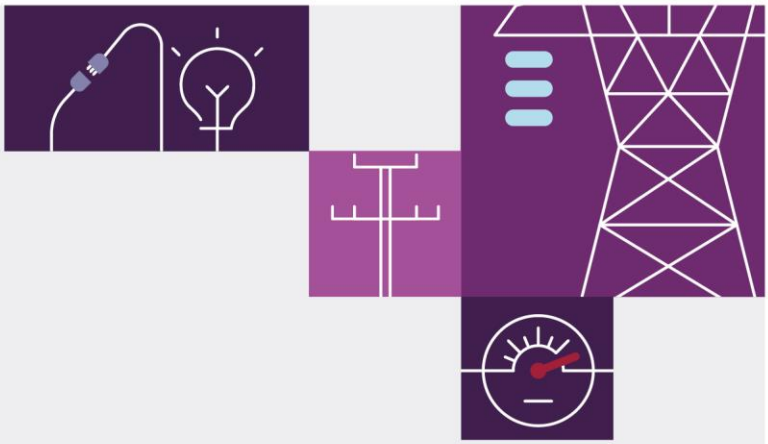
AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

Update to 2022 Electricity Statement of Opportunities

February 2023

A report for the National Electricity Market



Important notice

Purpose

The purpose of this publication is to provide an Update to the 2022 Electricity Statement of Opportunities for the National Electricity Market, due to material changes affecting available generation capacity in the National Electricity Market from that set out in the 2022 Electricity Statement of Opportunities. AEMO publishes this Update under clause 3.13.3A(b) of the National Electricity Rules. This publication is generally based on information available to AEMO as at 23 January 2023 unless otherwise indicated.

Disclaimer

AEMO has made reasonable efforts to ensure the quality of the information in this publication but cannot guarantee that information, forecasts and assumptions are accurate, complete or appropriate for your circumstances. This publication does not include all of the information that an investor, participant or potential participant in the National Electricity Market might require and does not amount to a recommendation of any investment.

Anyone proposing to use the information in this publication (which includes information and forecasts from third parties) should independently verify its accuracy, completeness and suitability for purpose, and obtain independent and specific advice from appropriate experts.

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, opinions, information or other matters contained in or derived from this publication, or any omissions from it, or in respect of a person's use of the information in this publication.

Copyright

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

Significant new relevant information has become available since AEMO released the 2022 *Electricity Statement of Opportunities* (ESOO) in August 2022[1]. This Update to the 2022 ESOO identifies numerous new developments that have increased the adequacy of supply in some regions, while the timing of other developments have changed and may be subject to further change. Overall, there remains an urgent need for additional commitments to occur, including in dispatchable projects such as long duration storage, to satisfy reliability requirements over the next 10 years. In performing this updated reliability assessment, the Update to the 2022 ESOO examines the adequacy of existing supply and considering those developments which have completed all necessary approvals and met AEMO's commitment criteria[2].

This Update to the 2022 ESOO has been issued in response to the following material changes to available capacity in the National Electricity Market (NEM) relative to the 2022 ESOO:

- **AGL** has brought forward its expected closure date for the 800 megawatts (MW) gas-fired **Torrens Island B Power Station** in South Australia from 2035 to 2026.
- **Origin Energy** has reported a three-year extension to the operation of the 180 MW gas-fired **Osborne Power Station** in South Australia to 2026, and no longer advises closure on 31 December 2023.
- The 123 MW gas-fired **Bolivar Power Station** in South Australia is now considered committed, and is modelled as available over summer 2022-23.
- **Snowy Hydro** has advised a one-year delay on the **Snowy 2.0** hydro project from December 2026 to December 2027, and on the gas-fired **Kurri Kurri Power Station** from December 2023 to December 2024.
- The **Waratah Super Battery Project** in New South Wales – with associated network upgrades, and system integrity protection scheme (SIPS) – is considered committed and scheduled for operation from late 2025.
- Additional commitments from various generation developers across the NEM regions totalling 461 MW (604 megawtt hours [MWh]) of battery and 1,326 MW of wind developments. This does not include projects by generation developers which have not achieved all milestones required to be considered committed.

Matching the forecast periods examined in the 2022 ESOO, this Update to the 2022 ESOO provides a reliability forecast covering the five-year period from 2022-23 to 2026-27, and an indicative reliability forecast covering the five-year period from 2027-28 to 2031-32.

This reliability assessment is measured in expected unserved energy (USE) as a percentage of energy demand.

The forecasts are assessed against the reliability standard of 0.002% USE and the Interim Reliability Measure (IRM) of 0.0006% USE.

For the purposes of the Retailer Reliability Obligation (RRO), the IRM of 0.0006% USE is the standard until 30 June 2025, after which the reliability standard reverts to 0.002% USE[3].

These forecasts, shown in Figure 1 relative to the reliability forecasts published in the 2022 ESOO, show that:

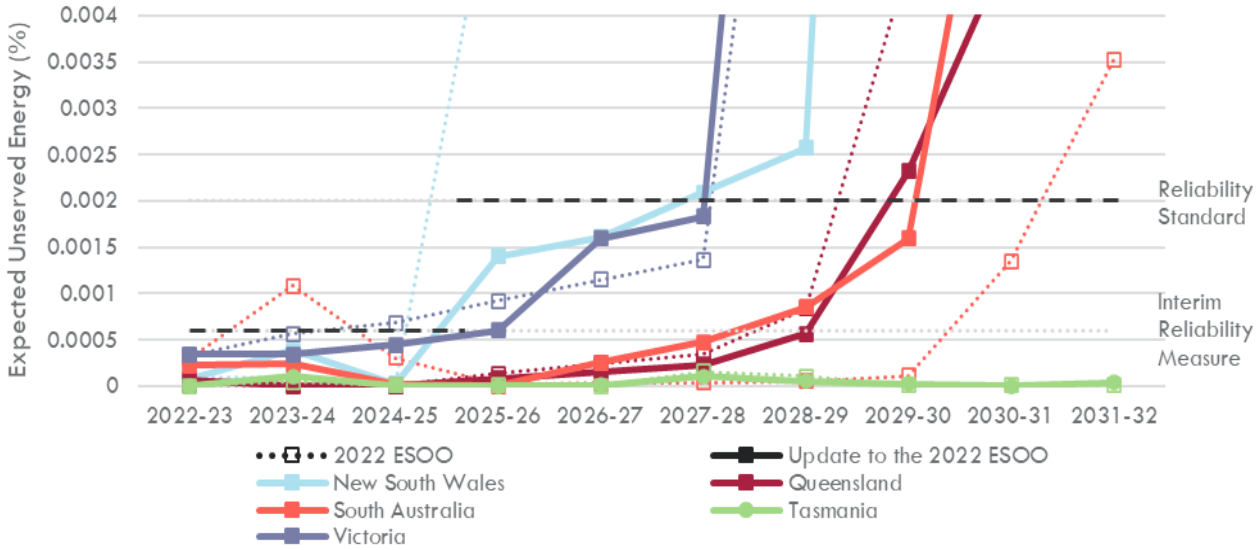
[1] At https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/nem_esoo/2022/2022-electricity-statement-of-opportunities.pdf.

[2] Commitment criteria relate to land, contracts, planning, finance and construction and are explained under "Background Information" in each NEM Generation Information file, published at https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information.

[3] The Australian Energy Market Commission (AEMC) is required to review the interim reliability measure in 2023 (NER 11.128.12(c)).

- Expected unserved energy (USE) is within the Interim Reliability Measure (IRM) for all regions until 2024-25. As such, no new Retailer Reliability Obligation (RRO) reliability instruments are required from this updated reliability forecast.
- Expected USE is forecast to exceed the reliability standard in each mainland region within the indicative reliability forecast horizon (2027-28 to 2031-32), with all mainland regions forecast to require additional capacity beyond present commitments by the end of the horizon.

Figure 1 Reliability and indicative reliability forecasts, all regions, 2022-23 to 2031-32



As Figure 1 also shows, reliability risks relative to the 2022 ESOO have:

- Increased in New South Wales in 2023-24 due to the advised delay to the commissioning of the Kurri Kurri generator, however reliability risks remain within the IRM.
- Decreased in New South Wales and Queensland, following the commitment of the Waratah Super Battery Project from 2025-26 when Eraring Power Station is advised to retire. Despite this improvement, risks remain and USE continues to be forecast greater than the reliability standard from 2027-28 in New South Wales, increasing further from 2029-30 when Vales Point Power Station is expected to retire.
- Decreased in South Australia and Victoria prior to 2026-27, due to the commitment of new generation and storage projects and the delayed retirement of Osborne Power Station.
- Increased in South Australia and Victoria from 2026-27, when Torrens Island B in South Australia is now expected to retire. Forecast reliability risks increase further from 2028-29 in Victoria when Yallourn Power Station is expected to retire, and in South Australia from 2030-31 when numerous gas-fired power stations are expected to retire.

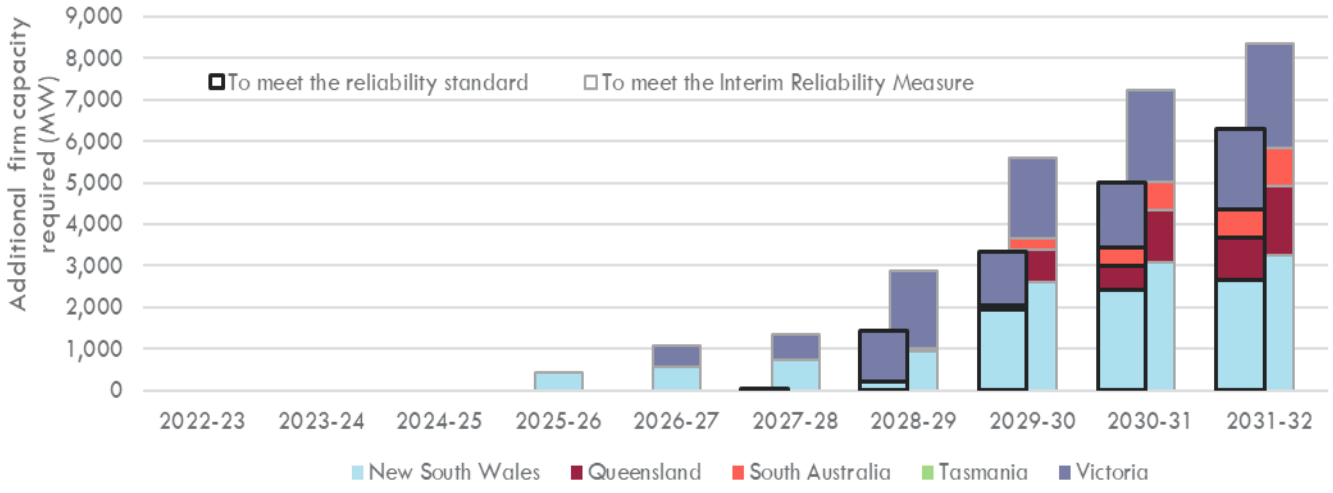
While this Update to the ESOO forecasts expected USE is within the IRM across the NEM in 2022-23 and 2023-24, there remains risk to consumer outcomes. Section 4.1 of the 2022 ESOO highlighted that large USE events are possible even when expected USE is forecast within the IRM. These large events may be driven by weather uncertainty or other circumstances such as simultaneous generator and/or transmission outages that may erode available supply when it is required.

Figure 2 shows the additional capacity requirement identified to deliver reliable electricity supplies considering the forecast level of demand, consistent with both the reliability standard (columns with black border) and the IRM (columns with faint grey border).

This additional capacity assessment:

- Considers each region separately and does not consider the inter-regional benefits of new capacity. Actual capacity requirements may therefore be lower for some regions considering developments in neighbouring regions.
- Identifies firm capacity that is assumed to be fully unconstrained and continuously available throughout the entire year. Actual capacity requirements may therefore be greater considering potential generator outages, energy limits and power system constraints.
- Does not consider any potential change to the IRM that may be possible when the Australian Energy Market Commission (AEMC) reviews the measure in 2023, as required by the NER. If any extension to the IRM occurs, it is plausible that additional firm capacity would be required from 2025.
- Examines the level of firm, dispatchable and continuously available capacity that would be needed to meet these relevant standards. To achieve this requirement, firm capacity solutions such as electricity storage are needed, particularly longer duration storage solutions most able to meet the breadth of system challenges that may lead to reliability risks. While short duration batteries, for example, may provide some level of firming capacity, the capability to service reliability risks of longer durations is needed to replace retiring dispatchable capacity through longer and broader risk coverage that addresses these gaps.

Figure 2 Additional firm capacity requirement identified to deliver reliable electricity supply consistent with the reliability standard and IRM (MW)



While not yet sufficiently developed to meet AEMO's commitment criteria, many generation, storage and transmission developments are progressing, and if developed to their current anticipated schedules will lessen the reliability risk and reduce the forecast capacity requirement.

Developments that may reduce the forecast reliability risk include:

- New South Wales:
  - A 380 MW (minimum 2 hour storage duration) tender for firming infrastructure, as well as other investments to meet the New South Wales Electricity Infrastructure Roadmap, and 457 MW (1,678 MWh) of anticipated battery developments
  - The HumeLink, Hunter Transmission Project and other transmission developments.
- Queensland:
  - Identified developments in New South Wales, additional developments that have been announced as part of the Queensland Energy and Jobs Plan, and 520 MW (900 MWh) of anticipated battery developments.
- South Australia:
  - 542 MW (660 MWh) of anticipated battery developments. Anticipated battery developments in Victoria may also reduce South Australia's forecast reliability risk.
- Victoria:
  - 640 MW (1,950 MWh) of anticipated battery developments in Victoria, the Victorian Renewable Energy Target (VRET2), the Victorian Energy Storage Targets and the Victorian Offshore Wind Policy. Anticipated battery developments in South Australia may also reduce Victoria's forecast reliability risk.
  - Victoria – New South Wales Interconnector (VNI) West, MarinusLink and other transmission developments.

Contents

Executive summary 3

1 Updating the 2022 *Electricity Statement of Opportunities* 8

2 Updated information on generation and transmission developments 9

3 Reliability forecast 11

3.1 RRO reliability gaps 14

A1. Summary of changes since the 2022 ESOO 17

Tables

Table 1 Reliability gaps and equivalent gaps against the IRM, 2022-23 to 2031-32 (MW) 14

Table 2 Reliability gaps and equivalent gaps against the reliability standard, 2022-23 to 2031-32 (MW) 15

Table 3 Changes in committed wind developments in this Update to the 2022 ESOO (MW) 17

Table 4 Changes in committed gas developments in this Update to the 2022 ESOO (MW) 17

Table 5 Changes in committed battery developments in this Update to the 2022 ESOO (MW) 17

Table 6 Changes in committed hydro developments in this Update to the 2022 ESOO (MW) 17

Figures

Figure 1 Reliability and indicative reliability forecasts, all regions, 2022-23 to 2031-32 4

Figure 2 Additional firm capacity requirement identified to deliver reliable electricity supply consistent with the reliability standard and IRM (MW) 5

Figure 3 Reliability and indicative reliability forecasts, all regions, 2022-23 to 2031-32 11

Figure 4 Additional firm capacity requirement identified to deliver reliable electricity supply consistent with the reliability standard (MW) 15

1 Updating the 2022 *Electricity Statement of Opportunities*

National Electricity Rules (NER) clause 3.13.3A(b) requires AEMO to publish updates to the *Electricity Statement of Opportunities* (ESOO) for the National Electricity Market (NEM) as soon as practicable when new information becomes available that materially changes the supply or demand projections, including plant retirements. Since the publication of the 2022 ESOO[4] in August 2022, material updates have been announced, triggering this update.

AEMO has applied all the latest generation and transmission project commitments and announcements from developers and market participants (see Chapter 2). Unless specified otherwise, all inputs and assumptions used in this reliability forecast align with the Central scenario published for Retailer Reliability Obligation (RRO) purposes in the 2022 ESOO. AEMO is currently consulting on the methodologies and guidelines used for developing the ESOO[5]. The impact of the new methodologies will be reflected in the 2023 ESOO.

Reliability measures and the Retailer Reliability Obligation (RRO)

The ESOO measures power system reliability using expected unserved energy (USE), and compares forecast USE against:

- the **Interim Reliability Measure (IRM)** of 0.0006% of the total energy demanded in a region for a financial year, and
- the **reliability standard** of 0.002% of the total energy demanded in a region for a financial year.

The Australian Energy Market Commission (AEMC) is required to review the IRM in 2023, in accordance with the requirements of NER 11.128.12(c). This Update to the 2022 ESOO applies the IRM of 0.0006% USE as the relevant standard until 30 June 2025 for the purposes of the RRO, after which the relevant standard reverts to 0.002% USE. If the IRM review results in an alternative definition or duration of the measure, this will be considered within the 2023 ESOO, if completed prior to the ESOO being published in August 2023.

For the RRO[6], components of any reliability forecast or indicative reliability forecast[7] must indicate whether there is a *forecast reliability gap*. Details on the reliability forecast are included in Chapter 3.

AEMO must request a **T-3 reliability instrument** for any identified reliability gaps in the reliability forecast at least three months before the *T-3 cut-off day* for the relevant reliability gap (NER 4A.C.2(a)), where the *T-3 cut-off day* is the day that is three years before the first day the forecast reliability gap period starts (National Electricity Law [NEL] 14G (3)). AEMO is, however, only able to make the request if the reliability forecast is published in the six months immediately preceding the *T-3 cut-off day* (NER 4A.C.2(b)(3)). For this Update to the 2022 ESOO, no forecast reliability gaps have been identified that meet the above criteria.

[4] At https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/nem_esoo/2022/2022-electricity-statement-of-opportunities.pdf.

[5] See https://www.aemo.com.au/consultations/current-and-closed-consultations/2022-reliability-forecasting-guidelines-and-methodology.

[6] For more information on the RRO, see https://www.energy.gov.au/sites/default/files/retailer_reliability_obligation_factsheet.pdf.

[7] See https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/rsig/reliability-forecast-guidelines.pdf for more.

2 Updated information on generation and transmission developments

This reliability forecast incorporates all updated information from developers and market participants from AEMO's latest Generation Information, published 16 February 2023[8], and AEMO's latest Transmission Augmentation Information, published 16 December 2022[9].

AEMO's Generation Information publishes a variety of information on the capabilities of existing and proposed generators, as advised by owners and developers. The February 2023 publication reports a strong pipeline of 209 gigawatts (GW) of committed, anticipated and proposed developments, mostly made up of large-scale solar, wind and storage projects.

This reliability forecast considers only existing generation, and those generation developments that are sufficiently advanced to be considered committed. By considering only well-progressed projects, the reliability forecast provides insight on the additional developments required to deliver reliability consistent with the relevant reliability standards. Of the 209 GW pipeline reported in February 2023, only approximately 10 GW is currently committed.

Generation developments that are newly considered committed since the 2022 ESOO are:

- The 123 megawatts (MW) gas-fired Bolivar Power Station in South Australia.
- 461 MW (604 megawatts hours [MWh]) of battery energy storage systems (BESS) in New South Wales, South Australia and Victoria, at Broken Hill, Darlington Point, Hazelwood, Riverina, Tailem Bend and Queanbeyan.
- 1,326 MW of wind developments in South Australia and Victoria, at Mortlake South Wind Farm, Golden Plains Wind Farm and Goyder South Wind Farm.

The following updates have also been received, and are considered in this Update to the 2022 ESOO:

- AGL has brought forward its expected closure date for the 800 MW gas-fired Torrens Island B Power Station in South Australia from 2035 to 2026.
- Origin Energy has reported a three-year extension to the operation of the 180 MW gas-fired Osborne Power Station in South Australia to 2026, and no longer advises closure on 31 December 2023.
- Snowy Hydro has advised a one-year delay on the Snowy 2.0 hydro project from December 2026 to December 2027, and on the gas-fired Kurri Kurri Power Station from December 2023 to December 2024.
- Updated information has been provided by the operator regarding the return to service of Callide C3 on 30 June 2023 and C4 on 1 May 2023 in Queensland.

The 16 December 2022 Transmission Augmentation Information workbook contains relevant information on network projects, including whether they are sufficiently advanced to be considered committed in this reliability forecast.

[8] See https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information.

[9] See https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/transmission-augmentation-information.

The Waratah Super Battery Project in New South Wales[10], with associated transmission upgrades and system integrity and protection scheme (SIPS), is newly considered as committed in this update. The SIPS provides a virtual transmission solution that unlocks capacity in the existing transmission system, allowing electricity consumers in the Sydney, Newcastle and Wollongong demand centres to access more energy from existing generators. There are both transmission and storage components to this development, which have both been considered committed in this assessment.

[10] See https://www.energyco.nsw.gov.au/projects/waratah-super-battery.

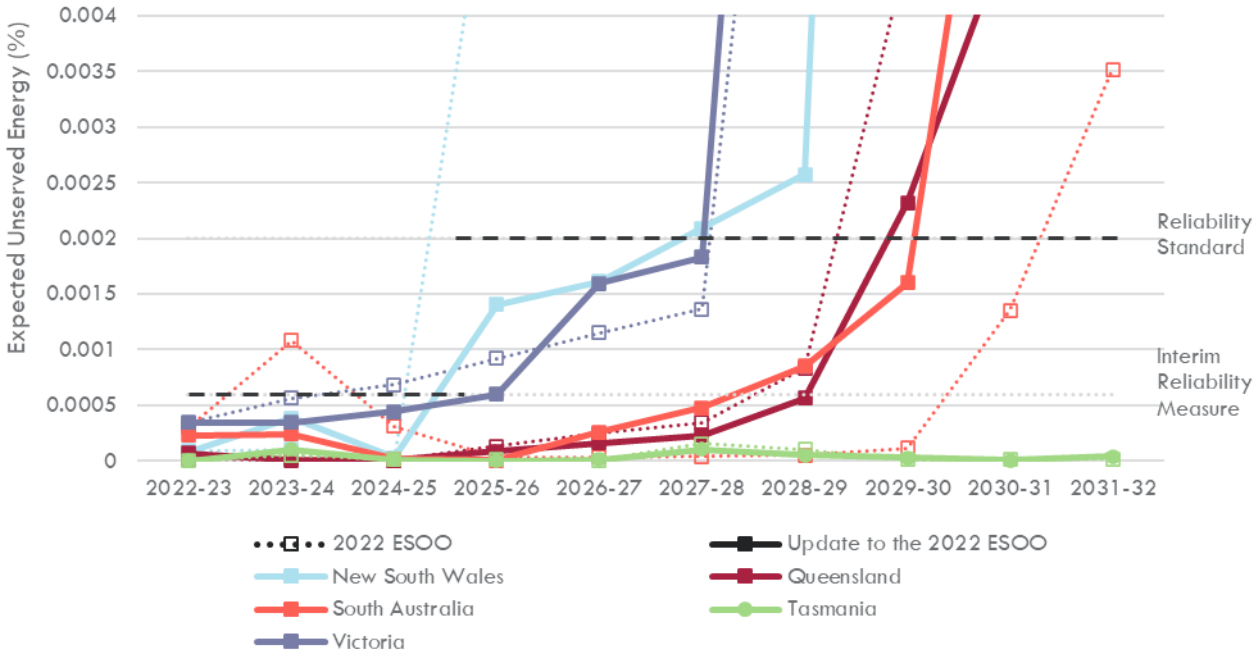
3 Reliability forecast

This reliability assessment is developed consistent with AEMO's Reliability Forecast Guidelines[11] and AEMO's ESOO and Reliability Forecast Methodology[12]. It includes the new developments described in Chapter 2 which have met AEMO's commitment criteria. Additional developments, such as those classified as 'anticipated', will reduce the projected reliability risk, but are not considered in this Update to the 2022 ESOO.

The reliability forecast (2022-23 to 2026-27) and the indicative reliability forecast (2027-28 to 2031-32), shown in Figure 3 relative to the forecasts published in the 2022 ESOO, show that:

- Expected USE is within the IRM for all regions until and including 2024-25.
- Reliability risks increase across the NEM mainland regions and exceed the reliability standard at various times in the latter five forecast years of the assessment.

Figure 3 Reliability and indicative reliability forecasts, all regions, 2022-23 to 2031-32



For New South Wales:

- The forecast reliability risk is higher than in the 2022 ESOO in 2023-24 due to the announced delay to Kurri Kurri commissioning, however expected USE remains within the IRM in 2023-24 and 2024-25.
- The remainder of the reliability assessment (2025-26 to 2031-32) generally shows less reliability risk than that published in the 2022 ESOO, predominantly due to the commitment of the Waratah Super Battery Project. Despite the project development, expected USE is forecast above the IRM from 2025-26 when Eraring Power Station reaches its advised retirement date and the project commences. Expected USE was forecast above

[11] See https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-reliability/reliability-standard-implementation-guidelines.

[12] See https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-reliability/nem-electricity-statement-of-opportunities-esoo.

the reliability standard in the 2022 ESOO in 2025-26, leading to the Australian Energy Regulator (AER) issuing a T-3 RRO instrument[13] for New South Wales for the summer reliability gap period identified in that year.

- Consistent with the analysis provided in the 2022 ESOO, announced delays to the Snowy 2.0 development do not have a material impact on forecast reliability outcomes due to transmission limitations within New South Wales.
- From 2027-28, expected USE is forecast to be above the reliability standard, and to increase further from 2029-30 when Vales Point Power Station reaches its announced expected retirement.
- While this forecast signals a need for further capacity development, many developments are under consideration in New South Wales which have the potential to significantly reduce the projected reliability risk. These include:
  - Transmission developments – HumeLink and Hunter Transmission Project.
  - The 380 MW tender for firming infrastructure (from 2025-26)[14].
  - The investments to meet the New South Wales Electricity Infrastructure Roadmap[15], to develop 33,600 gigawatt hours (GWh) of renewable electricity per year and 2 GW of long-duration storage by the end of 2029.
  - 457 MW (1,678 MWh) of anticipated battery developments.

For Queensland:

- As described in the 2022 ESOO, reliability risks in Queensland are forecast to increase when New South Wales reliability risks increase, as inter-regional reliability support is often shared between New South Wales and Queensland. Tight conditions in one region are forecast to impact the reliability of the other.
- Consistent with the change in outlook for New South Wales in this Update to the 2022 ESOO, the reliability risk in Queensland is reduced, however expected USE is still forecast above the reliability standard from 2029-30 when Vales Point Power Station in New South Wales is expected to retire, and after the Callide B Power Station retires.
- The 2022 ESOO demonstrated that reliability risks would improve with additional anticipated developments. Additional developments (not yet classified as 'anticipated') have also been announced as part of the Queensland Energy and Jobs Plan[16], including expanded renewable energy targets and significant pumped hydro developments. 520 MW (900 MWh) of anticipated battery developments also exist in the pipeline that, if developed to schedule, may reduce reliability risk.

For South Australia:

- The reliability risk is lower than reported in the 2022 ESOO in 2023-24 due to the commitment of Bolivar Power Station and Tailem Bend BESS, and the delayed retirement of Osborne Power Station.

[13] See https://www.aer.gov.au/node/83764.

[14] See https://aemoservices.com.au/tenders/firming.

[15] As outlined in the Infrastructure Investment Objectives (IIO) Report, at https://aemoservices.com.au/publications-and-resources/infrastructure-investment-objectives-report.

[16] See https://www.epw.qld.gov.au/energyandjobsplan.

- In 2026-27, reliability risks increase but remain within the IRM. At this time, Torrens Island B is advised to retire and EnergyConnect, a new interconnector from New South Wales and Victoria, has advised full commissioning by July 2026, consistent with that previously reported in the 2022 ESOO.
- Expected USE is forecast to be greater than the IRM from 2028-29, and then greater than the reliability standard from 2030-31 when numerous small gas generators are expected to retire.
- Anticipated battery developments totalling 542 MW (660 MWh), and investments in electricity supply to meet the Hydrogen Jobs Plan may reduce reliability risk if developed to schedule.

For Tasmania:

- Consistent with the 2022 ESOO, expected USE is forecast to be less than the IRM for the ESOO horizon.

For Victoria:

- The forecast reliability risk is lower than reported in the 2022 ESOO, remaining within the IRM between 2022-23 and 2025-26. The change is predominantly due to the commitment of Golden Plains and Mortlake South wind farms[17] and the Hazelwood BESS.
- From 2026-27, following the retirement of Torrens Island B and Osborne Power Station in South Australia, reliability risks are forecast higher than in the 2022 ESOO, with expected USE forecast above the IRM. Similar to Queensland and New South Wales, Victoria and South Australia provide inter-regional reliability support, and changes to supply in either region will impact risks forecast in both regions.
- From 2028-29, expected USE is forecast above the reliability standard when Yallourn Power Station is advised to retire.
- Numerous developments are under consideration that have the potential to significantly reduce forecast USE. These include:
  - Generation developments, including:
    - The 350 MW (1,400 MWh), four-hour, large-scale Wooreen Battery by 2026, as part of EnergyAustralia's agreement with the Victorian Government to deliver an orderly retirement of Yallourn Power Station[18].
    - 290 MW (550 MWh) of other anticipated battery developments in Victoria, as well as the potential for 542 MW (660 MWh) of anticipated battery developments in South Australia.
    - The second auction for the Victorian Renewable Energy Target (VRET2), which will support at least another 600 MW of renewable energy capacity[19].
    - The Victorian Offshore Wind Policy, which includes procuring at least 2 GW of offshore wind by 2032[20], and the Victorian energy storage targets[21] to develop 2.6 GW of energy storage by 2030 and at least 6.3 GW by 2035.

[17] Mortlake South Wind Farm was not included in the 2022 ESOO reliability assessment, as it became committed just prior to publication, after modelling had been completed.

[18] See https://www.energyaustralia.com.au/about-us/energy-generation/yallourn-power-station/energy-transition.

[19] See https://www.energy.vic.gov.au/renewable-energy/vret2.

[20] See https://www.premier.vic.gov.au/victoria-launches-australias-first-offshore-wind-targets.

[21] See https://www.energy.vic.gov.au/renewable-energy/victorian-renewable-energy-and-storage-targets.

- Transmission developments, including:
  - The Victoria – New South Wales Interconnector (VNI) West augmentation (which has not yet completed its regulatory approval process and is therefore not included in the analysis), to increase transfer capacity between New South Wales and Victoria, and support the development of additional renewable energy zones (REZs) in north-west Victoria and south-west New South Wales.
  - The MarinusLink development to increase transfer capacity between Tasmania and Victoria.
  - Continued investment to support network asset utilisation, as noted in the 2021 *Victorian Transmission Annual Planning Report*[22].

3.1 RRO reliability gaps

A reliability gap for RRO purposes is forecast if expected USE in a region:

- Exceeds 0.0006% of the total energy demanded in that region for a given financial year (the IRM) between 2022-23 and 2024-25.
- Exceeds 0.002% of the total energy demanded in that region for a given financial year (the reliability standard) between 2025-26 and 2031-32.

Table 1 shows the reliability gap assessments against the IRM and Table 2 shows assessments against the reliability standard, with purple columns in each table highlighting the years relevant to each standard for RRO purposes. Both the IRM and reliability standard assessments were calculated using a consistent methodology.

The assessment forecasts reliability gaps against the reliability standard in all mainland regions except Tasmania. Equivalent gaps against the IRM are larger, and occur earlier, but do not result in RRO reliability gaps in this Update.

This additional capacity assessment:

- Considers each region separately and does not consider the inter-regional benefits of new capacity. Actual capacity requirements may therefore be lower for some regions considering developments in neighbouring regions.
- Identifies firm capacity that is assumed to be fully unconstrained and continuously available throughout the entire year. Actual capacity requirements may therefore be greater considering potential generator outages, energy limits, storage duration and power system constraints.

Table 1 Reliability gaps and equivalent gaps against the IRM, 2022-23 to 2031-32 (MW)

Region	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
New South Wales	-	-	-	450	560	740	930	2,620	3,070	3,270
Queensland	-	-	-	-	-	-	-	780	1,260	1,660
South Australia	-	-	-	-	-	-	80	260	700	910
Tasmania	-	-	-	-	-	-	-	-	-	-
Victoria	-	-	-	-	510	620	1,860	1,950	2,180	2,490

[22] At https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/Victorian-planning/Victorian-annual-planning-report.

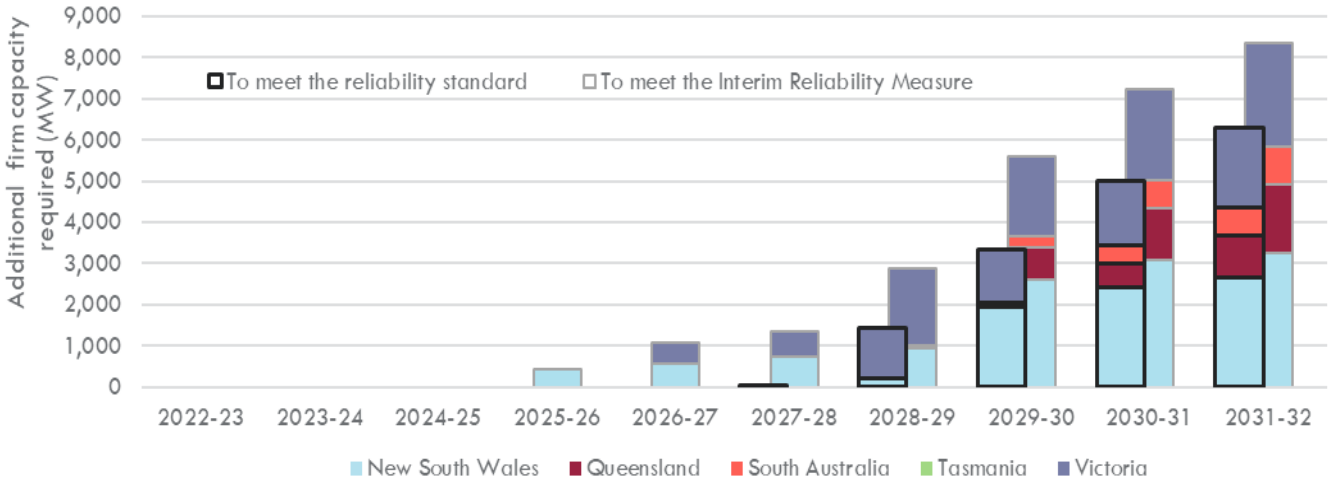
Table 2 Reliability gaps and equivalent gaps against the reliability standard, 2022-23 to 2031-32 (MW)

Region	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
New South Wales	-	-	-	-	-	30	180	1,930	2,400	2,620
Queensland	-	-	-	-	-	-	-	90	580	1,030
South Australia	-	-	-	-	-	-	-	-	420	680
Tasmania	-	-	-	-	-	-	-	-	-	-
Victoria	-	-	-	-	-	-	1,230	1,300	1,570	1,910

For the purposes of this Update to the 2022 ESOO, the reliability gaps and equivalent gaps shown are calculated as the additional capacity required, if unconstrained and continuously available throughout the entire financial year, to reduce the forecast of expected USE to the relevant reliability metric.

Figure 4 shows the data contained within these tables visually, with the additional capacity requirement identified to meet the reliability standard (columns with black border) and the IRM (columns with faint grey border) respectively. The calculated level of firm capacity examines the level of firm, dispatchable and continuously available capacity that would be needed to meet these relevant standards. To achieve this requirement, firm capacity solutions such as electricity storage are needed, particularly longer duration storage solutions most able to meet the breadth of system challenges that may lead to reliability risks. While short duration batteries, for example, may provide some level of firming capacity, the capability to service reliability risks of longer durations is needed to to replace retiring dispatchable capacity through longer and broader risk coverage that addresses these gaps.

Figure 4 Additional firm capacity requirement identified to deliver reliable electricity supply consistent with the reliability standard (MW)



In the 2022 ESOO, AEMO forecast reliability gaps in South Australia, Victoria and New South Wales.

- In South Australia in 2023-24, gaps were forecast between 8 January 2024 and 29 February 2024 between 5:00 pm and 9:00 pm on working weekdays. AEMO requested the AER consider making a reliability instrument for this reliability gap. The AER subsequently created a reliability instrument for this reliability gap[23]. With the commitment of Bolivar Power Station and Tailem Bend BESS and the updated retirement date for Osborne Power Station, this updated reliability assessment demonstrates this reliability gap is no longer forecast.

[23] See https://www.aer.gov.au/node/74530.

- In Victoria in 2024-25, gaps were forecast between 1 January 2025 and 31 January 2025 between 4:00 pm and 7:00 pm weekdays. With the additional commitments described in Chapter 2, this updated reliability assessment demonstrates this reliability gap is no longer forecast.
- In New South Wales in 2025-26, two reliability gaps were forecast against the reliability standard, both for 790 MW:
  - The first reliability gap covered the summer period from 1 December 2025 to 28 February 2026 on weekdays between 2:00 pm and 9:00 pm. AEMO requested the AER consider making a reliability instrument for this reliability gap. The AER subsequently created a reliability instrument for this reliability gap[24].
  - The second reliability gap covered the winter period from 1 June 2026 to 30 June 2026 on weekdays between 5:00 pm and 9:00 pm. As the 2022 ESOO was published more than six months before the T-3 cut-off day for this gap, AEMO was not able to request the AER consider making a reliability instrument. As this gap is no longer forecast against the reliability standard, AEMO will not request the AER consider making a reliability instrument for this reliability gap as part of this update.

[24] See https://www.aer.gov.au/node/83764.

A1. Summary of changes since the 2022 ESOO

This appendix tabulates the aggregate changes in generator and storage nameplate capacity between the 2022 ESOO and this Update to the 2022 ESOO. There are no changes for technologies not specified.

Table 3 Changes in committed wind developments in this Update to the 2022 ESOO (MW)

Region	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
New South Wales	0	0	0	0	0	0	0	0	0	0
Queensland	0	0	0	0	0	0	0	0	0	0
South Australia	0	210	412	412	412	412	412	412	412	412
Tasmania	0	0	0	0	0	0	0	0	0	0
Victoria	158	158	158	914	914	914	914	914	914	914

Table 4 Changes in committed gas developments in this Update to the 2022 ESOO (MW)

Region	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
New South Wales	0	-750	0	0	0	0	0	0	0	0
Queensland	0	0	0	0	0	0	0	0	0	0
South Australia	123	303	303	303	-677	-677	-677	-677	-677	-677
Tasmania	0	0	0	0	0	0	0	0	0	0
Victoria	0	0	0	0	0	0	0	0	0	0

Table 5 Changes in committed battery developments in this Update to the 2022 ESOO (MW)

Region	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
New South Wales	210	210	210	210	210	210	210	210	210	210
Queensland	0	0	0	0	0	0	0	0	0	0
South Australia	0	51	51	51	51	51	51	51	51	51
Tasmania	0	0	0	0	0	0	0	0	0	0
Victoria	200	200	200	200	200	200	200	200	200	200

Table 6 Changes in committed hydro developments in this Update to the 2022 ESOO (MW)

Region	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
New South Wales	0	0	0	0	-2,040	0	0	0	0	0
Queensland	0	0	0	0	0	0	0	0	0	0
South Australia	0	0	0	0	0	0	0	0	0	0
Tasmania	0	0	0	0	0	0	0	0	0	0
Victoria	0	0	0	0	0	0	0	0	0	0