

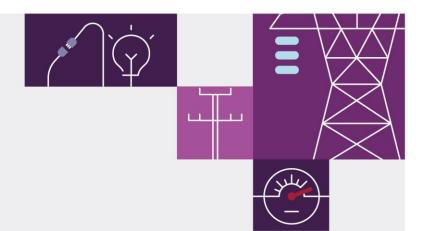
# T-3 Reliability Instrument Request for New South Wales

August 2022

A request to the Australian Energy Regulator







## Important notice

## **Purpose**

This document has been prepared by AEMO as required by section 14I of the National Electricity Law (Law) and clauses 4A.C.1, 4A.C.2 and 11.132 of the National Electricity Rules (Rules) and has effect only for the purposes set out in the Law and Rules.

This document has been prepared by AEMO using information from its 2022 Electricity Statement of Opportunities (ESOO).

## **Disclaimer**

This document might also contain information which is provided for explanatory purposes. That information does not constitute legal or business advice, and should not be relied on as a substitute for obtaining detailed advice about the Law, the Rules, or any other applicable laws, procedures or policies. AEMO has made reasonable efforts to ensure the quality of the information but cannot guarantee its accuracy, completeness or whether it appropriate for your circumstances.

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

© 2022 Australian Energy Market Operator Limited. The material in this publication may be used in accordance with the copyright permissions on AEMO's website.

#### **Version control**

Version	Release date	Changes
1	31/8/2022	Request release

## **Contents**

1.	Reliability instrument request			
2.	Supporting information		7	
3.	Refe	erence publications	12	
4.	Glos	ssary	13	
Tab	les			
Table 1	1	Sensitivity matrix for forecast reliability gap	5	
Table 2 Guide for inputs, calculations, assumptions and methodology used in the reliability forecast		8		
Figu	Jre	S		
Figure	1	Monthly expected USE in New South Wales, 2025-26	5	
Figure	Figure 2 Forecast reliability incident duration in New South Wales 2025-26		6	

## Reliability instrument request

In its 2022 Electricity Statement of Opportunities (ESOO)<sup>1</sup>, AEMO identified a forecast reliability gap in New South Wales in 2025-26. AEMO requests the Australian Energy Regulator (AER) consider making a reliability instrument for this identified forecast reliability gap.

The T-3 cut-off day for this reliability gap is 1 December 2022.

### Creating a T-3 reliability instrument

Where a reliability forecast identifies a forecast reliability gap for a region, AEMO must request the AER consider making a reliability instrument<sup>2</sup> in accordance with section 14I of the National Electricity Law<sup>3</sup> and the requirements of Part C, Division 1 of Chapter 4A of the National Electricity Rules.

Once a decision has been made, the AER will publish the decision, the reasons supporting that decision<sup>4</sup>, and, if applicable, the reliability instrument. The reliability instrument takes effect once published on the AER's website<sup>5</sup>. This request has been prepared in alignment with the AER's Interim Reliability Instrument Guidelines<sup>6</sup> and AEMO's Reliability Forecast Guidelines<sup>7</sup>.

The reliability forecast published in the 2022 ESOO, was published on 31 August 2022, which is in the six months immediately preceding the T-3 cut-off day. A reliability gap was identified against the relevant reliability standard for 2025-26 at time of publication, being the reliability standard of 0.002% unserved energy (USE).8

#### Forecast reliability gap

The size of the **forecast reliability gap** is 790 megawatts (MW)

This reliability instrument request applies to the **forecast reliability gap period** of 1 December 2025 to 28 February 2026 inclusive.

The region in which the forecast reliability gap is forecast to occur is **New South Wales**.

AEMO's **one-in-two year peak demand forecast** for the forecast reliability gap period is 13,133 MW (reported on a 50% Probability of Exceedance [POE], 'as generated' basis).

Available at 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

<sup>&</sup>lt;sup>2</sup> The requirements about when a decision must be made by the AER is governed by section 14K of the National Electricity Law and clause 4A.C of the National Electricity Rules

<sup>&</sup>lt;sup>3</sup> As modified by section 19B of the *National Electricity (South Australia) Act 1996* 

<sup>&</sup>lt;sup>4</sup> In accordance with section 14K(6) of the National Electricity Law

<sup>&</sup>lt;sup>5</sup> In accordance with section 14K(5) of the National Electricity Rules

<sup>&</sup>lt;sup>6</sup> Available at <a href="https://www.aer.gov.au/system/files/Final%20determination%20-%20Interim%20Reliability%20Instrument%20Guidelines%20-%20RRO%20-%20July%202019.pdf">https://www.aer.gov.au/system/files/Final%20determination%20-%20Interim%20Reliability%20Instrument%20Guidelines%20-%20RRO%20-%20July%202019.pdf</a>

<sup>&</sup>lt;sup>7</sup> Available at <a href="https://aemo.com.au/-/media/files/electricity/nem/planning\_and\_forecasting/rsig/reliability-forecast-guidelines.pdf">https://aemo.com.au/-/media/files/electricity/nem/planning\_and\_forecasting/rsig/reliability-forecast-guidelines.pdf</a>

<sup>&</sup>lt;sup>8</sup> The application of the interim reliability measure of 0.0006% expires on 30 June 2025, in accordance with clause 11.132.2 of the National Electricity Rules, and therefore the standard in 2025-26 reverts to the 0.002% reliability standard.

The **trading intervals** during the forecast reliability gap period are those that fall between 2PM and 9PM on weekdays in December 2025 and January and February 2026. For clarity, this means the trading intervals for the half-hour ending 2:30PM, 3PM, 3:30PM, 4PM, 4:30PM, 5PM, 5:30PM, 6PM, 6:30PM, 7PM, 7:30PM, 8PM, 8:30PM and 9PM<sup>9</sup>.

Further information on the forecast reliability gap<sup>10</sup>

A sensitivity matrix to assist with understanding of the identified *forecast reliability gap* and related inputs and assumptions is provided in Table 1. The information shows how additional firm capacity (in megawatts) is forecast to affect expected USE if that firm capacity is only available during the likely trading intervals of the identified reliability gap period. The additional capacity row of the table can be interpreted as either an increase in supply or a reduction in demand.

Table 1 Sensitivity matrix for forecast reliability gap

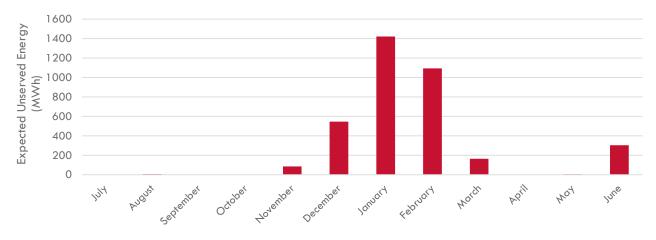
Additional capacity (MW)	0	200	400	600	790	800	1000	1200
Expected USE (%)	0.00581%	0.00438%	0.00330%	0.00252%	0.00200%	0.00197%	0.00161%	0.00136%

Further information on the reliability forecast<sup>11</sup>

The additional firm capacity required to reduce expected USE to below the relevant reliability standard<sup>12</sup>, assuming the additional capacity is available in all hours of the financial year, is 570 MW.

Figure 1 shows the monthly expected USE in New South Wales in 2025-26. USE is forecast to occur in November and December 2025 and January, February, March and June 2025. No other months have forecast USE.

Figure 1 Monthly expected USE in New South Wales, 2025-26



<sup>&</sup>lt;sup>9</sup> All times are National Electricity Market (NEM) time.

<sup>&</sup>lt;sup>10</sup> In accordance with section 3.1 of the Interim Reliability Instrument Guidelines. Available at: https://www.aer.gov.au/system/files/Interim Reliability Instrument Guidelines - RRO - July 2019.pdf

<sup>11</sup> In accordance with section 5.2.2 of the Reliability Forecast Guidelines, as requested in stakeholder consultation. Available at 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.

<sup>&</sup>lt;sup>12</sup> Referring to the reliability standard of 0.002% USE.

Figure 2 shows the duration of expected USE in New South Wales in 2025-26. USE events in this year are forecast to most frequently be one hour long, but many USE events are forecast to stretch over five hours.

Figure 2 Forecast reliability incident duration in New South Wales 2025-26



## 2. Supporting information<sup>13</sup>

AEMO has published information within the 2022 ESOO and accompanying documents regarding the data inputs, calculations, assumptions and methodology used in the reliability forecast<sup>14</sup>.

Specifically, the reliability forecasts and indicative reliability forecasts published in accordance with the Retailer Reliability Obligation (RRO) constitute Chapter 5 of the 2022 ESOO. Key component forecasts and inputs include:

- Consumption and demand forecasts (See Sections 2.2, 2.3 and 2.4 of the 2022 ESOO).
- Supply forecasts (see Chapter 3 of the 2022 ESOO).
- The July 2022 Generation Information page.
- The 2021 Inputs, Assumptions and Scenarios Report (IASR) and the 2022 ESOO Forecasting Assumptions Update (FAU).

Table 2 below serves as a guide to these documents, by each key input, to assist the AER's review of the assumptions underpinning AEMO's reliability forecast data. Please note:

- Relevant sections of the 2022 ESOO, 2021 IASR and 2022 FAU are referred to in the "Description of input" column
- AEMO adopted the Step Change Scenario as the ESOO Central scenario for the purpose of developing its reliability forecast in the 2022 ESOO.
- The Low, Medium or High rating in the column "Materiality to the reliability forecast in 2023-24" is an approximate guide to each input's contribution towards the New South Wales 2025-26 reliability forecast, particularly in the period over which the forecast reliability gap applies.
- Stakeholder consultation on the inputs, calculations, assumptions, and methodologies used in the reliability forecast encompassed:
  - the 2021 IASR, which is the source of most inputs, assumptions and scenarios used in the 2022 ESOO.
  - the Draft 2022 Integrated System Plan (ISP)15, which included stakeholder feedback on inputs and assumptions common to the ISP and ESOO.
  - the 2022 FAU16, the source for inputs, assumptions and scenarios updated since the 2021 IASR.
  - Forecasting Reference Group (FRG) meeting17 presentations and discussions on select topics

Summaries of stakeholder feedback and AEMO responses are published in each consultation, and in FRG meeting minutes.

<sup>&</sup>lt;sup>13</sup> In accordance with In accordance with section 3.1 of the Interim Reliability Guidelines

<sup>14</sup> Available at 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

<sup>&</sup>lt;sup>15</sup> See <a href="https://www.aemo.com.au/consultations/current-and-closed-consultations/2022-draft-isp-consultation">https://www.aemo.com.au/consultations/current-and-closed-consultations/2022-draft-isp-consultation</a>

<sup>&</sup>lt;sup>16</sup> See <a href="https://www.aemo.com.au/consultations/current-and-closed-consultations/2022-consultation-on-forecasting-assumptions-update">https://www.aemo.com.au/consultations/current-and-closed-consultations/2022-consultation-on-forecasting-assumptions-update</a>

<sup>17</sup> See <a href="https://www.aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/forecasting-group-frg">https://www.aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/forecasting-group-frg</a>

Table 2 Guide for inputs, calculations, assumptions and methodology used in the reliability forecast

Input	Description of input	Materiality to the reliability forecast in 2025-26 A,B	Data input source – IASR Workbook location	Stakeholder consultation	Consultancy reports
Demand forecasting assumptions	2022 ESOO Section 1.4	Medium AEMO adopted the Step Change scenario as the ESOO Central scenario for the purpose of developing its reliability forecast in the 2022 ESOO. Relative to the 2022 ESOO Progressive Change scenario, which is considered the next most likely scenario, 50%POE maximum demand is forecast to be 405 MW higher, while coordinated distributed battery installations are forecast to be 213 MW higher, indicating an approximate net impact of 192 MW.	Not applicable	October - November 2021 Delphi panel <sup>C</sup> Draft 2022 ISP submissions made by ISP Consumer Panel, AGL, Delta, Jemena, APGA, Hydro Tas, Iberdrola, Tilt, CEIG, FFI, NICE, ECA, EC, Climate Works, BZE, ACF, QCC, Greenpeace and ARDL	Not applicable
Electric vehicle (EV) uptake	2022 FAU Section 2.1, Battery electric vehicle uptake	Medium In 2025-26 477 GWh of EV consumption is forecast in New South Wales, which represents approximately 0.7% of operational consumption. Demand for EV charging is forecast to be approximately 52 MW at time of maximum 50% POE demand in summer.	Battery & Plug-in EVs (Step Change scenario)	2021 IASR submissions made by ACF, Energy Australia, Infigen, ISP Consumer Panel, Hydro Tasmania and Nature Conservation Council.  February, March and April 2021 FRG Meetings - Electric Vehicle forecasts.  July 2021 FRG meeting – EV forecasting improvements.  Draft 2022 ISP submission by Electric Vehicle Council.	See CSIRO's EV report <sup>D</sup>
Behind-the- meter battery storage installed capacity	2022 FAU Section 2.1, Battery storage uptake	Medium 322 MW of coordinated distributed storage is forecast to be available in New South Wales in 2025-26. Due to the sustained nature of forecast USE, the average impact of this coordinated distributed storage during USE events is 92 MW. Uncoordinated distributed storage discharge during 50% POE maximum demand events is forecast to be approximately 5 MW.	Embedded energy storages tab (Step Change scenario)	2021 IASR submissions made by Energy Queensland, MUA and Walcha Energy.  March and April 2021 FRG Meetings - Distributed Energy Resources (DER) forecasts.  Draft 2022 ISP submissions by Snowy Hydro, GE, CEC, EA, Powerlink, ENA, EA, IE&S, Hydro Tasmania, and FFI.	CSIRO: Projections for small-scale embedded technologies <sup>E</sup> .  Green Energy Markets: Projections for DER – solar PV and stationary energy battery systems <sup>F</sup> .
Distributed PV (including residential, commercial, and larger embedded and PV non- scheduled generation	2022 FAU Section 2.1, Distributed PV	High Estimated distributed PV generation output during forecast USE for New South Wales in 2025-26 is 804 MW, which is a small portion of the 7,744 MW forecast installed capacity.	Rooftop PV and PVNSG tabs (Step Change scenario).	2021 IASR submissions made by ACF, Energy Australia, Nature Conservation Council, PIAC, Powerlink, Walcha Energy.  March and April 2021 FRG Meetings - Distributed Energy Resources (DER) forecasts.  Draft 2022 ISP submissions by NICE, ECA, Snowy Hydro, GE, CEC, EA,	CSIRO: Projections for small-scale embedded technologies <sup>E</sup> .  Green Energy Markets: Projections for DER – solar PV and stationary energy battery systems <sup>F</sup> .

Input	Description of input	Materiality to the reliability forecast in 2025-26 A,B	Data input source – IASR Workbook location	Stakeholder consultation	Consultancy reports
[PVNSG] systems <sup>F</sup> )				Powerlink, ENA, EA, IE&S, Hydro Tasmania, and FFI.	
Economic growth and population outlook	2022 FAU Section 2.1, Economic and population forecasts, Households and connections forecast	Medium  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 Growth Forecasts, Energy Consumption, and Maximum demand tabs. (Step Change scenario)	2021 IASR submissions made by MMTech, Shell Energy, Sligar and Associates. February 2021 FRG Meeting – Draft Economic forecasts. September 2021 FRG Meeting – better integrating economic and energy data.	BIS Oxford Economics Macroeconomics Projections F. The Financial Year 2020-21 ABS National Accounts release was used for rebasing, as it was the most recently available annual dataset at the time of rebasing <sup>G</sup> .
Demand side participation (DSP)	2022 FAU Section 2.1, Demand side participation 2022 ESOO Section 2.4 2022 ESOO Appendix A6	Medium 532 MW of total DSP is forecast to be available in New South Wales in 2025-26. Due to the sustained nature of forecast USE, the average impact of this DSP during USE events is 220 MW.	DSP tab (Step Change scenario).	2021 IASR submissions made by Energy Consumers Australia, MEU and MUA. 5 April 2021 and June 2022 FRG Meetings – Draft DSP Forecasts.	Not applicable.
Electrification	2022 FAU Section 2.1, Electrification	Medium AEMO's 2025-26 forecast shows 5,045 GWh of consumption in New South Wales related to electrification, which represents approximately 7.8% of operational consumption	Electrification tab (Step Change scenario)	2021 IASR submissions made by ENA, Energy Australia, TasNetworks and Origin.  May and June 2021 FRG Meetings – Multi sector modelling.  Draft 2022 ISP submissions by BZE, APA, EA and Jemena.	CSIRO's multi-sector modelling <sup>1</sup> .
Energy Efficiency	2022 FAU Section 2.1, Energy efficiency forecast	Medium  AEMO forecast a reduction of 4,267 GWh of consumption in New South Wales due to energy efficiency measures. This represents a reduction of approximately 6.6% of operational consumption.	Energy Efficiency tab (Step Change scenario)	No submissions on 2021 IASR consulted forecasts.	Strategy Policy Research <sup>J</sup> .
Large Industrial Loads (LIL)	2022 FAU Section 2.1, Large Industrial Loads. Note that LIL forecasts consider confidential information provided by operators.	High AEMO's 2025-26 forecast shows 15,662 GWh of consumption in New South Wales related to LILs, which represents approximately 24.2% of operational consumption. LIL forecast contribution to the maximum operational demand in New South Wales is approximately 14.2%	Not applicable	2021 IASR submissions made by ISP Consumer Panel and MUA May 2022 FRG Meeting – Draft consumption forecasts	Not applicable

Input	Description of input	Materiality to the reliability forecast in 2025-26 A.B	Data input source – IASR Workbook location	Stakeholder consultation	Consultancy reports
Inter-regional transmission unplanned outage rates	2022 FAU Section 2.2, Transmission line unplanned outage rates. 2022 ESOO Section 3.5	Low  The complete removal of inter-regional transmission unplanned outage rates would be associated with a small change (an average of 17 MW) to USE in New South Wales in 2025-26.	Transmission Reliability tab	2021 IASR submissions made by AusNet Services, Energy Australia and MEU.  January 2022 FRG meeting – FRG Consultation on Unplanned transmission outage rate methodology.  June 2022 FRG Meeting – FRG Consultation on Unplanned transmission outage rate forecasts.	Not applicable.
Forced outage rates (FORs)	2022 FAU Section 2.2, Forced outage rate trajectories 2022 ESOO Section 3.4	High Generator forced outages have a high impact on unserved energy. Approximately 2,137 MW of generation forced outages occur on average during New South Wales 2025-26 forecast USE periods.	Generator Reliability Settings tab	June 2022 FRG Meeting – FRG Consultation on Generation forced outage rate forecasts.  Draft 2022 ISP submission by Electric Power Consulting	AEP Elical: Assessment of ageing coal-fired generation reliability <sup>K</sup>
Generation availability	2022 ESOO Chapter 3 Supply forecasts.	High  The reliability forecast in the 2022 ESOO considers existing and new generation and battery storage projects that meet the "committed" and "committed*" commitment criteria published in AEMO's Generation Information update in July 2022 <sup>L</sup> .	Seasonal ratings tab	2021 IASR submissions made by Energy Australia, Energy Estate, ISP Consumer Panel, TasNetworks and Walcha Energy. 2022 FAU submissions made by Hydro Tasmania, TasNetworks and VBN. Draft 2022 ISP submissions by Sligar and associates, FFI, Delta, EA, Powerlink, MA, CEC and Walcha.	Not applicable.
Auxiliary loads	2022 ESOO Section 5.4.3. Note that auxiliary load has been determined based on confidential information provided by participants.	Medium  As part of the generator information updates AEMO request scheduled and semi-scheduled generators to self-report their typical auxiliary load percentage. Approximately 260 MW of auxiliary load is forecast during USE periods in New South in 2025-26.	Auxiliary tab	October 2021 FRG Meeting – Forecast Improvement Plan	Not applicable.
Interregional network losses	2022 FAU Section 2.4 Inter-regional loss flow equations, marginal loss factor (MLF) equations and loss proportioning factors	Medium  Approximately 74 MW interregional network losses are forecast during USE periods in New South Wales in 2025-26	Proportioning factors tab of IASR workbook.	2021 IASR submission made by Ausnet Services. October 2021 FRG Meeting – Forecast Accuracy Report Summary. Draft 2022 ISP submissions by Powerlink, ENA and the SA DEM	Not applicable.

Input	Description of input	Materiality to the reliability forecast in 2025-26 A,B	Data input source – IASR Workbook location	Stakeholder consultation	Consultancy reports
Weather & climate	2021 IASR Section 3.1.7 Applying historical climatic conditions to forecast years.	High 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.	Central scenario of Maximum Demand tab of IASR workbook.	2021 IASR submission made by TasNetworks. Draft 2022 ISP submission by EA.	Not applicable.

#### **Table Footnotes:**

- A. Materiality is:
  - Low if complete removal of this input from the reliability forecast would result in negligible difference to the size of the reliability gap,
  - . Medium if complete removal of this input from the reliability forecast could result in a noticeable change to the forecast reliability gap, and
  - . High if complete removal of this input from the reliability forecast could result in either complete removal, or more than doubling of the forecast reliability gap.
- B. As a general measure of materiality of demand related inputs to the reliability forecast, the estimated contribution (in MW) to forecast maximum 50% POE demand in NSW in 2025-26 has been provided. Note that the forecast contribution of these inputs during periods of forecast USE may differ from these figures.
- C. See A1.3 of the 2022 Draft ISP, available at: https://aemo.com.au/-/media/files/major-publications/isp/2022/appendix-1-stakeholder-engagement.pdf
- D. Available at <a href="https://aemo.com.au/-/media/files/electricity/nem/planning\_and\_forecasting/inputs-assumptions-methodologies/2021/csiro-ev-forecast-report.pdf">https://aemo.com.au/-/media/files/electricity/nem/planning\_and\_forecasting/inputs-assumptions-methodologies/2021/csiro-ev-forecast-report.pdf</a>.
- E. Available at https://aemo.com.au/-/media/files/electricity/nem/planning and forecasting/inputs-assumptions-methodologies/2021/csiro-der-forecast-report.pdf.
- F. Available at https://aemo.com.au/-/media/files/electricity/nem/planning\_and\_forecasting/inputs-assumptions-methodologies/2020/green-energy-markets-der-forecast-report.pdf.
- G. Available at <a href="https://aemo.com.au/-/media/files/electricity/nem/planning">https://aemo.com.au/-/media/files/electricity/nem/planning</a> and forecasting/inputs-assumptions-methodologies/2021/bis-oxford-economics-macroeconomic-projections.pdf.
- H. Available at: https://www.abs.gov.au/statistics/economy/national-accounts/australian-system-national-accounts/latest-release.
- I. Available at https://www.aemo.com.au/-/media/files/electricity/nem/planning\_and\_forecasting/isp/2021/csiro-multi-sector-modelling.pdf.
- J. Available at: https://aemo.com.au/-/media/files/electricity/nem/planning\_and\_forecasting/isp/2021/strategy-policy-research---energy-efficiency-forecasts-2021.pdf
- K. Available at: https://aemo.com.au/-/media/files/electricity/nem/planning\_and\_forecasting/inputs-assumptions-methodologies/2020/aep-elical-assessment-of-ageing-coal-fired-generation-reliability.pdf
- L. Ävailable at <a href="https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information.">https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information.</a>

# 3. Reference publications

Term	Definition
AER Interim reliability instrument guidelines	https://www.aer.gov.au/system/files/Interim%20Reliability%20Instrument%20Guidelines%20- %20RRO%20-%20July%202019.pdf
2022 ESOO report, supplementary results, data files, methodologies and constraints, including: ESOO and Reliability Forecast Methodology Document	https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-reliability/nem-electricity-statement-of-opportunities-esoo
Demand Side Participation (DSP) Forecasting Methodology Reliability forecast guidelines	Available on <a href="https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-approach">https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-approach</a>
2021 IASR	https://www.aemo.com.au/-/media/files/major-publications/isp/2021/2021-inputs-assumptions-and-scenarios-report.pdf  Addendum: https://www.aemo.com.au/-/media/files/major-publications/isp/2022/addendum-to-the-2021-inputs-assumptions-and-scenarios-report.pdf
2022 Forecasting Assumptions Update	https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-reliability/nem-electricity-statement-of-opportunities-esoo
Consultant reports	BIS Oxford Economics:  Economics: https://www.aemo.com.au/-/media/files/electricity/nem/planning and forecasting/inputs-assumptions-methodologies/2021/bis-oxford-economics-macroeconomic-projections.pdf  CSIRO:  Multisector modelling: https://www.aemo.com.au/- /media/files/electricity/nem/planning and forecasting/isp/2021/csiro-multi-sector-modelling.pdf  Electric vehicles: https://www.aemo.com.au/- /media/files/electricity/nem/planning and forecasting/inputs-assumptions-methodologies/2021/csiro-ev-forecast-report.pdf  DER: https://www.aemo.com.au/-/media/files/electricity/nem/planning and forecasting/inputs-assumptions-methodologies/2021/csiro-der-forecast-report.pdf  Green Energy Markets:  DER: https://www.aemo.com.au/-/media/files/electricity/nem/planning and forecasting/inputs-assumptions-methodologies/2021/green-energy-markets-der-forecast-report.pdf
2021 Planning and forecasting consultation on Inputs, Assumptions and Scenarios Report (IASR)	https://www.aemo.com.au/consultations/current-and-closed-consultations/2021-planning-and-forecasting-consultation-on-inputs-assumptions-and-scenarios
Relevant stakeholder consultation	is a second of the second of t
Draft 2022 ISP consultation	$\underline{https://www.aemo.com.au/consultations/current-and-closed-consultations/2022-draft-isp-consultation}$
Consultation on 2022 Forecasting Assumptions Updates (FAU)	https://www.aemo.com.au/consultations/current-and-closed-consultations/2022-consultation-on-forecasting-assumptions-update
Forecasting Reference Group (FRG) meeting records	https://www.aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/forecasting-reference-group-frg
Responses provided by AEMO on 2021 IASR submissions	https://www.aemo.com.au/-/media/files/major-publications/isp/2021/2021-iasr-consultation-summary-report.pdf
Responses provided by AEMO on draft 2022 ISP submissions	https://www.aemo.com.au/-/media/files/major-publications/isp/2022/2022-documents/isp-consultation-summary-report.pdf
Responses provided by AEMO on 2022 FAU submissions	https://www.aemo.com.au/-/media/files/major-publications/isp/2022/2022-forecasting-assumptions-update-consultation-summary.pdf
Forecasting Accuracy Reporting	https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-reliability/forecasting-accuracy-reporting

## 4. Glossary

Term	Definition
committed and committed* projects	Generation that is considered to be proceeding under AEMO's commitment criteria, defined under the Background information tab on the Generation Information page at https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Generation-information.
distributed PV	Includes rooftop systems and other smaller non-scheduled PV capacity.
installed capacity	The generating capacity (in megawatts (MW)) of the following (for example):  A single generating unit.  A number of generating units of a particular type or in a particular area.  All of the generating units in a region.  Rooftop PV installed capacity is the total amount of cumulative rooftop PV capacity installed at any given time.
generating capacity	Amount of capacity (in megawatts (MW)) available for generation.
generating unit	Power stations may be broken down into separate components known as generating units, and may be considered separately in terms (for example) of dispatch, withdrawal, and maintenance.
maximum demand (MD)	Highest amount of electrical power delivered, or forecast to be delivered, over a defined period (day, week, month, season, or year) either at a connection point, or simultaneously at a defined set of connection points.
non-scheduled generation	Generation by a generating unit that is not scheduled by AEMO as part of the central dispatch process, and which has been classified as a non-scheduled generating unit in accordance with Chapter 2 of the NER.
operational electrical consumption	The electrical energy supplied by scheduled, semi-scheduled, and significant non-scheduled generating units, less the electrical energy supplied by small non-scheduled generation.
Interim Reliability Measure (IRM)	The introduction of the Interim Reliability Measure (IRM) in 2020 was intended to reduce the risk of load shedding across the NEM by helping keep USE in each region to no more than 0.0006%. This interim measure is intended to support reliability in the system while more fundamental reforms are designed and implemented.
unserved energy (USE)	Unserved energy is the amount of energy that cannot be supplied to consumers, resulting in involuntary load shedding (loss of consumer supply). USE is calculated consistent with NER 3.9.3C.