



Reliability Forecast Guidelines

Draft report – Standard consultation
for the National Electricity Market

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Explanatory statement and consultation notice

This draft report commences the second stage of the standard rules consultation procedure conducted by AEMO to review the Reliability Forecast Guidelines (the Guidelines), in order to maintain the Guidelines as required under National Electricity Rules (NER) 4A.B.4. This consultation will follow the standard rules consultation procedure described in NER 8.9.2.

A draft update to the Guidelines accompanies this draft determination.

Consultation notice

AEMO is now consulting on this draft and invites written submissions from interested persons on the issues identified in this paper to energy.forecasting@aemo.com.au by **5:00 pm (AEST) on 26 June 2024**.

Submissions may make alternative or additional proposals you consider may better meet the national electricity objective in section 7 of the National Electricity Law (NEL). Please include supporting reasons.

Before making a submission, please read and take note of AEMO's consultation submission guidelines, which can be found at <https://aemo.com.au/consultations>. Subject to those guidelines, submissions will be published on AEMO's website.

Please identify any parts of your submission that you wish to remain confidential, and explain why. AEMO may still publish that information if it does not consider it to be confidential, but will consult with you before doing so. Material identified as confidential may be given less weight in the decision-making process than material that is published.

AEMO is not obliged to consider submissions received after the closing date and time. While exceptional circumstances may enable consideration, any late submissions should explain the reason for lateness and the detriment to you if AEMO does not consider your submission.

Interested persons can request a meeting with AEMO to discuss any particularly complex, sensitive or confidential matters relating to the proposal. Please refer to NER 8.9.1(k). Meeting requests must be received by the end of the submission period and include reasons for the request. We will try to accommodate reasonable meeting requests but, where appropriate, we may hold joint meetings with other stakeholders or convene a meeting with a broader industry group. Subject to confidentiality restrictions, AEMO will publish a summary of matters discussed at stakeholder meetings.

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1. Stakeholder consultation process

AEMO must maintain its Reliability Forecast Guidelines in accordance with National Electricity Rules (NER) 4A.B.4. Apart from any minor or administrative changes, any revisions must be consulted on in accordance with the Rules consultation procedures set out in NER 8.9. The Australian Energy Regulator's (AER's) Forecasting Best Practice Guidelines¹ (FBPG) require AEMO to consult on these guidelines at least once every four years.

This draft report commences AEMO's second stage of consultation to review the Reliability Forecast Guidelines. AEMO welcomes stakeholder feedback on the topics discussed in this draft report, or on the Reliability Forecast Guidelines drafting.

Note that this document uses terms defined in the NER, which are intended to have the same meanings in this report.

AEMO's indicative process and timeline for this consultation are outlined below. Future dates may be adjusted and additional steps may be included if necessary, as the consultation progresses. In the event that these dates change, AEMO will clearly identify the timetable on the webpage for this consultation.

Table 1 Consultation process and timeline

Consultation steps	Dates
Notice of first stage consultation and Issues Paper published	5 January 2024
First stage submissions closed	5 February 2024
Draft Determination and Notice of second stage consultation published	28 May 2024
Submissions due on Draft Determination	26 June 2024
Final Determination published	July 2024

Prior to the submissions due date, stakeholders can request a meeting with AEMO to discuss the issues and proposed changes raised in this draft determination.

¹ <https://www.aer.gov.au/system/files/AER%20-%20Forecasting%20best%20practice%20guidelines%20-%2025%20August%202020.pdf>

2. Background

2.1. Context for this consultation

AEMO is required to publish Reliability Forecast Guidelines (Guidelines) to meet the requirements under NER 4A.B.4. The previous consultation on the Guidelines was undertaken in 2020 for Guidelines published in August 2021. AEMO is required to consult on all of its methodologies every four years, in line with the Forecasting Best Practice Guidelines.

2.2. The national electricity objective

Within the specific requirements of the NER applicable to this proposal, AEMO will seek to make a determination that is consistent with the national electricity objective (NEO) and, where considering options, to select the one best aligned with the NEO.

The NEO is currently expressed in section 7 of the National Electricity Law (NEL) as:

to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:

- (a) price, quality, safety, reliability and security of supply of electricity; and*
- (b) the reliability, safety and security of the national electricity system; and*
- (c) the achievement of targets set by a participating jurisdiction—*
 - i. for reducing Australia's greenhouse gas emissions; or*
 - ii. that are likely to contribute to reducing Australia's greenhouse gas emissions.*

3. List of material issues

AEMO received two written submissions in Stage 1 of this consultation, from:

- Origin Energy (Origin).
- Ergon Energy Corporation Limited (Ergon Energy and Energex).

The key material issues raised in the submissions are discussed below.

3.1. Calculation of the one-in-two peak demand forecast

3.1.1. AEMO proposal

The one-in-two year peak demand forecast is defined by NER 4A.A.3 and is used for two purposes within the Retailer Reliability Obligation framework:

1. It forms part of retailer considerations for the quantity of contracts they must procure to be compliant with the obligation.
2. It forms the compliance value against which AEMO identifies any compliance trading intervals in accordance with NER 4A.A.3, 4A.A.4 and 4A.F.4. NER4A.A.4 for example specifies how AEMO must calculate actual demand for this purpose.

The current drafting in the guideline states that AEMO uses its 50% Probability of Exceedance (POE) 'as generated' forecast as the one-in-two year peak demand forecast identified in NER 4A.A.4. The forecast of 50% POE maximum demand is produced following the methodology outlined in AEMO's most recent Electricity Demand Forecasting Methodology².

AEMO identified that there were numerous differences between the current definition of this value and the actual operational demand values reported by AEMO consistent with NER4A.A.4. As a result, this value could be misaligned for the purposes of a compliance value. Given that NER 4A.A.4 prescribes the approach that AEMO must use for calculating actual peak demand, and that adjusting operational values for unmeasured components of forecast demand is not always practical, AEMO proposed that any inconsistencies between definitions of forecast and actual demand would be best addressed by adjustments to the one-in-two year peak demand forecast for a region as defined in NER 4A.A.3.

Further, AEMO forecasts maximum demand as half-hourly intervals, which are taken as the average of demand within that half hourly period, while operational demand is reported as five-minute intervals, which are taken as the average of demand within that 5 minute period. AEMO proposed an adjustment to the forecast value to better align with five-minute reporting. For example, if numerous five-minute maximum demands were on average 17 megawatts (MW) higher than their corresponding 30-minute maximum demands, a 17 MW adjustment would be applied.

AEMO proposed to update the guidelines to reflect calculation of the one-in-two year peak demand forecast, per the following formula that would correct identified inconsistencies with the use of this forecast as a compliance value:

One-in-two year demand forecast =

² At https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/nem_esoo/2023/forecasting-approach_electricity-demand-forecasting-methodology_final.pdf?la=en

- 50% POE maximum operational sent out demand forecast
- + forecast auxiliaries at time of maximum demand
- average forecast demand side participation at time of maximum demand
- average forecast distributed aggregated storages at time of maximum demand
- + 30-minute to five-minute maximum demand adjustment.

AEMO received several comments about this proposal, which are discussed below.

3.1.2. The inclusion of vehicle to grid components

Ergon Energy Network and Energex noted that it will be important to include the increasing number of electric vehicles (EV) and their incorporation into vehicle to grid (V2G) forecast values at times of maximum demand as a component in the one-in-two year demand forecast equation. AEMO agrees with this comment, as it was AEMO's intent that the 'forecast distributed aggregated storages at time of maximum demand' would also incorporate V2G components.

AEMO confirms that the proposed one-in-two year demand forecast equation will account for EVs and V2G demand, and this has been clarified in the draft of the guidelines.

3.1.3. The consideration for demand side participation (DSP)

With regard to the consideration for DSP, Origin submitted that:

“if a stand-alone statistic, mean or median, is utilised in the manner proposed, the metric will not adequately capture the capacity or likely response of batteries / demand response. DSP represents a broad range of assets with differing constraints, primary business activity, consumer amenity / engagement and therefore firmness. The proposed amendment provides insufficient detail to consider the physical degradation of batteries over time, dynamic FCAS / energy participation and bidding strategies, or annual export limits on residential batteries. AEMO should describe the firmness of the two new variables, having regard to these factors.”

AEMO notes the uncertainty of DSP and batteries, each of which has a range of firmness. The one-in-two year peak demand forecast, however, must be a single value for a region. For both these variables ('average forecast demand side participation at time of maximum demand' and 'average forecast distributed aggregated storage discharge at time of maximum demand') the average is considered to be the most likely outcome. DSP values are calculated consistent with the Demand Side Participation Forecast Methodology³. The values used will take into account the degradation of batteries and the 'firmness' of the capacity. As with most forecasting inputs, there is potential to have a range of values which could occur depending on conditions, however this variability cannot be reflected in a single one-in-two year peak demand forecast value.

3.1.4. The inclusion of supply side variables in the one-in-two year peak demand value

With regard to the inclusion of supply side variables in the one-in-two year peak demand value, Origin submitted:

³ https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/dsp-forecasting-methodology-and-dsp-information-guidelines-consultation/final-stage/2023-dsp-forecast-methodology.pdf?la=en

“The proposed amendment would lead to inconsistent treatment of demand response relative to the approach applied under the Retailer Reliability Obligation (RRO). Under the RRO, when a reliability gap is identified, liable entities are required to enter sufficient qualifying contracts to cover their share of a one-in-two year peak demand for that period. Qualifying contracts include demand response, which are considered on the supply side of the equation. These demand response contracts are required to have an associated firmness and reasoning for the attribution. Consistent supply side treatment of the demand response / batteries in forecasting equations across mechanisms and reporting in the energy market is critical to avoid inefficient or unintended outcomes.”

AEMO notes that demand response and aggregated consumer batteries are treated as supply side resources in the reliability forecast modelling and also may contribute as qualifying contracts for the purposes of the RRO, however notes that there is very limited operational visibility of these technologies and responses. As such, it is not possible to identify actual values in operational timeframes for these solutions, which are technically supply side, but are practically captured in demand values alone. This means that the use of the one-in-two year peak demand forecast for compliance purposes may be further from the actual market outcomes without these proposed changes. Given the lack of market integration of these technologies and market responses, and that the one-in-two year demand forecast value is used for both contract quantity identification and compliance interval identification purposes, AEMO is unable to ensure that it remains perfectly accurate for both purposes simultaneously.

It is AEMO’s draft determination that the accuracy of the compliance value is of greater market value than the accuracy of the contract quantity target, and AEMO proposes to retain the proposed one-in-two year demand value calculation. AEMO are interested in working with market participants to develop how demand response should be taken into account for reliability and RRO in the longer term, given certain requirements to confirm reliability and power system security requirements must be met in order for this to occur.

3.1.5. AEMO’s conclusion

AEMO proposes to retain the proposed methodology for the calculation of the one-in-two year peak demand forecast value, however welcomes further feedback on the proposed approach.

3.2. Forecast of DSP in demand forecast

3.2.1. Summary of submission

AEMO proposed no changes to the treatment of DSP in the Reliability Forecasting Guidelines, as this is instead detailed in the Demand Side Participation Forecast Methodology.

Origin submitted that the DSP forecast requires a methodology that takes into account the speed of rapid evolution, meaning historical data may not be the most appropriate way to forecast future behaviour. Origin also suggested that a regular review of the methodology would likely be required to ensure the outputs remain relevant, and that this was not discussed in the proposal.

3.2.2. AEMO's assessment and conclusion

AEMO notes that it recently reviewed its Demand Side Participation Forecast Methodology in December 2023⁴. AEMO is obligated to do this once every four years, but does review its methodologies more frequently and will do a consultation earlier if needed. In terms of forecast DSP, AEMO notes that some large customers already submit projections using the DSP information portal and are able to provide information on future DSP expectations through this process which is included in forecasts. The DSP forecast that is used in the Electricity Statement of Opportunities (ESOO) reliability forecast is consistent with the ESOO's commitment criteria for supply (except when noted), therefore not all 'forecast' DSP will be included in reliability modelling. For example, in the 2023 ESOO, AEMO noted that it had included the New South Wales Peak Demand Reduction Scheme (PDRS) in its ESOO forecasts as a committed project, while other proposed projects were not considered sufficiently firm to be included. AEMO will continue to review and update methodologies relating to DSP as needed and are open to feedback. If any market participant considers the methodology warrants reconsideration at a time we have not initiated feedback, we are open to their input.

3.3. Minor and administrative changes

3.3.1. AEMO proposal

AEMO proposed that the Reliability Forecast Guidelines remained fit for purpose and that only minor updates were required. Minor updates were proposed:

- Updates to reflect the current NEL, NER and NEO.
- Updates to the names of consultation forums and engagement opportunities consistent with current practice.
- Noting the extension of the interim reliability measure until June 2028.
- Updates to reflect the Integrating Energy Storage Systems (IESS) rule change and to extend all relevant obligations to bidirectional units.
- Updates to AEMO's forecasting approach which have previously been consulted on.
- Updates to address minor spelling issues.

3.3.2. Summary of submissions

Ergon Energy Network and Energex supported AEMO's position that the Reliability Forecast Guidelines remain fit for purpose.

3.3.3. AEMO's assessment and conclusion

AEMO has made these minor updates to the draft guidelines as flagged.

⁴ <https://aemo.com.au/en/consultations/current-and-closed-consultations/demand-side-participation-forecasting-methodology-and-dsp-information-guidelines-consultation>

4. Conclusion

AEMO has released a draft of the guidelines along with this draft report. The draft guidelines incorporate AEMO’s proposed changes and any changes from the feedback received. AEMO welcomes further feedback on the draft guidelines as part of Stage 2 of this consultation process.