T-3 Reliability Instruments

New South Wales 2026-27 and Victoria 2026-27

October 2023

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 3131
Canberra ACT 2601
Tel: 1300 585 165

AER reference: 14362552

Amendment record

Version	Date	Pages
1	31/10/2023	20
1.1	29/11/2023	20

Contents

1 AER decisions

In accordance with section 14K of the National Electricity Law (Electricity Law) the Australian Energy Regulator (AER) has made:

- a T-3 reliability instrument for New South Wales for the forecast reliability gap period of 1 December 2026 to 31 March 2027 (reliability instrument), and
- a T-3 reliability instrument for Victoria for the forecast reliability gap period of 1 December 2026 to 28 February 2027 (reliability instrument).

The AER is satisfied that the Australian Energy Market Operator's (AEMO) *forecast reliability gaps* in New South Wales and Victoria have been identified in accordance with the Rules. AEMO demonstrated it has used reasonable endeavours to prepare the reliability forecasts, which show no evidence of material errors in its inputs or assumptions. The AER therefore considers it is appropriate, having regard to the decision-making criteria set out in clause 4A.C.11 of the National Electricity Rules (Electricity Rules) to make the reliability instruments. The T-3 reliability instrument for New South Wales can be found in Appendix A, while the T-3 reliability instrument for Victoria can be found in Appendix B.

Our review of the requests for the reliability instruments found no material errors in AEMO's calculations or input data. We consider the assumptions that underpin AEMO's forecast data and their impact on unserved energy are accurate and represent the forecast future circumstances. We are satisfied that accuracy, comprehensiveness and lack of bias have been achieved.

We consider that AEMO has used reasonable endeavours to prepare its reliability forecast in accordance with the Forecasting Best Practice Guidelines. The inputs, assumptions and methodologies that underpin the forecast were disclosed to stakeholders and AEMO provided consultation opportunities throughout the development of the 2023 Electricity Statement of Opportunities (ESOO) and subsequent reliability forecast.

As the Retailer Reliability Obligation (RRO) has been triggered, the Market Liquidity Obligation (MLO) will commence:

- in New South Wales in 5 business days on 7 November 2023
- in Victoria in 5 business days on 8 November 2023.

This requires the Market Liquidity Obligation (MLO) generators:

- for New South Wales – AGL Energy, EnergyAustralia and Snowy Hydro
- for Victoria – AGL Energy, EnergyAustralia and Snowy Hydro

to offer MLO products onto the Australian Securities Exchange (ASX) or FEX Global (FEX) to ensure contracts are available. This ensures there will be sufficient qualifying contracts available for liable entities in New South Wales and Victoria to cover their share of one-in-two-year peak demand throughout the forecast reliability gaps.

2 AEMO reliability instrument requests

On 31 August 2023 AEMO provided the AER with:

- A T-3 reliability instrument request for a forecast reliability gap in New South Wales. The request set out the following details of the forecast reliability gap:
  - The size of the gap: 250 MW
  - The gap period: 1 December 2026 to 31 March 2027 (inclusive)
  - The gap region: New South Wales
  - The one-in-two year peak demand forecast: 13,890 MW
  - The gap trading intervals: between 3:00 pm and 10:00 pm on working weekdays*.
- A T-3 reliability instrument request for a forecast reliability gap in Victoria. The request set out the following details of the forecast reliability gap:
  - The size of the gap: 70 MW
  - The gap period: 1 December 2026 to 28 February 2027 (inclusive)
  - The gap region: Victoria
  - The one-in-two year peak demand forecast: 10,040 MW
  - The gap trading intervals: between 3:00 pm and 9:00 pm on working weekdays*.
- AEMO also provided the following documents as part of its reliability instrument request:
  - 2023 ESOO
  - 2023 Forecasting Best Practice Approach Report
  - Demand side participation Forecast Methodology document
  - ESOO and Reliability Forecast Methodology document
  - 2023 Inputs Assumptions and Scenarios Report (IASR)
  - Forecasting Approach Electricity Demand Forecasting Methodology document
  - 2023 Inputs Assumptions Workbook (‘the IASR Workbook’)

* National Electricity Market time

3 AER review

The following sections detail our review of the New South Wales and Victoria T-3 reliability instrument requests against the decision-making criteria as set out in clause 4A.C.11 of the Electricity Rules, which states that the AER must only have regard to whether:

- there are no material errors in AEMO's calculations or input data as it relates to the reliability forecast;
- AEMO has not made any assumptions underpinning its forecast data that are inaccurate and which have had a material impact on unserved energy outcomes in the reliability forecast; and
- AEMO has used reasonable endeavours to prepare the reliability forecast in accordance with the Forecasting Best Practice Guidelines.

In line with the guidance given in our interim Reliability Instrument Guidelines, we focused our assessment on a range of input parameters for which the determination of the level of reliability is most materially dependant.

We received one response during our consultation on the New South Wales reliability information request. Transmission network service provider Transgrid submitted it was not aware of any matters that would lead the AER to not make the reliability instrument for the New South Wales region. No responses were received in relation to the Victorian reliability information request.

3.1 Whether there are material errors in AEMO's calculations, input data or inaccurate assumptions that materially impact the forecast reliability gap

In this section we have considered whether:[1]

- there are material errors in AEMO's calculations or input data as it relates to the reliability forecast
- AEMO has made any assumptions underpinning its forecast data that are inaccurate and which have had a material impact on unserved energy outcomes in the reliability forecast.

The 2023 IASR and the IASR Workbook provided by AEMO contain the data on which the reliability instrument request was based.[2] These were accompanied by a guide in the reliability instrument request for key inputs, calculations, assumptions, and methodologies used in the reliability forecast and number of accompanying methodology reports.

---

[2] AEMO has adopted the Step Change Scenario as the ESOO central scenario for the purpose of developing its reliability forecast in the 2023 ESOO. The T-3 reliability instrument requests for New South Wales and Victoria use the Step Change Scenario as the reliability forecast for all inputs and assumptions.

The outcome of our review, which included examining the 2023 IASR and IASR Workbook and the reports accompanying the reliability instrument request, is that we did not identify any material errors or inaccurate assumptions that would have a material impact on unserved energy outcomes in the reliability forecast. The following sections summarise the information that was reviewed to assist in forming our decision on the reliability instrument request.

3.1.1 Distributed PV (including residential, commercial, and larger embedded and PV non-scheduled generation systems)

Materiality: High

Data checked:

- Rooftop photovoltaics (PV) capacity (MW)[3] – IASR Workbook - 2023, 2022 and 2021
- Rooftop PV output (GWh)[4] – IASR Workbook - 2023, 2022 and 2021
- PV non-scheduled generation capacity (MW)[5] – IASR Workbook - 2023, 2022 and 2021
- PV non-scheduled generation energy (GWh)[6] – IASR Workbook - 2023, 2022 and 2021

Input	New South Wales	Victoria
Distributed PV (including residential, commercial, and larger embedded and PV non-scheduled generation	Estimated distributed PV generation output during forecast unserved energy for New South Wales in 2026-27 is 446 MW.	Estimated distributed PV generation output during forecast unserved energy for Victoria in 2026-27 is 644 MW.

The New South Wales forecast installed capacity of distributed PV is 8,360 MW, whilst Victoria has a forecast installed capacity of 6,484 MW.

We note that the estimated distributed PV generation during forecast unserved energy (USE) for New South Wales and Victoria are outputs from AEMO's modelling. Due to this, AEMO has stated that the decreases in the estimated distributed PV generation for New South Wales and Victoria from the 2022 ESOO are due to a change in the model's inputs and assumptions.

The distributed PV generation is based on data provided by CSIRO's Small-scale solar PV and battery projections 2022,[7] and Green Energy Market's Projections for distributed energy resources.[8] AEMO has rebased projections from these reports using March 2023 actual data from the Clean Energy Regulator.[9]

---

3 Capacity of behind-the-meter rooftop PV.

4 Amount of energy generated by behind-the-meter rooftop PV.

5 Capacity of small-scale non-scheduled generating PV systems.

6 Amount of energy generated by small-scale non-scheduled generating PV systems.

7 CSIRO, *Small-scale solar PV and battery projections 2022*, December 2022.

8 Green Energy Markets, *Projections for distributed energy resources solar PV and stationary energy battery systems*, June 2020.

9 AEMO has sourced Clean Energy Regulator data here.

We have assessed the distributed PV generation's calculations, inputs and assumptions in the IASR and the IASR Workbook and have not noted any material errors that had a material impact on unserved energy outcomes in the reliability forecast.

3.1.2 Large Industrial Loads

Materiality: High

Data checked:

- Electricity annual consumption – IASR Workbook – 2023, 2022 and 2021[10]

Input	New South Wales	Victoria
Large industrial loads	AEMO's 2026-27 forecast shows 15,313 GWh of consumption in New South Wales related to LILs, which represents approximately 22.8% of operational consumption. Large industrial load forecast contribution to the maximum operational demand in New South Wales is approximately 12.5%	AEMO's 2026-27 forecast shows 7,025 GWh of consumption in Victoria related to LILs, which represents approximately 17.1% of operational consumption. Large industrial load forecast contribution to the maximum operational demand in Victoria is approximately 7.04%.

AEMO's process for forecasting large industrial load consumption is a five-step process,[11] which is detailed in their Forecasting Approach Electricity Demand Forecasting Methodology document:

- Identifying large industrial users through distribution and transmission network service provider surveys and media searches
- Collecting and analysing historical consumption data
- Requesting survey responses
- Conducting detailed interviews
- finalising forecasts for each scenario and subsector in each region.

Large industrial load forecasts used in the reliability forecast have not been exhaustively reviewed because they are based on confidential data. AEMO aggregates all subsection forecasts with the other large industrial loads before publishing data to maintain confidentiality.[12]

Noting the confidentiality limitations in relation to large industrial load data, we have assessed the public calculations, inputs and assumptions in the IASR and the IASR Workbook and have not noted any material errors that had a material impact on unserved energy outcomes in the reliability forecast.

---

10 AEMO, https://forecasting.aemo.com.au/Electricity/AnnualConsumption/Operational.

11 AEMO, *Forecasting Approach – Electricity Demand Forecasting Methodology*, August 2023, pp 15-19.

12 AEMO, *Forecasting Approach – Electricity Demand Forecasting Methodology*, August 2023, p 19.

3.1.3 Generator forced outage rates

Materiality: High

Data checked:

- Full and partial outage rate data for existing generators – IASR Workbook
- Full and partial outage rate data for new entrant technologies – IASR Workbook

Input	New South Wales	Victoria
Forward outage rates	Approximately 1,796 MW of generation forced outages occur on average during New South Wales 2026-27 forecast USE periods.	Approximately 1,646 MW of generation forced outages occur on average during Victoria 2026-27 forecast USE periods.

In its IASR Workbook, AEMO provides that forced outage rates use technology aggregations to protect confidentiality. Due to this, we were only able to review the outputs from AEMO's calculations to consider in our review of the reliability instrument request.

The forward outage rates are based on different assumptions for new entrants and existing generators. The equivalent full forced outages rate for new entrants is provided by Aurecon.[13]

For existing generators, AEMO collected information on the timing, duration, and severity of the unplanned outages via its annual survey process. This included information on historical outages, and (for selected participants) outage projections across the 10-year forecast period. AEMO used this data to calculate the probability of full and partial forced outages in accordance with the ESOO and Reliability Forecasting Methodology.[14]

The outage data was updated based on historical and forward-looking forced outage rates provided by registered participants. AEMO also uses information provided by AEP Elical on their assessment of the reliability of ageing coal-fired generation.[15]

Noting the confidentiality limitations in relation to generator forced outage rates, we have assessed the public calculations, inputs and assumptions in the IASR and the IASR Workbook and have not noted any material errors that had a material impact on unserved energy outcomes in the reliability forecast.

3.1.4 Generation availability

Materiality: High

Data checked:

- Summer seasonal rating for existing generators and committed projects – IASR Workbook
- Maximum capacity for existing generators and committed projects – IASR Workbook

Input	New South Wales	Victoria

13 Aurecon, *2022 Costs and Technical Parameter Review*, December 2022.

14 AEMO, *2023 Inputs, Assumptions and Scenarios Report*, July 2023, p 90.

15 AEP Elical, *'Assessment of Ageing Coal-Fired Generation Reliability'*, June 2020.

Generation availability	The reliability forecast in the 2023 ESOO considers existing and new generation and battery storage projects that meet the “committed”, “committed*” and “anticipated” commitment criteria published in AEMO’s Generation Information update in July 2023, subject to delays in full commissioning as per the ESOO and reliability forecast methodology	The reliability forecast in the 2023 ESOO considers existing and new generation and battery storage projects that meet the “committed”, “committed*” and “anticipated” commitment criteria published in AEMO’s Generation Information update in July 2023, subject to delays in full commissioning as per the ESOO and reliability forecast methodology

Our review of the data included comparing the:

- Summer seasonal ratings in the IASR Workbook for existing generators and committed projects in the with the summer scheduled capacities recorded in the AEMO NEM Generator Information workbook.
- Maximum capacity in the IASR Workbook for existing generators and committed projects with the capacities listed in the AEMO NEM Generator Information workbook.

We note that the site names for some of the existing generators and committed projects differed slightly in then IASR Workbook and AEMO NEM Generator Information workbook. Despite this, we did not note any material errors in the summer seasonal ratings and maximum capacity in the IASR workbook.

3.1.5 Electric vehicle (EV) uptake

Materiality: Medium

Data checked:

- Battery & Plug-in EVs – IASR Workbook – 2023, 2022 and 2021

Input	New South Wales	Victoria
Electric vehicle (EV) uptake	In 2026-27 874 GWh of EV consumption is forecast in New South Wales, which represents approximately 1.3% of operational consumption. Demand for EV charging is forecast to be approximately 105 MW at time of maximum 50% POE demand in summer.	In 2026-27 696 GWh of EV consumption is forecast in Victoria, which represents approximately 1.7% of operational consumption. Demand for EV charging is forecast to be approximately 88 MW at time of maximum 50% POE demand in summer.

The Battery & Plug-in EVs data is based on the CSIRO’s electric vehicle projections[16] and actual EV sales data from Federal Chamber of Automotive Industries.[17] This data has also been included in the 2023 IASR EV workbook.[18]

This data has been updated from the 2022 and 2021 ESOO, which has resulted in a slight increase in the consumption forecast for EV uptake in New South Wales and Victoria for the

16 CSIRO, *Electric vehicle projections 2022*, November 2022.

17 Refer to https://www.fcai.com.au/sales/get-vfacts.

18 Available here - https://aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp/2024-integrated-system-plan-isp/current-inputs-assumptions-and-scenarios.

2026-27 period. Despite this slight increase, as noted in the CSIRO report, is due to a decrease in the assumed demand at peak for household charging.[19]

Based on our analysis of the data, inputs, and assumptions in the IASR and the IASR Workbook in relation to EV uptake, we have not noted any material errors that had a material impact on unserved energy outcomes in the reliability forecast.

3.1.6 Behind-the-meter battery storage installed capacity

Materiality: Medium in New South Wales / Low in Victoria

Data checked:

- Embedded energy storages – IASR Workbook – 2023, 2022 and 2021

Input	New South Wales	Victoria
Behind-the-meter battery storage installed capacity	18 MW of coordinated distributed storage is forecast to be available in New South Wales in 2026-27. Due to the sustained nature of forecast USE, the average impact of this coordinated distributed storage during USE events is 4.5 MW. Uncoordinated distributed storage discharge during 50% POE maximum demand events is forecast to be approximately 50 MW.	12 MW of coordinated distributed storage is forecast to be available in Victoria in 2026-27. Due to the sustained nature of forecast USE, the average impact of this coordinated distributed storage during USE events is 3.2 MW. Uncoordinated distributed storage discharge during 50% POE maximum demand events is forecast to be approximately 28 MW, in addition to the coordinated storage discharge listed above.

The materiality of behind-the-meter battery storage installed capacity on the unserved energy outcomes in the reliability forecast differs between New South Wales and Victoria. Due to this, we have focused our analysis on New South Wales.

There has been a decrease in the coordinated distributed storage uptake, based on an increase in battery costs in the short term,[20] which has resulted in a slower growth in storage.[21] This has resulted in a decrease in the battery power and storage capacity of embedded battery installations for 2026-27, despite the expectation that technology costs will revert to normal levels in 2027.

Based on our analysis of the data, inputs, and assumptions in the IASR and the IASR Workbook in relation to behind-the-meter battery storage installed capacity, we have not noted any material errors that had a material impact on unserved energy outcomes in the reliability forecast.

3.1.7 Economic growth and population outlook

Materiality: Medium

Data checked:

---

19 CSIRO, *Electric vehicle projections 2022*, November 2022, p v.

20 Refer to https://www.csiro.au/en/research/technology-space/energy/energy-data-modelling/gencost.

21 AEMO, *2023 Inputs Assumptions and Scenario Report*, July 2023, p 70.

- Economic Growth Forecasts – IASR Workbook – 2023, 2022 and 2021

Input	New South Wales	Victoria
Economic growth and population outlook	Economic and population growth assumptions are fundamental inputs to the development of energy consumption and maximum demand forecasts. As identified in the 'Demand Forecasting Assumptions', scenario variation above, which captures variation in economic and population assumptions, the selection of these inputs is of medium materiality.	Economic and population growth assumptions are fundamental inputs to the development of energy consumption and maximum demand forecasts. As identified in the 'Demand Forecasting Assumptions', scenario variation above, which captures variation in economic and population assumptions, the selection of these inputs is of medium materiality.

AEMO engaged BIS Oxford Economics to develop long-term economic forecasts in relation to Gross State Product and household disposable income which form the economic growth forecasts. These forecasts were rebased using the Australian Bureau of Statistics Australian System of National Accounts, 2021-22 financial year release.[22]

We note that BIS Oxford Economics' report was formulated in 2022 and therefore uses inflation forecasts from July 2022, which indicated that inflation would return to the target band in Q1 2024.[23] In the RBA's Statement of Monetary Policy – August 2023, inflation is not forecast to return to the target band until the end of 2025, however is forecast to moderate to 3.5% in mid-2024.[24] Other changes in the macroeconomic outlook since July 2022 have been corrected by using updated data from the Australian Bureau of Statistics.

As highlighted in the AEMO's reliability instrument request, economic growth is of medium materiality to the forecast and therefore we consider that these discrepancies in the Gross State Product forecast would not have a material impact on the unserved energy outcomes in the reliability forecast.

3.1.8 Demand side participation

Materiality: Medium

Data checked:

- DSP – IASR Workbook

Input	New South Wales	Victoria
Demand side participation	337 MW of total demand side participation is forecast to be available in New South Wales in 2026-27. Due to the sustained nature of forecast USE, the average impact of this demand side participation during USE events is 201 MW.	257 MW of total demand side participation is forecast to be available in Victoria in 2026-27. Due to the sustained nature of forecast USE, the average impact of this demand side participation during USE events is 151 MW

22 https://www.abs.gov.au/statistics/economy/national-accounts/australian-system-national-accounts/2021-22.

23 BIS Oxford Economics, *2022 Macroeconomic Projections Report*, July 2022, p. 5.

24 RBA, *Statement of Monetary Policy – August 2023*, August 2023, p. 66.

The reliability response data, which forms part of AEMO's demand side participation forecasts, is based on price response for trading intervals exceeding different pricing levels. The demand side participation input data is based on information provided by registered participants in the NEM through AEMO's demand side participation Information portal and by historical customer meter data.[25]

Forecasts for New South Wales have been impacted by the now committed New South Wales Peak Demand Reduction Scheme, which creates a financial incentive to reduce electricity consumption during peak times. This has resulted in a different DRP settings in New South Wales from the other jurisdictions.

Based on our analysis of the data, inputs, and assumptions in the IASR and the IASR Workbook in relation to demand side participation, we have not noted any material errors that had a material impact on unserved energy outcomes in the reliability forecast.

3.1.9 Electrification

Materiality: Medium

Data checked:

- Electrification (TWh) – IASR Workbook

Input	New South Wales	Victoria
Electrification	AEMO's 2026-27 forecast shows 4,596 GWh of consumption in New South Wales related to electrification, which represents approximately 6.9% of operational consumption.	AEMO's 2026-27 forecast shows 1,973 GWh of consumption in Victoria related to electrification, which represents approximately 4.8% of operational consumption.

The electrification data is based on the CSIRO's Multi-sector energy modelling 2022 report,[26] which has been updated from the 2022 ESOO. The updated data indicates that slower investment in electrification is forecast, due to lower electrification forecasts for industry and less evidence of anticipated electrification.[27] This has reduced the electrification noted for New South Wales and Victoria in the 2022 ESOO.

Based on our analysis of the data, inputs, and assumptions in the IASR and the IASR Workbook in relation to electrification, we have not noted any material errors that had a material impact on unserved energy outcomes in the reliability forecast.

3.1.10 Energy Efficiency

Materiality: Medium

Data checked:

- Energy Efficiency – IASR Workbook – 2023, 2022 and 2021

---

25 AEMO, *2023 Inputs Assumptions and Scenario Report*, July 2023, p 86.

26 CSIRO, *Multi-sector energy modelling 2022: Methodology and results - Final report*, December 2022.

27 AEMO, *2023 Inputs Assumptions and Scenario Report*, July 2023, p 53.

Input	New South Wales	Victoria
Energy Efficiency	AEMO forecast a reduction of 2,229 GWh of consumption in New South Wales due to energy efficiency measures. This represents a reduction of approximately 3.3% of operational consumption.	AEMO forecasts a reduction of 1,753 GWh of consumption in Victoria due to energy efficiency measures. This represents a reduction of approximately 4.3% of operational consumption.

The energy efficiency forecasts are based on two separate approaches to modelling energy efficiency, which includes multi-sector modelling conducted by CSIRO-CWC and modelling of federal and state policy-led energy efficiency savings by Strategic Policy Research.[28]

An adjustment has been applied to the 2021 IASR energy efficiency forecasts to better reflect current energy efficiency trends, using the modelling provided above. This has reduced the levels of reduction in New South Wales and Victoria from energy efficiency.

Based on our analysis of the data, inputs, and assumptions in the IASR and the IASR Workbook in relation to energy efficiency we have not noted any material errors that had a material impact on unserved energy outcomes in the reliability forecast.

3.1.11 Auxiliary loads

Materiality: Medium

Data checked:

- Auxiliary – IASR Workbook – 2023, 2022 and 2021

Input	New South Wales	Victoria
Auxiliary loads	As part of the generator information updates AEMO request scheduled and semi-scheduled generators to self-report their typical auxiliary load percentage. Approximately 233 MW of auxiliary load is forecast during USE periods in New South Wales in 2026-27.	As part of the generator information updates AEMO request scheduled and semi-scheduled generators to self-report their typical auxiliary load percentage. Approximately 330 MW of auxiliary load is forecast during USE periods in Victoria in 2026-27.

Auxiliary loads used in the reliability forecast were based on scheduled and semi-scheduled generators confidentially providing self-reports of typical auxiliary load percentage to AEMO through the Generation Information survey process, which are published in aggregate form.

New entrant data is consistent with the Aurecon AEMO costs and technical parameter review report from October 2022.[29]

Noting the confidentiality limitations in relation to auxiliary loads, we have assessed the public calculations, inputs and assumptions in the IASR and the IASR Workbook and have

---

28 AEMO, *2023 Inputs Assumptions and Scenario Report*, July 2023, p 79.

29 Aurecon, *2022 Costs and Technical Parameter Review*, December 2022.

not noted any material errors that had a material impact on unserved energy outcomes in the reliability forecast.

3.1.12 Inter-regional network losses

Materiality: Medium

Data checked:

- Network losses – IASR Workbook

Input	New South Wales	Victoria
Interregional network losses	Approximately 57 MW interregional network losses are forecast during USE periods in New South Wales in 2026-27.	Approximately 68 MW interregional network losses are forecast during USE periods in Victoria in 2026-27.

AEMO's capacity outlook model[30] uses a topology which splits the five NEM regions into several sub-regions. Despite this, AEMO maintains a regional representation of losses for the transmission network; that is, inter-regional losses are the determined losses on a notional interconnector between two of the five regional reference nodes.[31]

There were no submissions received in relation to inter-regional network losses in the 2023 IASR or during our consultation with stakeholders on these T-3 reliability requests. Due to this, we have assessed the calculations, inputs and assumptions in the IASR and the IASR Workbook to be reasonable.

3.1.13 Inter-regional transmission unplanned outage rates

Materiality: Low

Data checked:

- Transmission outage rates – IASR Workbook

Input	New South Wales	Victoria
Inter-regional transmission unplanned outage rates	The complete removal of inter-regional transmission unplanned outage rates would be associated with a small change (an average of 19 MW) to USE in New South Wales in 2026-27.	The complete removal of inter-regional transmission unplanned outage rates would be associated with a small change (an average of 25 MW) to USE in Victoria in 2026-27.

The transmission line unplanned outage rates are based on the AEMO Network Outage Schedule and other AEMO data.

There were no submissions received in relation to inter-regional transmission unplanned outage rates in the 2023 IASR or during our consultation with stakeholders on these T-3 reliability requests. Due to this, and its low materiality we have assessed the calculations, inputs and assumptions in the IASR and the IASR Workbook to be reasonable.

---

30 AEMO, *ISP Methodology*, August 2021, p. 12.

31 AEMO, *Proportioning Inter-regional losses to regions*, September 2009.

3.1.14 Weather and climate

Materiality: High

Input	New South Wales and Victoria
Weather and climate	Weather and climate are a fundamental driver of the maximum demand distribution and the reliability forecast methodology. This methodology aims to capture the range of possible weather driven outcomes. Variation between 90% and 10% POE maximum demand forecasts, which are partially driven by weather are material. Variation between weather reference years that determine VRE generation and demand outcomes are also material.

We did not consider the data and inputs from weather and climate as there was no related data or inputs included in the IASR Workbook.

3.1.15 Demand forecasting assumptions

Materiality: Low in NSW/ Medium in Victoria

Input	New South Wales	Victoria
Demand forecasting assumptions	AEMO adopted the Step Change scenario from the 2023 IASR as ESOO Central scenario for the purpose of developing its reliability forecast in the 2023 ESOO. Relative to the 2023 ESOO Progressive Change scenario, 50% POE maximum demand is forecast to be 20 MW lower,	AEMO adopted the Step Change scenario from the 2023 IASR as the ESOO Central scenario for the purpose of developing its reliability forecast in the 2023 ESOO. Relative to the 2023 ESOO Progressive Change scenario, 50% POE maximum demand is forecast to be 477 MW higher.

We did not consider the data and inputs from demand forecasting assumptions as there was no related data or inputs included in the IASR Workbook.

3.2 Whether AEMO used reasonable endeavours to prepare the reliability forecast in accordance with the Forecasting Best practice Guideline

The Forecasting Best Practice Guideline (the Forecasting Guideline) provides guidance to AEMO on its forecasting practices and processes relating to a reliability forecast. NER clause 4A.B.5(b) states that the guidance within the Forecasting Guideline must have regard to the following principles:

- Forecasts should be as accurate as possible, based on comprehensive information and prepared in an unbiased manner.
- The basic inputs, assumptions and methodology that underpin forecasts should be disclosed.
- Stakeholders should have as much opportunity to engage as is practicable, through effective consultation and access to documents and information.

The Forecasting Guideline also provides additional advice relevant to AEMO's reliability forecast and its consultation processes.

In this section we assess AEMO's forecasting approach it has undertaken to develop the 2023 reliability forecast.

AER Assessment

In Table 1 below we have assessed whether AEMO's reliability forecast met the factors included in the Forecasting Guideline.

Table 1 AER assessment of other matters

Forecasting Guideline	AER review
Transparent forecasting methodology	The Forecasting Guideline sets out that AEMO should publish key elements of its Forecasting Approach which are transparent, fit-for-purpose and accessible to key stakeholders. AEMO should also provide sufficient detail in its reliability forecast guidelines to comply with NER clause 4A.B.4(b), including key forecasting streams on demand forecasts, supply forecasts and its assessment on whether the reliability standard will be met. AEMO's 2023 Forecasting Best Practice Compliance Report provides that AEMO has a dedicated forecasting approach page on its website,[32] which provides: • an overview of its forecasting approach, • consultation timelines associated with each element of its forecasting approach, • links to relevant methodologies and guidelines, and • the AEMO Forecasting Approach Register, which summarises and responds to matters raised outside of formal consultation processes. Since August 2022, a number of elements of AEMO's forecasting approach have been consulted on through the NEM Reliability Forecasting Guidelines and Methodology Consultation.[33] This resulted in changes to a number of elements of AEMO's forecasting approach, including the ESOO and Reliability Forecast Methodology Document.[34] AEMO has also previously published its Reliability Forecast Guidelines,[35] which set out its how it implements the Forecasting Guideline in preparing a reliability forecast. The next consultation date for the Forecasting Guidelines (2024) and other elements of AEMO's forecasting approach are provided on AEMO's forecasting approach website. For these reasons we consider AEMO has reasonably adhered to the Forecasting Guideline in the way in which it has published, consulted on and implemented methodologies that relate to the reliability forecast.
Consultation	The Forecasting Guideline sets out the consultation process AEMO should undertake when developing the inputs and assumptions that underpin its reliability forecast. This is a single stage consultation process which gives stakeholders the ability to provide submissions. AEMO's Forecasting Best Practice Compliance Report provides that AEMO followed the consultation procedures outlined in the Forecasting Guidelines when preparing the 2023 IASR. This consultation included early engagement, publishing of a draft, with submissions and webinars with stakeholders. This consultation was evident in the 2023 IASR Consultation Summary Report.[36]

[32] Refer to https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-approach.

[33] Refer to https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-approach.

[34] AEMO, *ESOO and Reliability Forecast Methodology document*, August 2023

[35] AEMO, *Reliability Forecast Guidelines*, August 2021.

[36] AEMO, *2023 IASR Consultation Summary Report*, July 2023.

	We consider AEMO's consultation processes, and its final inputs and assumptions used for the 2022 ESOO and reliability forecast are reasonable. Stakeholders were provided with both formal and non-formal options to engage with AEMO's material and AEMO conducted the consultation processes in line with the single stage process set out in the Forecasting Guideline.
Reasonable inputs and assumptions and use and disclosure of data	The Forecasting Guideline states AEMO's forecasts should be based on as up-to-date and comprehensive data as practicable, considering publication timeframes. AEMO should also consider appropriate ways to use confidential information, which is relevant to key inputs for the reliability forecast. For the 2023 ESOO and reliability forecast, AEMO states it has used inputs, assumptions, and scenarios from the 2023 IASR. With no material errors or inaccurate assumptions identified in our review and no stakeholder submissions received, we consider the inputs and assumptions used by AEMO in its forecasts as reasonable. We further note and consider AEMO's use of confidential information for its generation project committed status, auxiliary loads and large industrial load forecasts which is set out in its methodology documents as reasonable.
Transparent drivers of forecasts/effects on inputs	The Forecasting Guideline states AEMO should use a component based methodology, with components of the forecast developed through consultation. AEMO should also identify key inputs and assumptions that drive forecasts so participants can see how changes will affect final forecasts. We consider AEMO's methodology for the ESOO and reliability forecast uses a component based methodology which they have consulted on with stakeholders. On AEMO's forecasting approach webpage[37] it publishes a forecasting approach diagram, which highlights how individual components feed into the overall methodology and reliability forecast. The guidelines/documents that govern a large number of key methodologies, inputs and assumptions are also made available, which provide further context to how they impact AEMO's forecasts.
Scenario and sensitivity analysis for individual forecasts	The Forecasting Guideline sets out that AEMO's modelling approach should consider scenarios and identify key parameters for sensitivity analysis. We consider AEMO's modelling approach is in line with the Forecasting Guideline expectations in that the ESOO includes a number of future scenarios which are consulted on with stakeholders. We note for the 2023 ESOO and reliability forecast AEMO has retained the step change demand scenario, as it considers it most likely to occur due to impacts from the energy transition.[38]

[37] Refer to https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-approach.

[38] AEMO, *Electricity Statement of Opportunities (ESOO)*, August 2023, p. 21.

Appendix A – T-3 reliability instrument for New South Wales

The reliability instrument details are:

Reliability instrument for New South Wales 2026-27	
Region	New South Wales
Size of reliability gap	250 megawatts (MW)
Reliability gap period	1 December 2026 to 31 March 2027 (inclusive)
Trading intervals	Working weekdays for the half-hour ending 15:30, 16:00, 16:30, 17:00, 17:30, 18:00, 18:30, 19:00, 19:30, 20:00, 20:30, 21:00, 21:30 and 22:00[39]
AEMO's one-in-two year peak demand forecast	13,890 megawatts (MW)

[39] National Electricity Market time

Appendix B – T-3 reliability instrument for Victoria

The reliability instrument details are:

Reliability instrument for Victoria 2026-27	
Region	Victoria
Size of reliability gap	70 megawatts (MW)
Reliability gap period	1 December 2026 to 28 February 2027 (inclusive)
Trading intervals	Working weekdays for the half-hour ending 15:30, 16:00, 16:30, 17:00, 17:30, 18:00, 18:30, 19:00, 19:30, 20:00, 20:30 and 21:00[40]
AEMO's one-in-two year peak demand forecast	10,040 megawatts (MW)

[40] National Electricity Market time