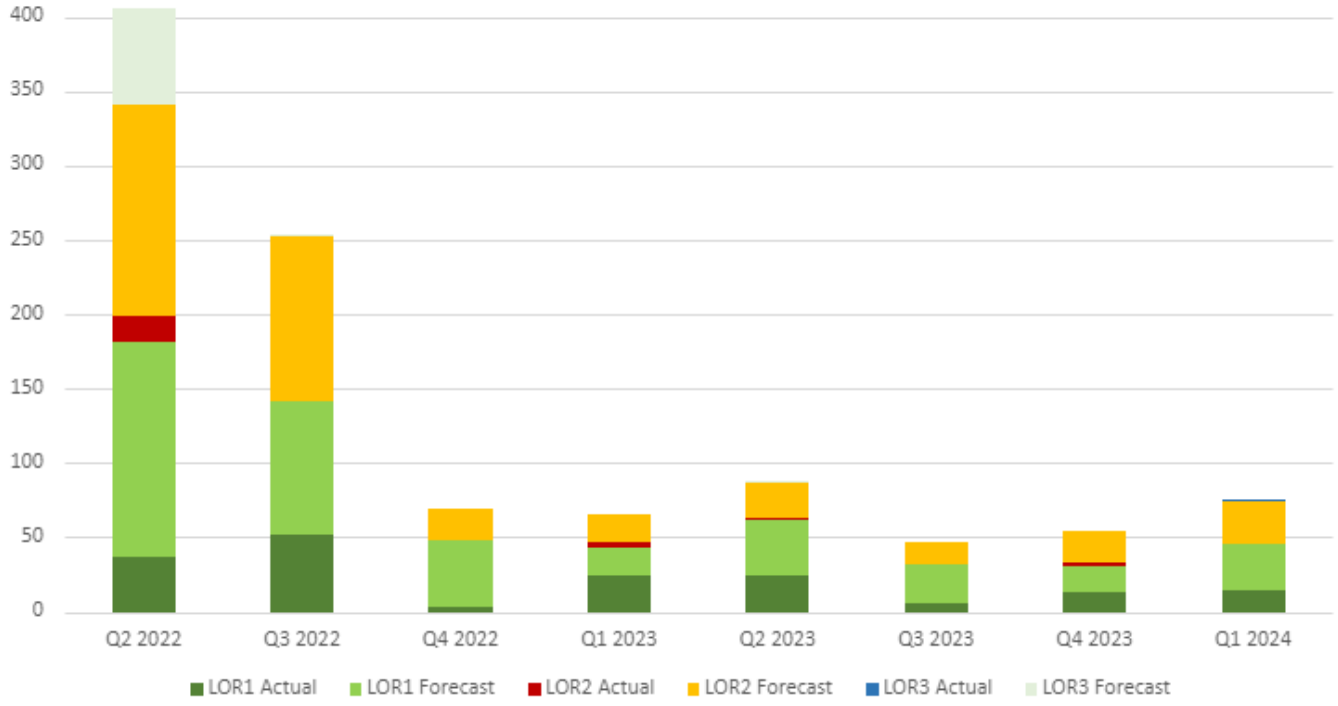
- For all 46 LOR1 declarations, the reserve requirement was set by the sum of the two largest credible risks (LCR2).
- There were three LOR2 declarations where the reserve requirement was set by the largest credible risk (LCR).
- There were 25 LOR2 declarations where the reserve requirement was set by the Forecast Uncertainty Measure (FUM).
- There was one LOR3 declaration, in Victoria on 13 February 2024.

[1] Forecast or actual LOR1, LOR2, or LOR3. LOR is described in clause 4.8.4 of the 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.

This means 33% of LOR conditions were declared when the reserve requirement was set by the FUM. For comparison, in Quarter 4 2023, 22 of the 54 LOR declarations were set by the FUM (41%), and in Quarter 1 2023, 11 of the 65 LOR declarations were set by the FUM (17%).

Figure 1 below shows the historical trend of actual and forecast LOR conditions from Quarter 2 2022 to Quarter 1 2024. It shows that, as noted above, the total number of LOR declarations in this reporting period increased compared to last quarter and is higher than the same period last year (Quarter 1 2023). Compared to the same period last year (Quarter 1 2023) the number of actual LOR conditions decreased.

Figure 1 Quarterly comparison of actual and forecast LOR conditions, Q2 2022 to Q1 2024



The next report on the NEM Lack of Reserve Framework, for the reporting period 1 April 2024 to 30 June 2024, will be published by 31 July 2024.

Contents

Tables

Figures

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 January to 31 March 2024 (Quarter 1 2024).

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 [MNs]). 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 1 April 2024 to 30 June 2024, will be published by 31 July 2024.

2 Reserve level declaration guidelines

2.1 Changes in the reporting period

During the reporting period, there were no changes to the Guidelines[2].

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 April 2024 to include data up to 31 March 2024. The retraining involves a three-stage process:

1. Extract-Transform-Load (ETL) stage, to extract historical data up to 31 March 2024, 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 shortly, 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 January 2023 to December 2023 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 FUM values.

Changes in 90th, 50th (median) and 10th percentiles FUM values between the existing and retrained BBN backcasts are listed below. Minor changes were identified for some other forecast horizons and distribution statistics but are not listed here. Maximum, mean, and minimum values are to still be included in visuals for review of actual FUM values in Section 4.1 of this report.

- New South Wales – median percentile FUM values decreased by 93 megawatts (MW) for the 2 hours ahead forecast horizon, decreased by 26 MW for the 6 hours ahead forecast horizon and increased by 25 MW for the 24 hours ahead forecast horizon. The 90th percentile FUM values decreased by 62 MW for the 2 hours ahead forecast horizon. The 10th percentile FUM values increased by 61 MW for the 2 hours ahead forecast horizon. 90th, median, and 10th percentile FUM values for all other forecast horizons remained relatively unchanged.
- Queensland – median percentile FUM values increased by 30 MW for the 60 hours ahead forecast horizon. The 90th percentile FUM values increased by 33 MW for the 12 hours ahead forecast horizon and increased by 74 MW for the 24 hours ahead forecast horizon. The 10th percentile FUM values increased by 47 MW for the 60 hours ahead forecast horizon. The 90th, median, and 10th percentile FUM values for all other forecast horizons remained relatively unchanged.

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

- South Australia – the median percentile FUM values decreased by 20 MW for the 60 hours ahead forecast horizon. The 90th, median, and 10th percentile FUM values for all other forecast horizons remained relatively unchanged.
- Tasmania – the 90th percentile FUM values increased by 14 MW for the 60 hours ahead forecast horizon. The 90th, median, and 10th percentile FUM values for all other forecast horizons remained relatively unchanged.
- Victoria – the 90th, median, and 10th percentile FUM values for all forecast horizons remained relatively unchanged.

3 Lack of Reserve conditions declared

Table 2 provides a high-level summary of the counts of forecast and actual LOR conditions for the reporting period (Quarter 1 2024) based on the declaration count principles.

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 at the same level 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.
- Continuous LOR conditions which spanned multiple periods throughout a day were counted as individual LOR declarations for each period covered. For this purpose, a NEM trading day was split into four 6-hour periods: morning peak covers 0400 hrs to 1000 hrs, mid-day covers 1000 hrs to 1600 hrs, evening peak covers 1600 hrs to 2200 hrs, and overnight covers 2200 hrs to 0400 hrs on the next day[3]. The maximum count allocated to each trading day was four.

[3] This is due to trading day rather than calendar day to prevent double-counting of a continuous condition.

Table 2 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	
9/1/2024	NSW		2					**Midday:** With 3 to 5 day lead time, forecast LOR1 was declared and updated several times due to changing effective period and forecast reserve level. The effective period ranged 14:00 – 16:00. The forecast LOR conditions worsened or improved due to changes in forecast demand (MN 113051, MN 113065, MN 113081). The forecast LOR1 condition was cancelled due to increased net imports and decreased forecast demand (MN 113104). **Evening Peak:** A forecast LOR1 was declared with effective period 16:30 – 18:00 (4 day lead time) due to increased demand and decreased generation availability (MN 113065). The forecast LOR1 condition was cancelled due to increased generation availability (MN 113081).
10/1/2024	NSW		1					With a 5 day lead time, forecast LOR1 was declared and updated several times due to change in forecast reserve level. The effective period ranged 17:30 – 18:00. The forecast LOR conditions worsened or improved due to changes in demand and generation availability (MN 113065, MN 113066, MN 113082). The forecast LOR1 condition was cancelled due to decreased demand and increased generation availability (MN 113105).
21/1/2024	NSW	1			1			A forecast LOR2 was declared, spanning effective period 18:30-1900 (29 hours lead time) due to decreased generation availability and increased demand (MN 113526). The forecast LOR2 was cancelled due to increased generation availability (MN 113537). A forecast LOR1 was declared and updated multiple times, spanning effective period 18:30-19:30 (27 hours lead time) due to decreased generation availability and increased demand (MN 113538, MN 113544, MN 113552). The forecast LOR1 was cancelled due to increased generation availability (MN 113558). An actual LOR1 was declared with effective period 18:00 - 20:00 due to decreased generation availability and increased demand (MN 113572, MN 113576). The actual LOR1 condition was cancelled when the effective period elapsed (MN 113573).
25/1/2024	NSW		2		2			A forecast LOR1 was declared and updated multiple times, worsening to a forecast LOR2 spanning effective period 14:00-21:30 (29 hours to 5 hour lead time) due to decreased generation availability and increased demand (MN 113410, MN 113479, MN 113530, MN 113555, MN 113607, MN 113650, MN 113656, MN 113657, MN 113658, MN 113663, MN 113669, MN 113671, MN 113675, MN 113678, MN 113684, MN 113692, MN 113696, MN 113697, MN 113703, MN 113704, MN 113707, MN 113708, MN 113713, MN 113715, MN 113726, MN 113733). The forecast LOR1 and LOR2 was cancelled due to decreased demand and increased generation availability (MN 113687, MN 113712, MN 113719, MN 113735).
26/1/2024	NSW		1		1			A forecast LOR1 was declared with effective period 18:30 – 19:00 (5 days lead time) due to decreased generation availability and increased demand (MN 113556).

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								Several updates to the forecast LOR1 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 17:00 – 20:30. The forecast LOR conditions changed due to changes in generation availability and demand (MN 113609, MN 113670, MN 113699, MN 113720). The forecast LOR1 was cancelled due to increased generation availability (MN 113742). A forecast LOR2 was declared with effective period 17:00 – 19:00 (69 hours lead time) due to decreased generation availability and increased demand (MN 113676). Several updates to the forecast LOR2 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 17:00 – 20:30. The forecast LOR conditions changed due to changed generation availability and demand (MN 113679, MN 113685, MN 113698). The forecast LOR2 was cancelled due to increased net import (MN 113706). A forecast LOR2 was redeclared with effective period 18:30 –19:30 (49 hours lead time) due to decreased generation availability and increased demand (MN 113711). The forecast LOR2 was cancelled due to increased generation availability (MN 113724).
29/1/2024	NSW				1			A forecast LOR2 was declared with effective period 17:30 – 18:30 (45 hours lead time) due to decreased generation availability (MN 113889). Several updates to the forecast LOR2 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 17:30 – 18:30. The forecast LOR conditions changed due to changed generation availability and demand (MN 113895). The forecast LOR2 was cancelled due to increased generation availability (MN 113900).
4/2/2024	NSW		1		1			A forecast LOR1 was declared and updated multiple times with effective period 17:00 - 21:30 (6 day lead time) due to increased demand and decreased generation availability (MN 113976, MN 114017, MN 113912, MN 114207, MN 114233, MN 114202). A forecast LOR2 was declared with effective period 17:30 - 18:30 (28 hour lead time) due to decreased net import (MN 114201). The forecast LOR1 and LOR2 were cancelled due to increased generation availability and decreased demand (MN 114240, MN 114206).
5/2/2024	NSW		2		2			A forecast LOR1 was declared and updated multiple times with effective period 12:30 - 21:30 (4 days lead time) due to increased demand and decreased generation availability (MN 114117, MN 114161, MN 114279, MN 114284, MN 114075, MN 114161, MN 114236, MN 114269, MN 114272, MN 114288, MN 114292, MN 113978, MN 114019, MN 114248, MN 114295, MN 114298, MN 114019, MN 114075, MN 114269, MN 114288, MN 114292, MN 114212, MN 114248, MN 114279, MN 114298, MN 114236, MN 114284, MN 114212). A forecast LOR2 was declared and updated multiple times spanning effective period 12:30 - 20:30 (46 hour lead time) due to increased demand and decreased net import (MN 114213, MN 114157, 114167, MN 114181, MN 114193, MN 114228, MN 114227, MN 114223, MN 114143, MN 114237, MN 114150, MN 114249,

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								MN 114278, MN 114283, MN 114229, MN 114274, MN 114286, MN 114268, MN 114291, MN 114193, MN 114213, MN 114193, MN 114223). The forecast LOR1 and LOR2 conditions were cancelled due to decreased demand (MN 114303, MN 114294).
6/2/2024	NSW		2		1			A forecast LOR1 was declared and updated multiple times spanning effective period 12:30 - 20:00 (7 day lead time) due to decreased net import and increased demand (MN 114021, MN 114070, MN 114118, MN 114160). A forecast LOR2 was declared and updated multiple times for effective period 17:30 - 19:00 (7 day lead time) due to increased demand, decreased net import and generation availability (MN 114016, MN 114062, MN 114077, MN 114096). The forecast LOR1 and LOR2 conditions were cancelled due to increased net import and decreased demand (MN 114098, MN 114211).
12/2/2024	NSW		1					A forecast LOR1 was declared with effective period 17:30 - 18:00 (12 hour lead time) due to increased demand (MN 114519). The forecast LOR1 condition was cancelled due to increased generation availability (MN 114520).
13/2/2024	NSW		2		1			A forecast LOR1 was declared and updated multiple times spanning effective period 15:30 – 19:00 (7 day to 26 hour lead times) due to decreased net import and increased demand (MN 114378, MN 114455, MN 114472, MN 114502, MN 114532). A forecast LOR2 was declared and updated multiple times spanning effective period 16:00 – 18:30 (56 hour to 28 hour lead times) due to increased demand, and decreased net import and generation availability (MN 114495, MN 114503, MN 114528). The forecast LOR1 and LOR2 conditions were cancelled due to increased net import and generation availability (MN 114531, MN 114537).
23/2/2024	NSW	1						A forecast LOR1 was declared with effective period range 16:30 – 18:00 (14 hour lead time) due to decreased net import and increased demand (MN 115009). The forecast LOR1 condition was cancelled due to increased net import and decreased demand (MN 115010). A forecast LOR1 was redeclared with effective period range 17:30 – 18:30 (8 hour lead time) due to decreased net import and decreased generation availability (MN 115015). An actual LOR1 was declared with effective period 16:00 – 18:30 due to increased demand, decreased net import, and decreased generation availability (MN 115047). The actual LOR1 condition was cancelled due to increased generation availability (MN 115048).
29/2/2024	NSW	2			2			**Midday:** With 6 day lead time, forecast LOR1 was declared and updated several times due to changing effective period and forecast reserve level. The effective period ranged 15:00 – 16:00. The forecast LOR1 conditions worsened or improved due to changes in demand, generation availability and net import (MN 115040, MN 115086, MN 115113, MN 115147, MN 115291, MN 115302, MN 115347, MN 115358).

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								An actual LOR1 was declared with effective period 15:00 – 18:30 due to increased demand, and decreased generation availability (MN 115370). The actual LOR1 condition was cancelled at 15:45 due to increased net imports (MN 115371). With 3 day lead time, forecast LOR2 was declared and updated several times due to changing effective period and forecast reserve level. The effective period ranged 14:30 – 16:00. The forecast LOR2 conditions worsened or improved due to changes in forecast operational demand, generation availability and net import (MN 115157, MN 115181, MN 115190, MN 115193, MN 115197, MN 115201, MN 115204, MN 115234, MN 115253, MN 115255, MN 115259). **Evening Peak:** With 6 day lead time, forecast LOR1 was declared and updated several times due to changing effective period and forecast reserve level. The effective period ranged 16:00 – 22:00. The conditions worsened or improved due to changes in forecast operational demand, generation availability and net import (MN 115040, MN 115086, MN 115113, MN 115147, MN 115213, MN 115291, MN 115302, MN 115347, MN 115358, MN 115365). An actual LOR1 was declared with effective period 16:00 – 18:30 due to decreased net import, and decreased generation availability (MN 115374). The actual LOR1 condition was cancelled at 19:00 due to decreased demand (MN 115394). With 6 day lead time, forecast LOR2 was declared, cancelled, redeclared and updated multiple times due to changing effective period and forecast reserve level. The effective period ranged 16:00 – 20:30. The forecast LOR 2 conditions worsened or improved due to changes in forecast operational demand, generation availability and net import (MN 115063, MN 115068, MN 115130, MN 115132, MN 115135, MN 115157, MN 115181, MN 115190, MN 115193, MN 115197, MN 115201, MN 115204, MN 115234, MN 115253, MN 115255, MN 115259). With 1 day lead time, forecast LOR2 was declared and updated multiple times due to changing effective period and forecast reserve level. The effective period ranged 16:00 – 19:00. The forecast LOR 2 conditions worsened or improved due to changes in demand, generation availability and net import (MN 115287, MN 115303, MN 115348, MN 115351). The forecast LOR2 condition was cancelled due to decreased demand, increased net import and increased generation availability (MN 115357).
14/3/2024	NSW		1					A forecast LOR1 was declared with effective period 18:00 – 18:30 (5 days lead time) due to increased demand (MN 115552). The forecast LOR1 was cancelled due to increased generation availability (MN 115572).
18/1/2024	QLD	2			1			A forecast LOR1 was declared and updated with effective period ranging from 17:30 – 20:30 (3 days lead time) due to decreased generation availability and increased demand (MN 113278, MN 113359, MN 113370, 113396). The forecast LOR1 was cancelled due to increased generation availability and decreased demand (MN 113371, MN 113399).

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								A forecast LOR2 was declared with effective period 17:30 – 20:30 (3 day lead time) due to increased FUM level and increased demand (MN 113285). The forecast LOR2 was cancelled due to increased generation availability (MN 113305). An actual LOR1 condition was declared with effective period 15:30 – 20:00 due to increased demand (MN 113424) The actual LOR1 condition was cancelled due to increased generation availability (MN 113439).
19/1/2024	QLD	1			1			A forecast LOR1 was declared and updated with effective period 18:30 – 19:00 (4 day lead time) due to increased demand and reduced generation availability (MN 113279, MN 113324). An actual LOR1 was declared with effective period 17:30 – 20:00 due to decreased generation availability and increased demand (MN 113498). The actual LOR1 condition was cancelled due to increased generation availability (MN 113522).
21/1/2024	QLD	1						A forecast LOR1 was declared and updated multiple times, spanning effective period 18:00-19:30 (29 hours lead time) due to decreased generation availability and increased demand (MN 113527, MN 113545, MN 113549, MN 113561). An actual LOR1 was declared with effective period 18:00 – 19:30 due to decreased generation availability and increased demand (MN 113570). The actual LOR1 condition was cancelled when the effective period elapsed (MN 113574).
22/1/2024	QLD	1			1			A forecast LOR1 was declared spanning effective period 17:30-20:30 (4 day lead time) due to increased demand (MN 113409). In addition to the forecast LOR1, a forecast LOR2 was later declared, updated and cancelled multiple times spanning effective period 18:30-19:30 (3 day lead time) due to increased demand (MN 113465, MN 113466, MN 113468, MN 113549, MN 113550, MN 113560, MN 113561, MN 113582, MN 113596, MN 113598, MN 113601, MN 113602, MN 113616, MN 113633, MN 113634). An actual LOR1 was declared with effective period 18:30-19:30 due to a record high QLD operational demand of 11,005MW (MN 113635). The actual LOR1 condition was cancelled when the effective period elapsed (MN 113636).
25/1/2024	QLD		1		1			A forecast LOR1 was declared, updated and cancelled multiple times, spanning effective period 18:00-19:30 (6 day lead time) due to decreased generation availability and increased demand (MN 113477, MN 113531, MN 113553, MN 113603). The condition was redeclared as a forecast LOR2 and cancelled multiple times with effective period 17:30-19:00 (67 hours lead time) due to changing generation availability and demand (MN 113651, MN 113655, MN 113661, MN 113664, MN 113668, MN 113672).

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
26/1/2024	QLD		1		1			A forecast LOR1 was declared with effective period 18:30 – 19:30 (6 days lead time) due to decreased generation availability (MN 113532). The forecast LOR1 was cancelled due to decreased demand (MN 113554). A forecast LOR1 was redeclared with effective period 17:00 – 20:30 (4 days lead time) due to decreased generation availability and increased demand (MN 113604). Several updates to the forecast LOR1 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 17:00 – 20:30. The forecast LOR conditions changed due to changed generation availability and demand (MN 113737, MN 113743). The forecast LOR1 was cancelled due to increased net import and decreased demand (MN 113759). A forecast LOR1 was redeclared with effective period 18:30 – 19:30 (11 hours lead time) due to increased demand (MN 113762). The forecast LOR1 was cancelled due to decreased demand and increased generation availability (MN 113764). A forecast LOR1 was redeclared with effective period 18:30 – 19:30 (11 hours lead time) due to decreased generation availability and increased demand (MN 113765). An update to the forecast LOR1 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 18:30 – 19:30. The forecast LOR conditions changed due to changed generation availability and demand (MN 113767). The forecast LOR1 was cancelled due to decreased forecast demand and increased generation availability (MN 113770). A forecast LOR2 was declared with effective period 17:00 – 20:00 (69 hours lead time) due to decreased generation availability and increased demand (MN 113677). Several updates to the forecast LOR2 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 17:00 – 20:30. The forecast LOR conditions changed due to changed generation availability and demand (MN 113681, MN 113682). The forecast LOR2 was cancelled due to decreased demand and increased generation availability (MN 113689). A forecast LOR2 was redeclared with effective period 18:00 – 20:00 (56 hours lead time) due to decreased generation availability and increased demand (MN 113690). The forecast LOR2 was cancelled due to decreased demand and increased generation availability (MN 113693).
27/1/2024	QLD	1	2		1			A forecast LOR1 was declared with effective period 15:30 – 21:30 (4 days lead time) due to decreased generation availability and increased demand (MN 113673). Several updates to the forecast LOR1 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 16:30 – 22:30. The forecast LOR conditions changed due to changed generation availability and demand (MN 113701, MN 113744, MN 113769, MN 113785, MN 113854, MN 113866).

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								An actual LOR1 was declared with effective period 18:00 – 19:00 due to increased demand (MN 113871). The actual LOR1 condition was cancelled at 20:45 hrs due to decreased demand (MN 113892). A forecast LOR2 was declared with effective period 17:30 – 20:00 (3 days lead time) due to decreased generation availability and increased demand (MN 113680). Several updates to the forecast LOR2 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 17:00 – 20:30. The forecast LOR conditions changed due to changed generation availability and demand (MN 113686, MN 113694). The forecast LOR2 was cancelled due to increased generation availability (MN 113705). A forecast LOR2 was redeclared with effective period 18:00 –19:30 (3 days lead time) due to decreased generation availability and increased demand (MN 113714). Several updates to the forecast LOR2 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 17:00 – 20:30. The forecast LOR conditions changed due to changed generation availability and demand (MN 113722, MN 113730, MN 113732, MN 113740, MN 113750, MN 113754). The forecast LOR2 was cancelled due to decreased demand (MN 113758). A forecast LOR2 was redeclared with effective period 17:00 –20:30 (28 hours lead time) due to increased demand (MN 113766). Several updates to the forecast LOR2 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 17:30 – 21:30. The forecast LOR conditions changed due to changed generation availability and demand (MN 113768). The forecast LOR2 was cancelled due to decreased demand (MN 113784). A forecast LOR2 was redeclared with effective period 17:00 –20:30 (20 hours lead time) due to increased demand (MN 113819). Several updates to the forecast LOR2 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 17:00 – 22:00. The forecast LOR conditions changed due to changed generation availability and demand (MN 113824, MN 113827, MN 113840, MN 113853). The forecast LOR2 was cancelled due to decreased demand (MN 113865).
28/1/2024	QLD		2		1			**Mid-day:** A forecast LOR1 was declared with effective period 13:00 – 15:30 (46 hours lead time) due to increased demand (MN 113771). This was updated to an LOR2 condition with effective period 13:00 – 14:30 (44hours lead time) due to reduced generation availability (MN 113804). The forecast LOR2 was cancelled due to reduced demand (MN 113820). **Evening Peak:** A forecast LOR1 was declared and updated with effective period 17:30 – 19:30 (3 days lead time) due to decreased generation availability and increased demand (MN 113745, MN 113857). The forecast LOR1 was cancelled due to decreased demand and increased generation availability (MN 113902).

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
29/1/2024	QLD	1	1		1			A forecast LOR2 was declared with effective period 17:30 – 20:30 (6 days lead time) due to decreased generation availability and increased demand (MN 113665). The forecast LOR2 was cancelled due to increased generation availability and decreased demand (MN 113666). A forecast LOR2 was redeclared with effective period 18:30 – 19:30 (29 hours lead time) due to increased forecast demand (MN 113906). The forecast LOR2 was cancelled due to increased generation availability (MN 113908). A forecast LOR1 was declared with effective period 15:30 – 16:00 & 16:30 – 20:30 (48 hours lead time) due to decreased generation availability and increased demand (MN 113858). A forecast LOR1 was declared with effective period 17:30 – 18:30 & 19:30 – 21:00 (28 hours lead time) due to decreased generation availability and increased demand (MN 113907). The forecast LOR1 was cancelled due to increased generation availability (MN 113910). A forecast LOR1 was redeclared with effective period 17:00 – 21:30 (23 hours lead time) due to decreased generation availability and increased demand (MN 113931). Several updates to the forecast LOR1 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 17:30 – 19:00. The forecast LOR conditions changed due to changed generation availability and forecast demand (MN 113956). The forecast LOR1 was cancelled due to increased generation availability and decreased demand (MN 113957). A forecast LOR1 was redeclared with effective period 18:30 – 19:00 (8 hours lead time) due to increased demand (MN 113962). Several updates to the forecast LOR1 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 17:30 – 19:30. The forecast LOR conditions changed due to changed generation availability and demand (MN 113966). An actual LOR1 was declared with effective period 18:10 – 19:00 due to increased demand (MN 113994). The actual LOR1 condition was cancelled at 20:00 hrs due to increased generation availability (MN 113998).
30/1/2024	QLD		3		2			A forecast LOR2 was declared with effective period 8:30 – 9:00 (70 hours lead time) due to increased demand (MN 113829). Several updates to the forecast LOR2 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 8:00 – 16:00. The forecast LOR conditions changed due to changed generation availability and demand (MN 113842, MN 113872, MN 113896, MN 113898, MN 113904). The forecast LOR2 was cancelled due to increased generation availability (MN 113955). A forecast LOR2 was declared with effective period 10:00 – 13:30 & 14:00 – 15:00 (24 hours lead time) due to increased demand (MN 113959). The forecast LOR2 was cancelled due to increased generation availability (MN 113965).

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								A forecast LOR1 was declared with effective period 17:30 – 20:30 (7 days lead time) due to increased demand (MN 113674). The forecast LOR1 was cancelled due to increased generation availability (MN 113702). A forecast LOR1 was redeclared with effective period 14:00 – 16:00 (71 hours lead time) due to increased demand (MN 113859). Several updates to the forecast LOR1 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 8:30 – 13:30. The forecast LOR conditions changed due to changed generation availability and demand (MN 113911).
1/2/2024	QLD				2			A forecast LOR2 was declared with effective period 8:30 - 9:00, 10:00 - 11:00 & 12:00 - 13:00 (71 hours lead time) due to decreased generation availability (MN 113960). A suspect forecast LOR3 was declared with effective period 9:00 - 10:00 & 11:30 - 12:00 (71 hours lead time) due to decreased generation availability (MN 113958). A suspect forecast LOR2 was declared with effective period 8:00 - 10:00 & 11:30 - 12:00 (69 hours lead time) due to decreased generation availability (MN 113961). After investigating network constraints, it was found there was a valid LOR2 forecast in the subsequent Projected Assessment of System Adequacy (PASA) run. Several updates to the forecast LOR2 condition were issued due to changing effective period and forecast reserve level. The effective period ranged 8:00 – 14:00. The forecast LOR conditions changed due to changed generation availability and demand (MN 113968, MN 113977). The forecast LOR2 was cancelled due to increased generation availability (MN 113980).
2/2/2024	QLD		1					A forecast LOR1 was declared with effective period 18:30 - 19:00 (7 hour lead time) due to decreased generation availability and increased demand (MN 114149). The forecast LOR1 condition was cancelled due to increased generation availability (MN 114153).
5/2/2024	QLD		1		1			A forecast LOR1 was declared and updated multiple times spanning effective period 18:00 - 19:30 (7 days to 5 hours lead time) due to decreased net import, decreased generation availability and increased demand (MN 113979, MN 114023, MN 114115, MN 114159, MN 114182, MN 114208, MN 114209, MN 114238, MN 114250, MN 114270, MN 114285, MN 114297). A forecast LOR2 was declared with effective period 18:30 - 19:00 (69 hour lead time) due to decreased generation availability and increased demand (MN 114182). The forecast LOR1 and LOR2 conditions were cancelled due to increased net import and generation availability (MN 114183, MN 114299).
6/2/2024	QLD	1			1			A forecast LOR1 was declared and updated multiple times spanning effective period 17:30 - 20:30 (7 days to 2 hour lead time) due to decreased generation availability and increased demand (MN 114024, MN 114068, MN 114116, MN 114158, MN 114246, MN 114296, MN 114304, MN 114347, MN 114355, MN 114357, MN 114359, MN 114379, MN 114389, MN 114397).

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
								A forecast LOR2 was declared with effective period 18:00 - 18:30 (6 day lead time) due to decreased generation availability and increased demand (MN 114078). An actual LOR1 was declared with effective period 18:00 - 19:30 due to decreased generation availability and increased demand (MN 114397). The actual LOR1 condition was cancelled when the effective period elapsed (MN 114401).
23/2/2024	QLD		1					A forecast LOR1 was declared with effective period range 17:30 – 19:00 (2 day lead time) due to decreased net import and decreased generation availability (MN 114917). The forecast LOR1 condition was cancelled due to increased net import and generation availability (MN 114958). A forecast LOR1 was declared and updated with effective period range 17:30 – 19:00 (8 hour lead time) due to decreased generation availability (MN 115016, MN 115025). The forecast LOR1 condition was cancelled due to increased net import and generation availability (MN 115055).
26/2/2024	QLD	1						A forecast LOR1 was declared and updated with effective period range 18:00 – 19:00 (3 hour lead time) due to decreased generation availability (MN 115148, MN 115152). An actual LOR1 was declared with effective period 17:30 – 20:30 due to increased demand and decreased generation availability (MN 115160). The actual LOR1 condition was cancelled at 19:40 (MN 115178).
29/2/2024	QLD		1		1			With a 6 day lead time, forecast LOR1 was declared and updated several times due to changing effective period and forecast reserve level. The effective period ranged 17:00 – 20:30. The forecast LOR conditions worsened or improved due to changes in generation availability, net import and forecast operational demand (MN 115039, MN 115087, MN 115114, MN 115145, MN 115212). The forecast LOR1 condition was cancelled due to increased net import (MN 115292). A forecast LOR1 was declared with effective period range 18:00 – 19:00 (1 hour lead time) due to increased demand and decreased net import (MN 115391). The forecast LOR1 condition was cancelled due to increased net import and decreased demand (MN 115395). With a 3 day lead time, forecast LOR2 was declared and updated several times due to changing effective period and forecast reserve level. The effective period ranged 17:00 – 20:00. The forecast LOR conditions worsened or improved due to changes in net import, generation availability and demand (MN 115153, MN 115183, MN 115191). The forecast LOR2 condition was cancelled due to increased net import, decreased demand and increased generation availability (MN 115192). A forecast LOR2 was redeclared with effective period ranged 17:30 – 20:00 (2 day lead time) due to changes in net import, generation availability and demand (MN 115203, MN 115208). The forecast LOR2 condition was cancelled due to increased net import and increased generation availability (MN 115252).

Effective date[A]	Region	LOR1		LOR2		LOR3		Cause and resolution
		Actual	Forecast	Actual	Forecast	Actual	Forecast	
21/2/2024	SA	1						An actual LOR1 was declared and updated with effective period 18:30 - 19:45 due to reduced net import (MN 114927, MN 114929). The actual LOR1 condition was cancelled due to increased net import (MN 114930).
10/3/2024	SA		1					A forecast LOR1 was declared with effective period 18:30 – 19:00 (23 hours lead time) due to increased demand (MN 115566). The forecast LOR1 was cancelled due to increased generation availability (MN 115567). A forecast LOR1 was declared again with effective period 18:30 – 19:00 (19 hours lead time) due to increased demand (MN 115568). The forecast LOR1 was cancelled due to increased generation availability (MN 115570).
11/3/2024	SA	1						A forecast LOR1 was declared with effective period 18:30 – 19:00 (27 hours lead time) due to increased demand (MN 115573). The forecast LOR1 was cancelled due to increased generation availability (MN 115574). A forecast LOR1 was declared again with effective period 18:30 – 19:00 (14 hours lead time) due to increased forecast demand (MN 115587). The forecast LOR1 was updated due to changed effective period to 1930-2000 (MN 115588). The forecast LOR1 was cancelled due to increased generation availability (MN 115589). A forecast LOR1 was declared again with effective period 19:30 – 20:30 (1 hour lead time) due to increased demand (MN 115592). An actual LOR1 was declared with effective period 18:30 – 20:30 due to increased demand (MN 115593). The actual LOR1 was cancelled due to increased generation availability (MN 115594).
13/2/2024	VIC				1	1		A forecast LOR2 was declared with effective period 14:30 - 16:00 (1 hour lead time) due to decreased generation availability (MN 114589). The forecast LOR2 condition was cancelled due to decreased demand (MN 114644). An actual LOR3 was declared from 14:20 due to decreased generation availability (MN 114604). The actual LOR3 condition was cancelled due to increased generation availability (MN 114632).
10/3/2024	VIC		1					A forecast LOR1 was declared with effective period 18:30 – 19:00 (19 hours lead time) due to increased demand (MN 115569). The forecast LOR1 was cancelled due to increased generation availability (MN 115571).
Total		**15**	**31**	**0**	**28**	**1**	**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.

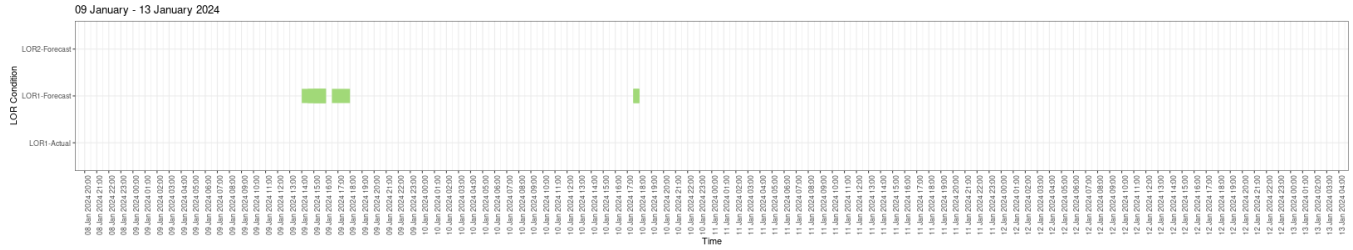
3.1 LOR declarations during the reporting period – Gantt chart

This section shows the LOR declarations during the reporting period 1 January to 31 March 2024 for each region using Gantt charts. Each Gantt chart covers a four-day period. Periods with no LOR declarations were omitted and not graphed.

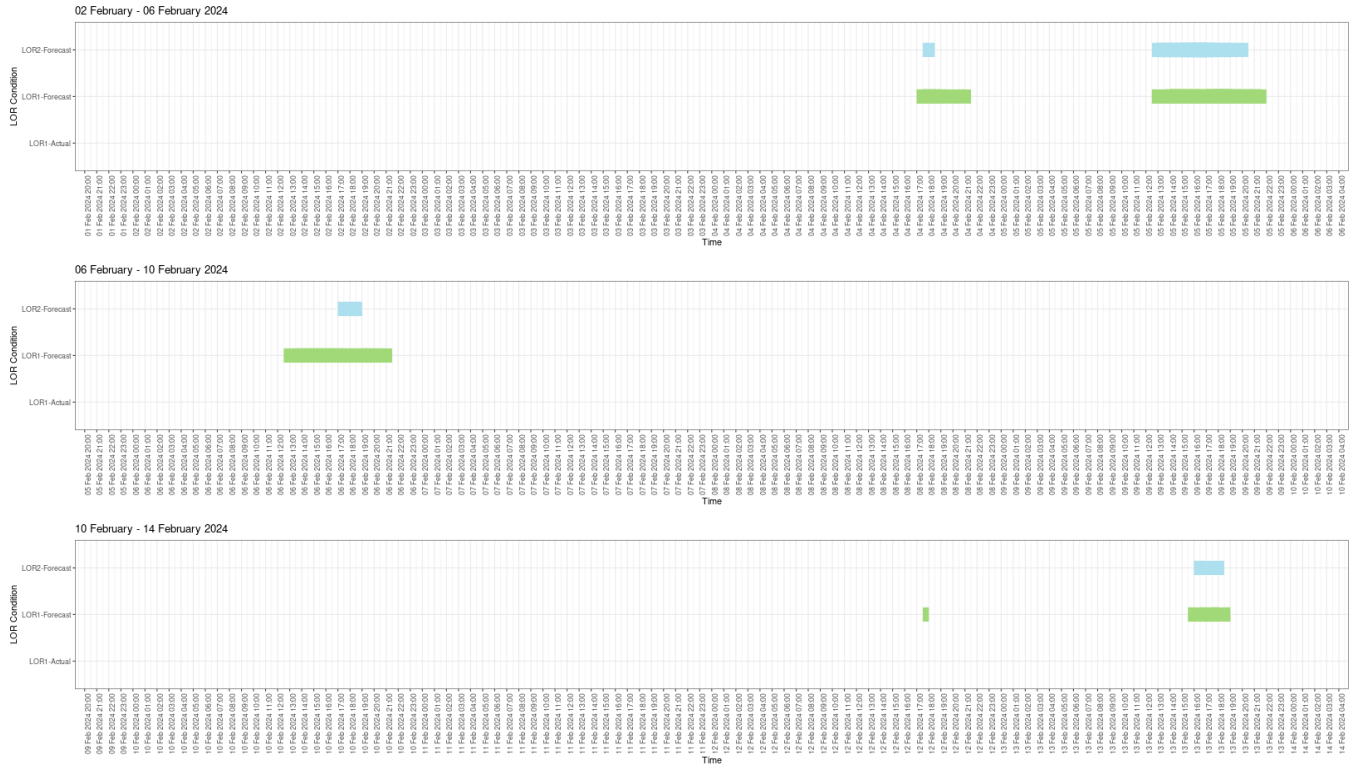
Forecast and actual LOR1, LOR2 and LOR3 conditions including updates are shaded according to the legend at the bottom of each page for the corresponding effective periods based on the market notices.

3.1.1 New South Wales

There were no LOR declarations in the period from 1 January to 8 January 2024.

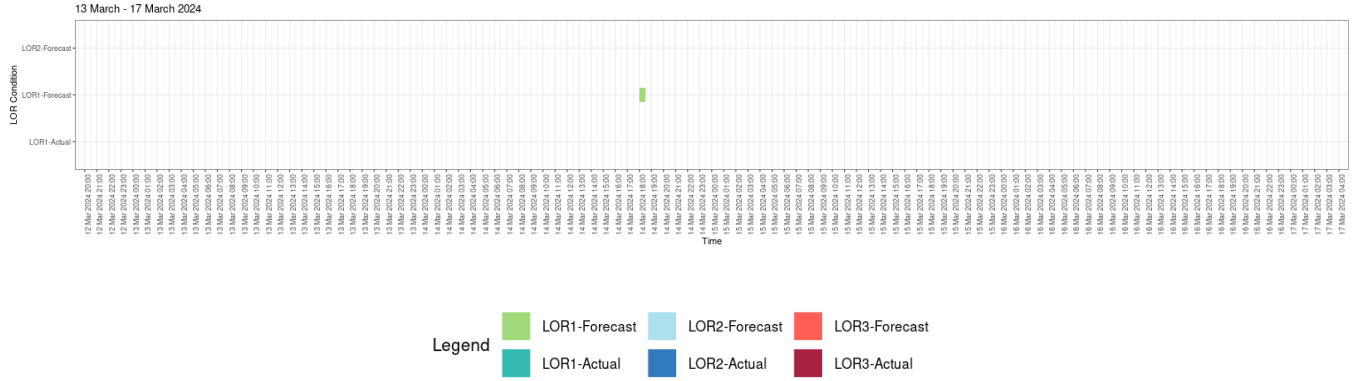


There were no LOR declarations in the period from 13 January to 20 January 2024.



There were no LOR declarations in the period from 14 February to 21 February 2024.

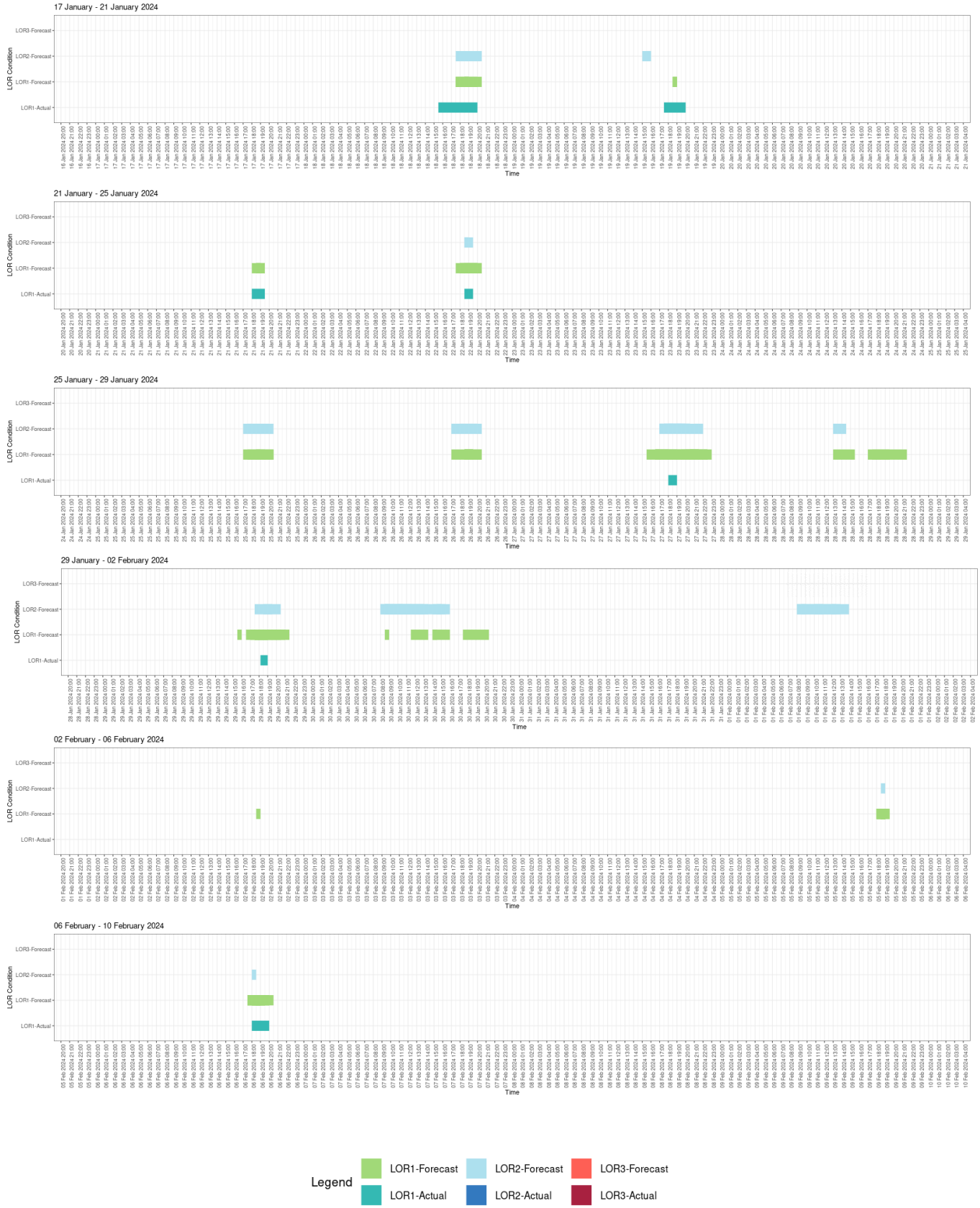
There were no LOR declarations in the period from 1 March to 12 March 2024.



There were no LOR declarations in the period from 17 March to 31 March 2024.

3.1.2 Queensland

There were no LOR declarations in the period from 1 January to 16 January 2024.

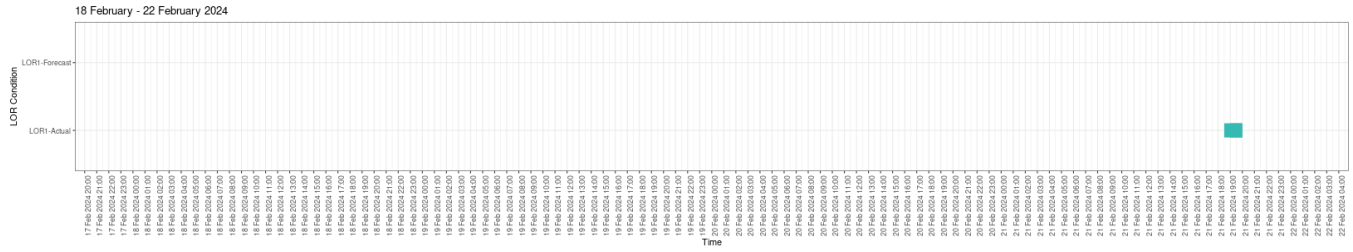


There were no LOR declarations in the period from 10 February to 21 February 2024.

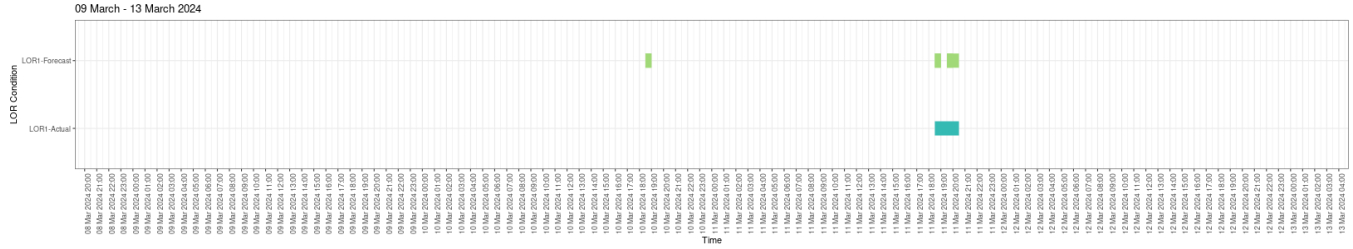
There were no LOR declarations in the period from 1 March to 31 March 2024.

3.1.3 South Australia

There were no LOR declarations in the period from 1 January to 17 February 2024.



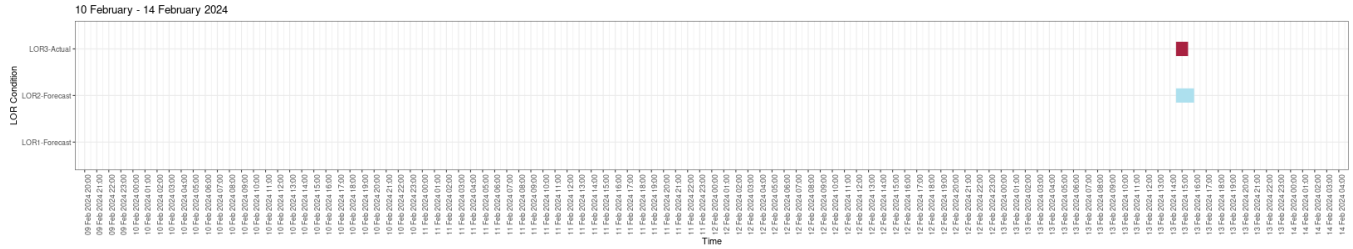
There were no LOR declarations in the period from 22 February to 8 March 2024.



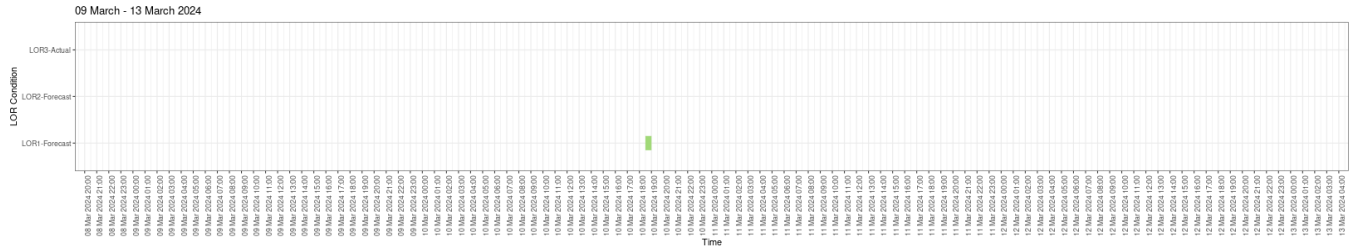
There were no LOR declarations in the period from 13 March to 31 March 2024.

3.1.4 Victoria

There were no LOR declarations in the period from 1 January to 9 February 2024.



There were no LOR declarations in the period from 14 February to 8 March 2024.



There were no LOR declarations in the period from 13 March to 31 March 2024.

3.1.5 Tasmania

There were no LOR declarations in the period from 1 January to 31 March 2024.

4 Review of performance

4.1 Forecast Uncertainty Measure values

As in Section 2.1, this section will compare the 10th, 50th (median) and 90th percentile FUM values for this reporting period to those for each quarter from Quarter 1 2023 to Quarter 1 2024 (Figure 2 to Figure 6). FUM values decreasing is indicative of the distribution tightening with decreasing forecast uncertainty.

The most material changes in FUM values between Quarter 4 2023 and Quarter 1 2024 are summarised in this section. For forecast horizons not mentioned in this section, the changes from Quarter 4 2023 were minor:

- **New South Wales** – the 10th percentile FUM values decreased for the 60 hours ahead forecast horizons and increased for the 48 hours ahead forecast horizon. Median percentile FUM values decreased for the 60 hours ahead forecast horizons. The 90th percentile FUM values decreased for all forecast horizons.
- **Queensland** – the median FUM values increased for all forecast horizons. The 90th percentile FUM values increased for the 12 and 48 hours ahead forecast horizons.
- **South Australia** – the 90th percentile FUM values decreased for the 48 hours ahead forecast horizon.
- **Tasmania** – the 90th percentile FUM values decreased for the 60 hours ahead forecast horizons and increased for the 12 hours ahead forecast horizons.
- **Victoria** – the median and 90th percentile FUM values decreased across all forecast horizons, except for the 2 hours ahead forecast horizon.

Figure 2 New South Wales region: FUM values for the reporting period, and compared to previous four quarters

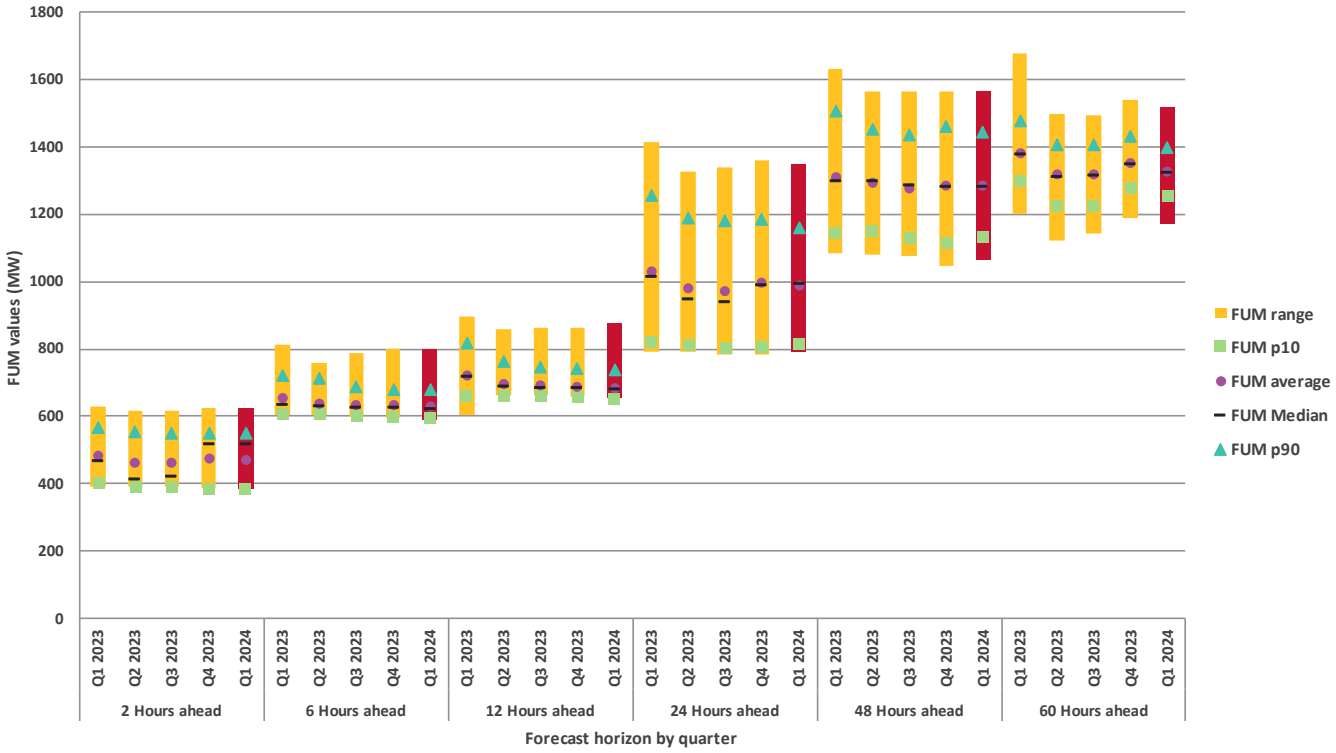


Figure 3 Queensland region: FUM values for the reporting period, and compared to previous four quarters

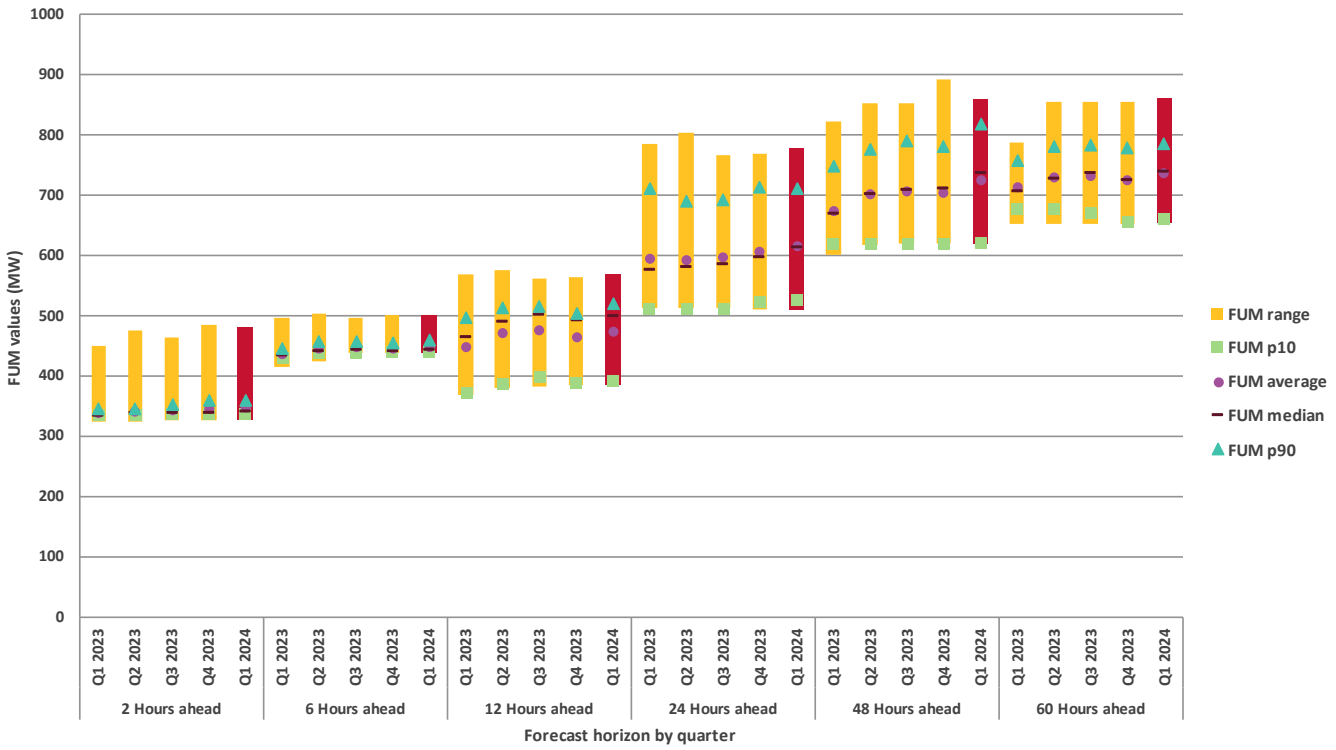


Figure 4 South Australia region: FUM values for the reporting period, and compared to previous four quarters

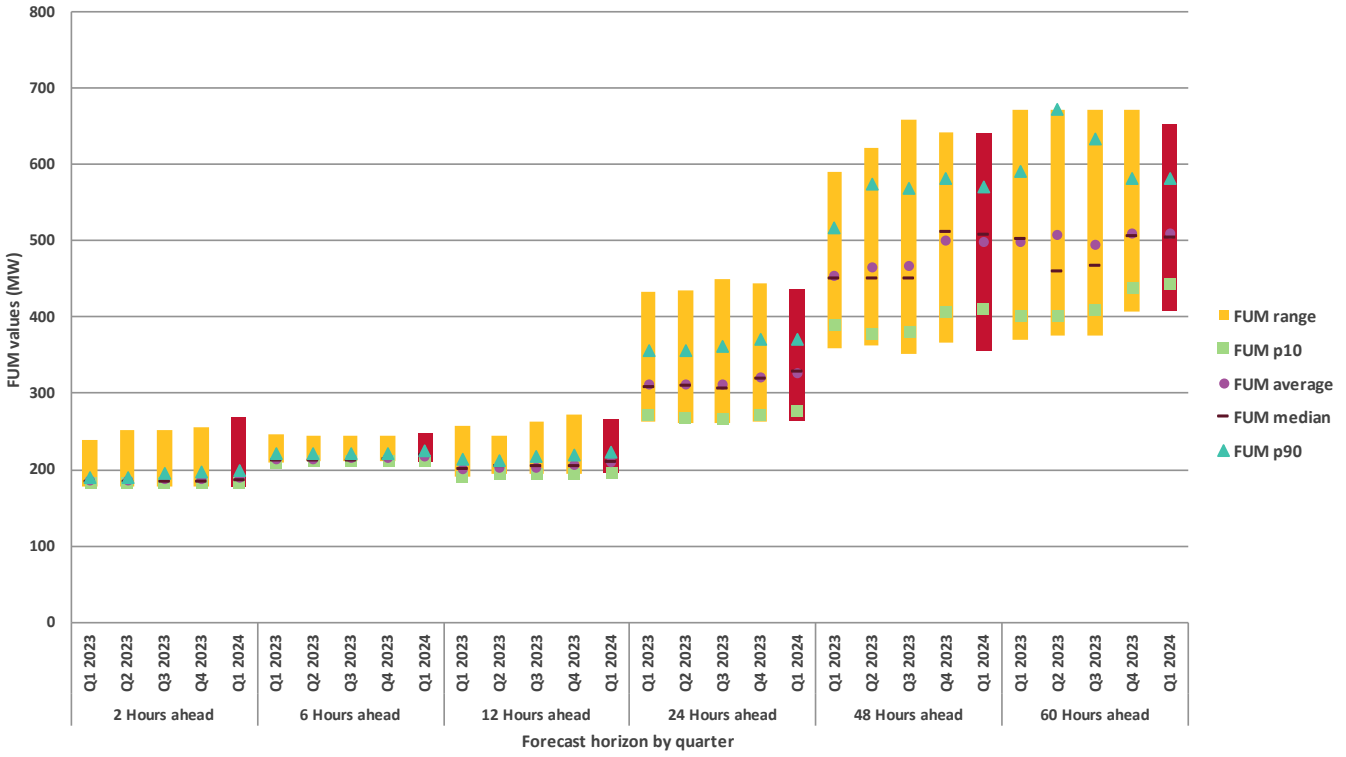


Figure 5 Tasmania region: FUM values for the reporting period, and compared to previous four quarters

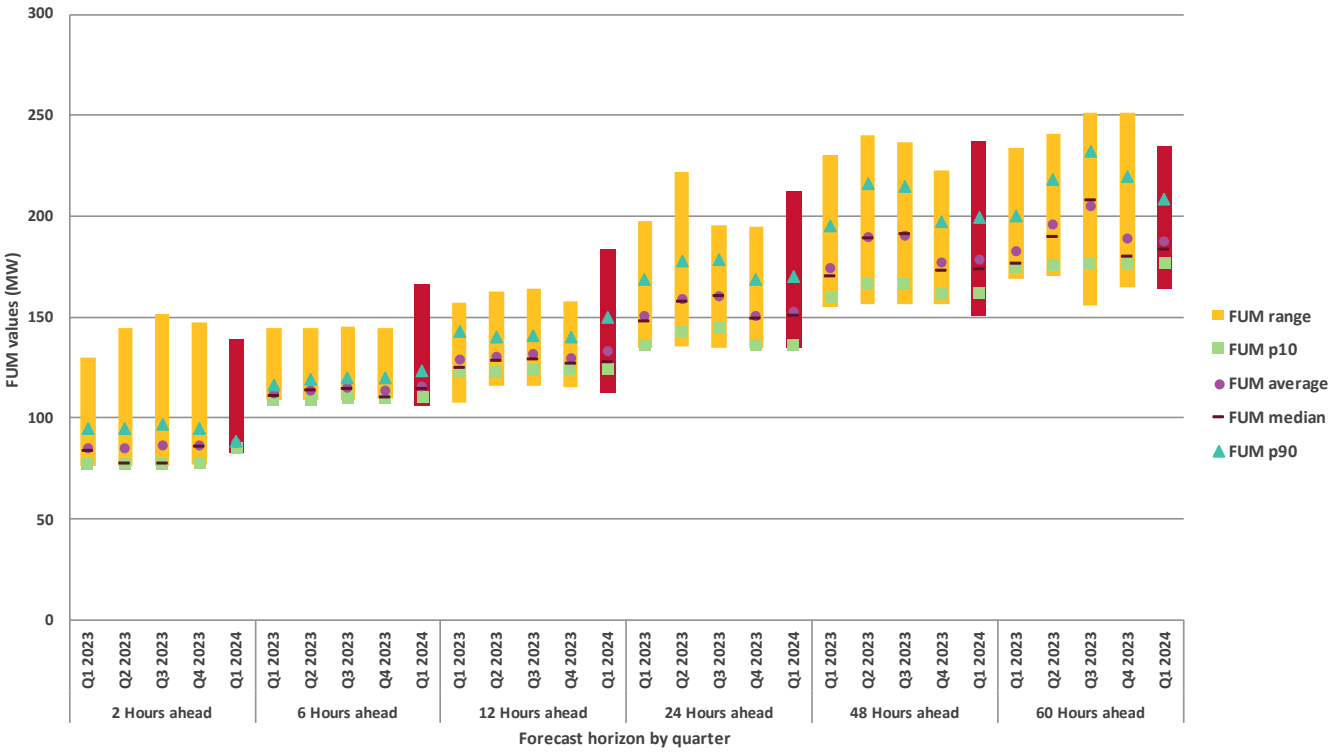
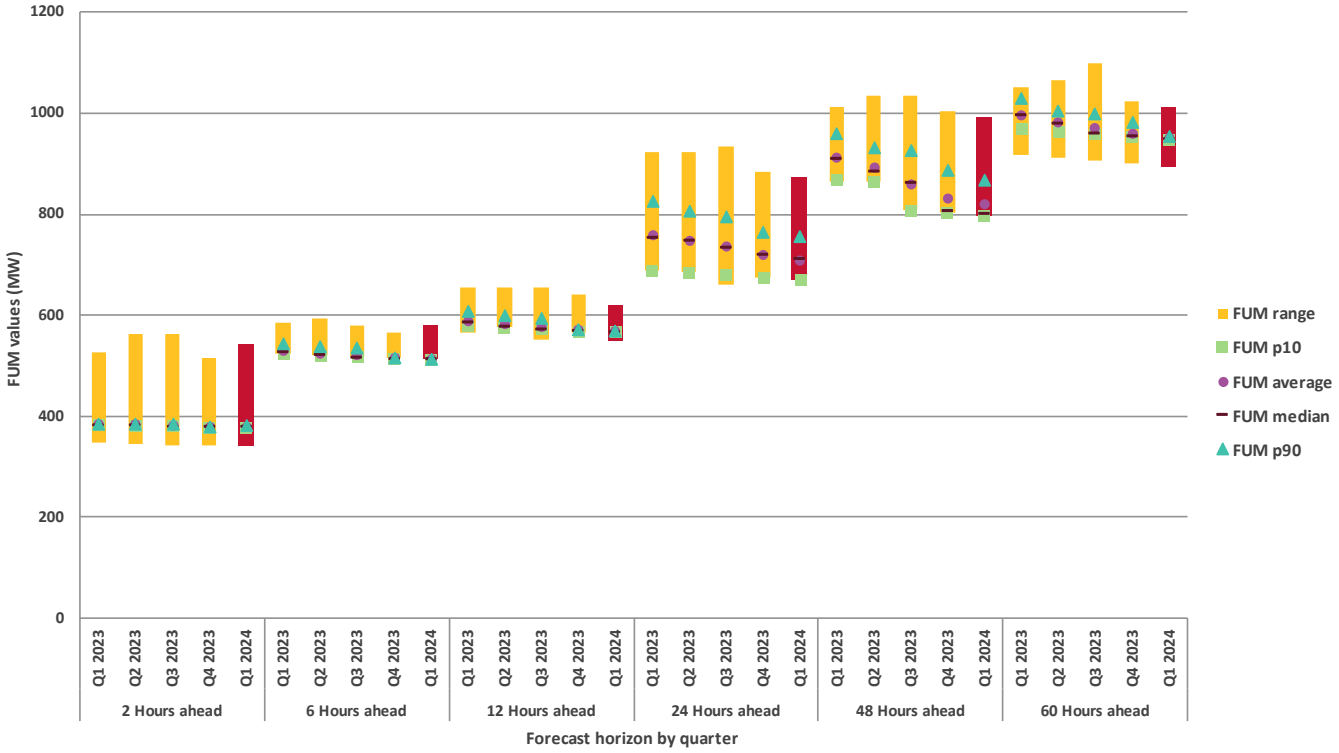


Figure 6 Victoria region: FUM values for the reporting period, and compared to previous four quarters



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 2 in Section 3 of this report.

- Of the 75 LOR declarations in the reporting period, 59 were for forecast LOR conditions:
- 44 forecast LOR1 conditions were declared.
- 28 forecast LOR2 conditions were declared.
- No forecast LOR3 conditions were declared.
- None of the forecast LOR1 conditions were set by the FUM.
- 25 forecast LOR2 conditions were set by the FUM.

A total of 15 actual LOR1 conditions were declared. Of these, 13 were observed as forecast LOR1 prior to being declared as an actual, therefore were not counted as forecast declarations based on the declaration count principles outlined in Section 3. Two were declared as an actual LOR1 condition without prior forecast.

There were no actual LOR2 conditions declared.

There was one actual LOR3 declared. This was the result of a major power system incident in Victoria occurring on 13 February 2024[4].

[4] Power System Incident Reports can be found at https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-events-and-reports/power-system-operating-incident-reports.

There was one suspect LOR3 condition issued for Queensland on 1 February 2024. After investigating network constraints, it was found there was a valid LOR2 forecast in the subsequent Projected Assessment of System Adequacy (PASA) run.

Table 3 Summary of LOR conditions during reporting period, 1 January to 31 March 2024

Region	LOR1		LOR2		LOR3	
	Actual	Forecast	Actual	Forecast	Actual	Forecast
NSW	4	15	0	12	0	0
QLD	9	14	0	15	0	0
SA	2	1	0	0	0	0
TAS	0	0	0	0	0	0
VIC	0	1	0	1	1	0
Total	**15**	**31**	**0**	**28**	**1**	**0**

Reliability and Emergency Reserve Trader (RERT) activations

During the reporting period, no RERT services were activated[5].

Table 4 LORs declared during the reporting period by trigger (FUM or LCR)

Effective period	LOR1	LOR2	LOR3
New South Wales (NSW)			
9/1/2024	Forecast		
	Forecast		
10/1/2024	Forecast		
21/1/2024	Forecast then Actual	Forecast	
25/1/2024	Forecast	Forecast	
	Forecast	Forecast	
26/1/2024	Forecast	Forecast	
29/1/2024		Forecast	
4/2/2024	Forecast	Forecast	
5/2/2024	Forecast	Forecast	
	Forecast	Forecast	
6/2/2024	Forecast		
	Forecast	Forecast	
12/2/2024	Forecast		
13/2/2024	Forecast		
	Forecast	Forecast	
23/2/2024	Forecast then Actual		
29/2/2024	Forecast then Actual	Forecast	

[5] RERT reporting can be found at https://aemo.com.au/energy-systems/electricity/emergency-management/reliability-and-emergency-reserve-trader-rert/rert-reporting.

Effective period	LOR1	LOR2	LOR3
	Forecast then Actual	Forecast	
14/3/2024	Forecast		
Queensland (QLD)			
18/1/2024	Actual		
	Forecast then Actual	Forecast	
19/1/2024	Forecast then Actual	Forecast	
21/1/2024	Forecast then Actual		
22/1/2024	Forecast then Actual	Forecast	
25/1/2024	Forecast	Forecast	
26/1/2024	Forecast	Forecast	
27/1/2024	Forecast		
	Forecast then Actual	Forecast	
	Forecast		
28/1/2024	Forecast		
	Forecast	Forecast	
29/1/2024	Forecast		
	Forecast then Actual	Forecast	
30/1/2024	Forecast	Forecast	
	Forecast	Forecast	
	Forecast		
1/2/2024		Forecast	
		Forecast	
2/2/2024	Forecast		
5/2/2024	Forecast	Forecast	
6/2/2024	Forecast then Actual	Forecast	
23/2/2024	Forecast		
26/2/2024	Forecast then Actual		
29/2/2024	Forecast	Forecast	
South Australia (SA)			
21/2/2024	Actual		
10/3/2024	Forecast		
11/3/2024	Forecast then Actual		
Tasmania (TAS)			
NIL			
Victoria (VIC)			
13/2/2024		Forecast	Actual
10/3/2024	Forecast		

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 Causes of LOR declarations

As summarised in Table 2 (in Section 3), a total of 75 LOR conditions were declared during the reporting period: 59 forecast and 16 actual LOR conditions.

Based on Table 2:

- Of the 44 forecast LOR1 conditions declared, 13 resulted in actual LOR1 conditions. These were counted as actual LOR1 conditions based on the declaration count principles outlined in Section 3.
- Of the 28 forecast LOR2 conditions declared, none resulted in an actual LOR2 condition.
- There were 31 forecast LOR1 conditions that did not develop into actual LOR1 conditions, and 28 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, changes to the net import or changes in forecast demand. The market response generally took the form of increased available generation or transmission network service providers (TNSPs) rescheduling planned transmission outages.
- As Table 4 above shows, during the reporting period there were two instances where an actual LOR1 condition occurred with no prior forecast.
- There was one actual LOR3 condition which occurred with no prior LOR3 forecast.
- The LOR conditions in New South Wales, Queensland, South Australia and Victoria were mainly driven by decreased generation availability and increased demand.
- There were no LOR conditions declared in Tasmania.

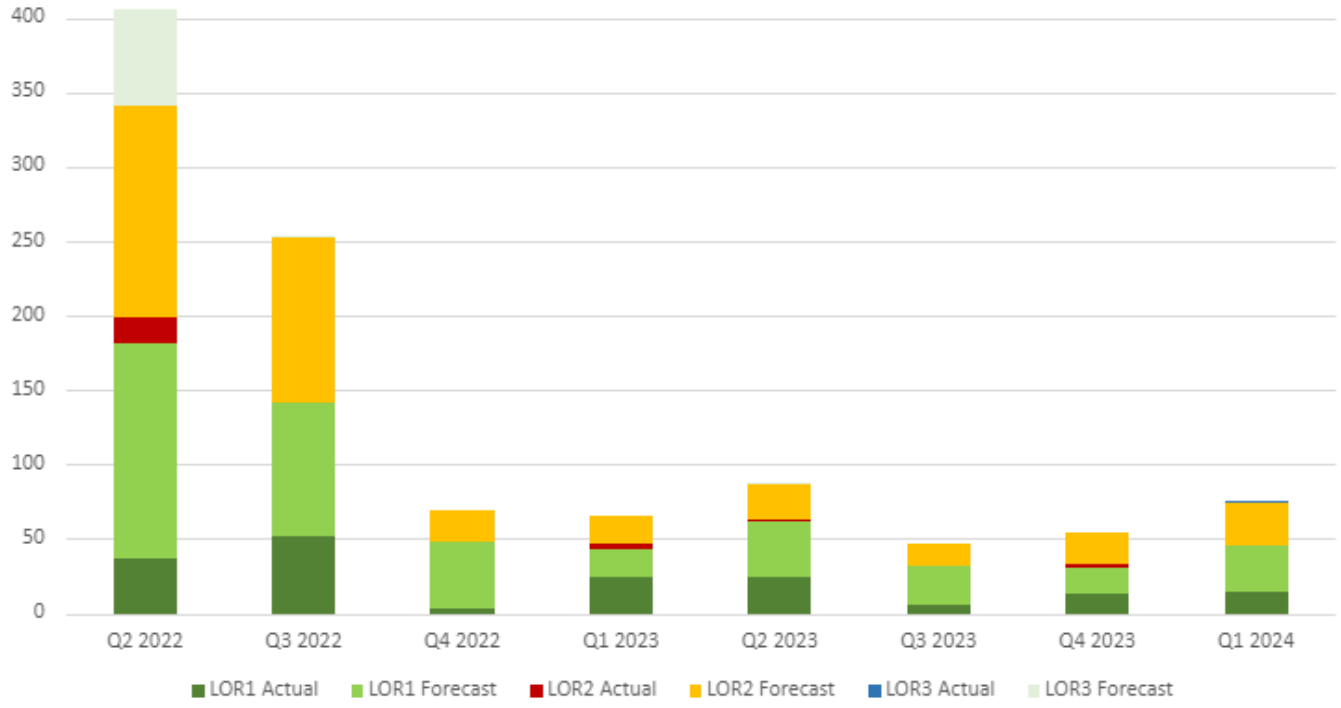
4.4 Number of LOR declarations compared to previous quarters

Quarter 1 2024 covered the mid to late summer months and the first month of autumn.

A total of 75 LOR conditions were declared during Quarter 1 2024 – 59 forecast and 16 actual LOR conditions. This is higher than the 54 LOR declarations recorded in the previous reporting period (1 October to 31 December 2023), and higher than the 65 LOR conditions declared for the same period last year (Quarter 1 2023). Compared to the same period last year (Quarter 1 2023) the number of actual LOR conditions decreased.

Figure 7 shows the historical trend of actual and forecast LOR conditions in past quarters from Quarter 2 2022 compared to Quarter 1 2024.

Figure 7 Quarterly comparison of actual and forecast LOR conditions, Q2 2022 to Q1 2024



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[6] for further information.

Term	Definition
AEST	Australian Eastern Standard Time
BBN	Bayesian Belief Network[7]
ETL	Extract-Transform-Load
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[8]
RERT	Reliability and Emergency Reserve Trader[9]
TNSP	Transmission network service provider

[6] 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.

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

[8] 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.

[9] See AEMO's Reliability and Emergency Reserve Trader (RERT) guidelines, at https://aemo.com.au/en/energy-systems/electricity/emergency-management/reliability-and-emergency-reserve-trader-rert.