AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

RELIABILITY FORECAST GUIDELINES

ISSUES PAPER

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EXECUTIVE SUMMARY

The publication of this Issues Paper commences the first stage of the Rules consultation process conducted by AEMO to finalise the Reliability Forecast Guidelines (Guidelines) by 28 February 2021 in accordance with clauses 4A.B.4 and 11.116.4 of the National Electricity Rules (NER). The finalised Guidelines will replace the Interim Reliability Forecast Guidelines (Interim Guidelines) made under clause 11.116.4(a) of the NER.

AEMO has prepared this Issues Paper to facilitate informed discussion and feedback by industry about the most efficient way to meet the objectives for clause 4A.B.4 in the NER.

In summary, the key Guidelines changes are to align with the relevant aspects of the AER's Forecasting Best Practice Guidelines (FBPG)[1] regarding:

- Inputs and assumptions
- The Reliability Forecast gap
- The consultation process with relevant stakeholders
- Confidentiality
- The Forecasting Accuracy Report (FAR) and Forecasting Improvement Plan (FIP), including analysis of how data and methodology updates affect the reliability forecast

Stakeholders are invited to submit written responses on the issues identified in this paper by 5.00 pm (Melbourne time) on 16 December 2020, in accordance with the Notice of First Stage of Consultation published with this paper.

[1] The FBPG were published in August 2020. Available at https://www.aer.gov.au/system/files/AER%20-%20Forecasting%20best%20practice%20guidelines%20-%2025%20August%202020.pdf

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1. STAKEHOLDER CONSULTATION PROCESS

AEMO is consulting on the Guidelines in accordance with the Rules consultation process in NER Section 8.9.

AEMO's indicative timeline for this consultation is outlined below. Dates may be adjusted depending on the number and complexity of issues raised in submissions and any meetings with stakeholders.

Deliverable	Indicative date
Issues Paper published	11 November 2020
Submissions due on Issues Paper	16 December 2020
Draft Report published	28 January 2021
Submissions due on Draft Report	12 February 2021
Final Report published	26 February 2021

Prior to the submissions due date, stakeholders can request a meeting with AEMO to discuss the issues and proposed changes raised in this Issues Paper. This can be done by emailing energy.forecasting@aemo.com.au.

Appendix A provides a glossary of terms used in this Issues Paper.

2. BACKGROUND

2.1. NER requirements

AEMO is required to publish Reliability Forecast Guidelines (RFG) to meet the requirements under NER clause 4A.B.4. The Guidelines must be finalised by 28 February 2021 under transitional rule 11.164.4.

The finalised Guidelines will replace the Interim Reliability Forecast Guidelines (Interim Guidelines) that have been in effect since 19 December 2019.

The publication of this Issues Paper commences the first stage of the Rules consultation process conducted by AEMO.

3. KEY FOCUS AREAS

3.1. Forecasting Accuracy Report and Forecasting Improvement Plan

With the publication of the AER's final Forecasting Best Practice Guidelines (FBPG) in August 2020, there is additional focus on AEMO's forecast accuracy reporting (FAR) and associated forecast improvement plan[2] (FIP).

Section 4.2 of the FBPG provides guidance on assessing the forecasting performance of changed forecasting methodologies or inputs. In particular, it recommends assessment of how the methodologies would have performed if they had been executed over the previous five years of forecasting. AEMO supports the guidance's motivation to transparently disclose the forecasting performance of new methodologies and inputs, but notes that there are major practical challenges:

- Conducting such forecasts would be costly given the scale and complexity of AEMO's forecasts. Processing costs and efforts would be compounded by the need to integrate the new

[2] See Section 4.2 of the FBPG for FAR requirements.

methodology/input with older models that have already been superseded, to facilitate a like for like comparison.

- Accessing additional historical training data may be costly or impossible. It is poor statistical practice to present forecasts of the training data period as representative of forward-looking forecast performance, so additional historical training data would be required just for assessment purposes. However, gathering and quality checking such data is often expensive, and may even be impossible if a data series used an explanatory variable that has not existed for a sufficiently long period.

Thus, AEMO will assess the forecasting performance of new methodologies or inputs with consideration of the costs and benefits of doing so. The potential for cost effective assessment against historical years will differ by methodology and input.

3.2. Inputs and assumptions

NER 4A.B.4 (b) (6) requires that the Guidelines provide for the methodology, assumptions and inputs to be used for a reliability forecast, including a high-level description of the sourcing and application of the modelling assumptions and inputs.

AEMO has clarified in Section 3.3 of the Guidelines that the key sources, inputs and assumptions are to be reported in the Inputs, Assumptions and Scenarios Report (IASR), to be published at least annually.

The Guidelines have been amended to align with Section 2.2 of the FBPG concerning stakeholder consultation and AER involvement in the IASR and ESOO.

3.3. Reliability Forecast

NER 4A.B.4(b)(6)(ii) requires AEMO to explain how a reliability forecast, indicative reliability forecast, forecast reliability gap and forecast reliability gap period are determined. This explanation is provided in Section 5.1 of the Guidelines, which includes reference to the ESOO and Reliability Forecast Methodology document.

Section 6.1.2 and 6.1.3 of the ESOO and Reliability Forecast Methodology document have been amended to explain the calculation of the *forecast reliability gap* as follows:

- AEMO notes that in rare cases, it may be mathematically impossible to calculate a forecast reliability gap using the substantive methodology. This is due to the *forecast reliability gap period* (where the probability of lost load exceeds 10%) being too narrow to capture enough unserved energy events for inclusion in the *forecast reliability gap* calculation. The outcome is that no *forecast reliability gap* can be determined that would reduce expected USE to the reliability standard. AEMO describes such a case as incalculable.
- Given the circumstances in which incalculable cases are expected to occur are rare, AEMO does not propose to change the substantive methodology but to insert a fallback provision to manage incalculable cases, that widens the *forecast reliability gap period* to a point where the *forecast reliability gap* is calculable.
- The fallback provision is proposed in Section 6.1.3 of the ESOO and Reliability Forecast Methodology document, stating that, should the calculation of the *forecast reliability gap* be incalculable, the calculation of the *forecast reliability gap period* (in section 6.1.2) is widened to include periods with a 5% probability of lost load, rather than a 10% probability of lost load. Should the *forecast reliability gap* still prove incalculable, the calculation of the forecast *reliability gap period* is widened further to include periods with a 1% probability of lost load.

3.4. Consultation process with relevant stakeholders

Section 2.3.1 of the Guidelines *(Choosing the right form of engagement)* has been amended to recognise a broader set of factors that drive AEMO's consultation methods. AEMO notes the AER's recent work in defining considerations for effective consultation in the Consultation principles and practices for the ISP in Section 3 of the FBPG. AEMO considers it worthwhile to also utilise these considerations for Reliability Forecasts. The considerations include:

- Which types of facilitation will be most effective.
- The time and resource constraints of the stakeholders.
- The potential for increasing/decreasing the degree of stakeholder involvement, as warranted by the emerging joint understanding of the issue(s).
- Stakeholder preference for more than one type of engagement.

Guided by the considerations above, AEMO proposes selecting from a set of engagement types according to the purpose of the engagement and according to stakeholder feedback at any time. Such feedback may include the:

- Efficacy of the engagement process.
- Timeliness and relevancy of information made available to stakeholders.
- Information needed to understand the components driving the *Reliability Forecast*.
- Transparent disclosure of all key inputs.

The Guidelines describe various forms of engagement and indicate their likely application in the development of the *Reliability Forecast*. The forms of engagement include industry forums and workshops, technical working groups, one on one discussions, and written consultations.

AEMO notes the value of a register for tracking stakeholder feedback and improvement opportunities. Such feedback may relate not only to technical matters (such as methodologies) but also to the engagement process itself. As methodologies may be reviewed as infrequently as every four years[3], it is important that feedback is documented in readiness for the next review. Rather than implement an RFG specific Issues Register, the Forecasting Approach register is a general register which includes RFG matters categorised as such.

The Forecasting Approach register will be available on AEMO's website.

3.5. Confidentiality

AEMO sets out in Section 3.4 of the Guidelines how it maintains confidentiality over the lifecycle of forecasting development, data gathering, consultation, modelling/analysis, publishing and forecast accuracy assessment.

3.6. Interim Reliability Measure (IRM) and Retail Reliability Obligation (RRO)

The IRM is a new interim reliability measure, agreed to at the March 2020 COAG Energy Council and introduced by the National Electricity Amendment (Interim Reliability Measure) Rule 2020, that sets a maximum expected USE of no more than 0.0006% in any region in any financial year. It is intended to supplement the existing reliability standard for a limited period of time. The proposed National Electricity Amendment (Retailer Reliability Obligation trigger) Rule 2020 provides that the RRO is to be triggered by a forecast exceedance of the IRM.

[3] AEMO must consult on each component of the forecasting approach at least once every four years, as per the FBPG section 2.1.

The RRO trigger Rule is anticipated to commence operation in late November 2020. The proposed Rule requires AEMO to amend the Reliability Forecast Guidelines to take into account the RRO trigger by 27 December 2020. In doing so, AEMO is not required to comply with the Rules consultation procedures. In this case AEMO will release an updated version of both the Interim Reliability Forecast Guidelines and the Draft Reliability Forecast Guidelines.

4. DRAFTING FOR PROPOSED CHANGES

To help stakeholders and other interested parties respond to this Issues Paper, AEMO has published a draft of the Reliability Forecast Guidelines incorporating the proposed changes AEMO from the Interim Reliability Forecast Guidelines. Clean and change-marked versions are available at: https://www.aemo.com.au/consultations/current-and-closed-consultations/reliability-forecast-guidelines

APPENDIX A - GLOSSARY

Term or acronym	Meaning
RFG	Reliability Forecast Guidelines
IRFG	Interim Reliability Forecast Guidelines
FBPG	Forecasting Best Practice Guidelines
NER	National Electricity Rules
AEMO	Australian Energy Market Operator
IFBPG	Interim Forecasting Best Practice Guidelines
IASR	Inputs, Assumptions and Scenarios Report
FAR	Forecasting Accuracy Report
FIP	Forecasting Improvement Plan