For consultation

Draft Interim Forecasting Best Practice Guidelines

Retailer Reliability Obligation

May 2019

AUSTRALIAN ENERGY REGULATOR

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Version	Date	Pages
1.0	23 May 2019	23

Contents

Glossary

Shortened form	Extended form
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
COAG	Council of Australian Governments
DER	Distributed Energy Resources
ESB	Energy Security Board
ISP	Integrated System Plan
NEL	National Electricity Law
NER	National Electricity Rules
NERR	National Energy Retail Rules
POE	Probability of Exceedance
RIT	Regulatory Investment Test
RRO	Retailer Reliability Obligation
USE	Unserved Energy

1 Public consultation process

At the 26 October 2018 COAG Energy Council meeting, the responsible Ministers agreed that the Energy Security Board (ESB) would progress development of draft National Electricity Law (NEL) amendments to give effect to the Retailer Reliability Obligation (RRO).

The ESB was also tasked with developing the National Electricity Rules (NER) necessary to implement the RRO. The RRO Draft Rules were published for stakeholder consultation on 8 March 2019.

The RRO Final Rules are proposed to commence on 1 July 2019.

As set out in the RRO Rules, the Australian Energy Regulator (AER) will have a range of new roles and responsibilities, including developing several Guidelines relating to aspects of implementing the RRO.[1]

The RRO Rules require the AER to develop several interim Guidelines related to the RRO that will be in place for one to two years. During this period the AER will engage in a consultation process to develop the Final Guidelines, as set out in Table 1.1 below.[2]

Table 1.1 Guideline consultation process

	Consultation Interim Guidelines	Final Interim Guidelines	Final Guidelines
Reliability Instrument Guidelines	April 2019	31 July 2019	31 July 2020
Market Liquidity Obligation Guideline	April/May 2019	31 August 2019	31 December 2020
Contracts and Firmness Guidelines	May/June 2019	31 August 2019	31 December 2020
Forecasting Best Practice Guidelines	May/June 2019	30 September 2019	30 November 2020
Opt-in Guidelines	Late 2019/early 2020	No interim arrangements	30 June 2020

[1] These are set out in Part 2A of the NEL and clause 4A of the RRO Rules.

[2] Due to timing constraints, the Reliability Instrument Guidelines, the MLO Guideline, the Contracts and Firmness Guidelines and the Forecasting Best Practice Guidelines will be developed as interim guidelines for operation in 2019 and 2020.

	Consultation Interim Guidelines	Final Interim Guidelines	Final Guidelines
Reliability Compliance Procedures and Guidelines	Mid 2020	No interim arrangements	31 December 2020

1.1 Consultation on Draft Interim Forecasting Best Practice Guidelines

Roles and functions of the AER

Under the RRO Rules, the AER is required to develop the following guidelines:

- Reliability Instrument Guidelines
- Market Liquidity Obligation Guideline
- Contracts and Firmness Guidelines
- Forecasting Best Practice Guidelines
- Opt-in Guidelines
- Reliability Compliance Procedures and Guidelines

Under the RRO Rules, the AER is also tasked with new responsibilities relating to:

- Decision to make or not to make a reliability instrument
- Monitoring the Market Liquidity Obligation
- Assessment of bespoke contract firmness methodologies
- Decisions to approve or to reject an application to adjust a net contract position
- Large customer opt-in processes and approval
- A range of compliance issues relating to contracts and firmness, market liquidity obligations and reliability compliance procedures.

In this document, the AER is seeking feedback on the draft Interim Forecasting Best Practice Guidelines.

Submissions to the consultation process should be provided by **19 June 2019**.

Submissions may be sent to RRO@aer.gov.au with the following title in the email: *For consultation – Draft Interim Forecasting Best Practice Guidelines.*

All submissions received will be published on the AER website (www.aer.gov.au).

To facilitate an informed and transparent consultative process, submissions will be treated as public documents unless otherwise requested. Parties wishing to submit confidential information should:

- clearly identify the information that is the subject of the confidentiality claim;
- provide a non-confidential version of the submission in a form suitable for publication.

For further information regarding our use and disclosure of information provided to us, see the ACCC/AER Information Policy (June 2014), which is available on our website.

Definitions and interpretation

In the draft Interim Forecasting Best Practice Guidelines, the words and phrases used have the meanings given to them in the NER, the National Energy Retail Rules (NERR), and the RRO Rules.

Process for revision

Under the RRO Rules, the AER must make, publish and may amend the Forecasting Best Practice Guidelines in accordance with the *Rules consultation procedures*.[3]

However, the AER is not required to comply with the *Rules consultation procedures* when making and publishing the Interim Forecasting Best Practice Guidelines.[4]

The AER may also make administrative or minor amendments to the Forecasting Best Practice Guidelines without complying with the *Rules consultation procedures*.[5]

Version history and effective date

A version number and an effective date of issue will identify each version of the Forecasting Best Practice Guidelines.

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[3] RRO Rules 4A.B.5 (a).

[4] RRO Rules 11.116.3(b).

[5] RRO Rules 4A.B.5(c).

2 Purpose of the Forecasting Best Practice Guidelines

The RRO creates new obligations for the Australian Energy Market Operator (AEMO), the AER and other market participants. Specifically, for the purposes of this Guideline, the RRO Rules require AEMO to produce *reliability forecasts* and *indicative reliability forecasts* in the *statement of opportunities.* AEMO's *reliability forecasts* may launch new obligations on market participants that have material financial implications and the AER must consider how AEMO has prepared its *reliability forecasts* and *indicative reliability forecasts* in the *statement of opportunities* before making decisions.

In recognition of this, the AER is required to develop these Interim Forecasting Best Practice Guidelines. AEMO will be required to prepare the *reliability forecasts* and *indicative reliability forecasts* in the *statement of opportunities* in accordance with these Guidelines.[6]

The purpose of these Guidelines is to:

1) Enable the AER to effectively discharge its responsibilities with regard to the RRO;
2) Provide AEMO with guidance and direction in developing its Reliability Forecast Guidelines and on the preparation of its forecasts so as to enable the AER to discharge its responsibilities as above; and
3) Provide confidence to market participants concerning the quality and transparency of *reliability forecasts* and the supporting process conducted by AEMO.

These Guidelines have been prepared and published in accordance with the RRO Rules, transitional provision 11.116.3(d), having regard to the principles in RRO Rules, 4A.B.5(b):

1) forecasts should be as accurate as possible, based on comprehensive information and prepared in an unbiased manner; and
2) the basic inputs, assumptions and methodology that underpin forecasts should be disclosed; and
3) stakeholders should have as much opportunity to engage as is practicable, through effective consultation and access to documents and information.[7]

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[6] RRO Rules, 11.116.3(d)(1). As a transitional measure, when preparing a *reliability forecast* or *indicative reliability forecast* in 2019, AEMO is not required to do so in accordance with the Forecasting Best Practice Guidelines.

[7] RRO Rules, 4A.B.5 (b).

These Guidelines are underpinned by our assessment of Best Practice forecasting for AEMO when making, amending and publishing the *reliability forecast* or *indicative reliability forecast* in the *statement of opportunities*.

The Forecasting Best Practice Guidelines promote greater transparency and stakeholder confidence by describing the consultation process, consistent with the *Rules consultation procedures* in Clause 8.9 of the NER, for the determination of the assumptions, methodologies, and inputs on which AEMO's production of the annual forecasts of *unserved energy* (USE) rely.[8] *Unserved energy* is particularly relevant as, amongst other things, prior to the AER making a *Reliability Instrument,* we must be satisfied that AEMO has not made inaccurate assumptions underpinning its forecast which have had a material impact on *unserved energy* outcomes in the *reliability forecast*.[9]

[8] Under the NER, unserved energy (USE) is a measure of the amount of customer demand that cannot be supplied within a region due to a shortage of generation, demand-side participation or interconnector capacity. The reliability standard specifies that expected USE should not exceed 0.002% of total energy consumption in any region in any financial year.

[9] RRO Rules, 4A.C.11 (b).

3 Draft Interim Forecasting Best Practice Guidelines

To ensure AEMO's *reliability forecasts* in the *statement of opportunities* are prepared in accordance with forecasting best practices, these Forecasting Best Practice Guidelines provide procedural guidance and are intended to promote stakeholders' confidence and transparency about AEMO's forecasting practices and processes.[10]

Given that AEMO's *reliability forecasts* will now be a critical input to the statutory requirements under the RRO, it is essential to ensure comprehensive engagement by AEMO with all interested stakeholders regarding the principles that underpin its proposed forecasting methods, assumptions, and inputs take into account reasonable stakeholder expectations.

These new forecasting requirements expand the utility of AEMO's forecasting outcomes from primarily an information provision mechanism to a significant instrument with financial implications that feed into the RRO regulatory function. For example, when assessing a request from AEMO to make a *reliability instrument*, the AER will consider whether AEMO has prepared the *reliability forecast* and *indicative reliability forecast* in accordance with the Forecasting Best Practice Guidelines.[11]

The RRO rules create nested processes and guidelines for forecasting:

- AEMO is required to develop *Reliability Forecast Guidelines* which explain how a *reliability forecast* is prepared and how AEMO will implement the Forecasting Best Practice Guidelines in preparing a *reliability forecast*.
- The AER is required to develop the Forecasting Best Practice Guidelines. The AER considers best practice forecasting processes, for AEMO, would be to follow the Forecasting Best Practice Guidelines.

Forecasting best practice principles

The RRO Rules require the AER to have regard to certain principles in developing and publishing the Forecasting Best Practice Guidelines.[12]

These principles assert that:

- forecasts should be as accurate as possible, based on comprehensive information and prepared in an unbiased manner; and

[10] RRO Rules, 4A.B.5 (b).

[11] RRO Rules, 11.116.3(d); As a transitional measure, when preparing a *reliability forecast* or *indicative reliability forecast* in 2019, AEMO is not required to do so in accordance with the Forecasting Best Practice Guidelines.

[12] RRO Rules, 4A.B.5(b)(1), (2), and (3).

- the basic inputs, assumptions and methodology that underpin forecasts should be disclosed; and
- stakeholders should have as much opportunity to engage as is practicable, through effective consultation and access to documents and information.[13]

Forecasting best practice consultation procedures

To provide confidence to stakeholders regarding AEMO's production of *reliability forecast* and *indicative reliability forecast*, the Forecasting Best Practice Guidelines introduce a new consultation requirement, the Forecasting Best Practice Consultation Procedures.

The AER considers it best practice for AEMO to act in accordance with the Forecasting Best Practice Consultation Procedures when establishing its overall forecasting processes, including, but not limited to, the methodologies, assumptions, and the framework around the basic inputs that will underpin their forecasts. The bespoke consultation procedure is modelled on the *Rule consultation procedures* in the NER, Clause 8.9, and is detailed in Appendix A.

The AER considers it best practice for AEMO to use the Forecasting Best Practice Consultation Procedures every four years, unless there is a material change in market circumstances that justifies more frequent consultation, to determine:

- the fundamental methodologies needed in the forecasting processes;
- the components on which the forecasts are to be based, and the way they are to be determined and used;
- the stakeholder engagement process for determining the forecasting methodologies, inputs and assumptions.

While only performing the Forecasting Best Practice Consultation Procedures every four years, this process effectively determines how each *reliability forecast* and *indicative reliability forecast* will be produced by AEMO (depicted visually in Figure 1).

The results of this consultation process will provide the forecasting framework for the annual *reliability forecasts* and *indicative reliability forecasts*, unless there is a material change in circumstances or four years have passed. The forecasting requirements outlined in sections 3.1 to 3.5 should follow this process. Once a consultation process has been completed for each aspect of forecasting as described below, if there was a material change unless four years have expired, AEMO may elect to run the relevant process on only the section that has changed, i.e., one or all of the methodology, scenarios and assumptions, inputs, and/or reporting.

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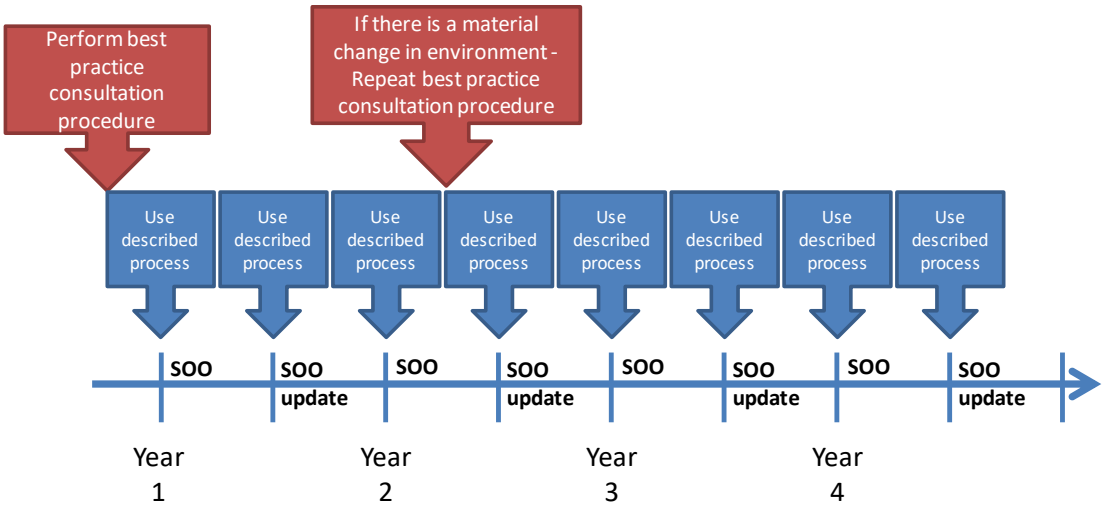
[13] RRO Rules, 4A.B.5 (b).

Figure 1 - Forecast Best Practice Consultation timing example



3.1 Forecasts should be accurate, unbiased and based on comprehensive information

AEMO's forecasts should be as accurate as possible, based on comprehensive information, using a robust methodology, and prepared in an unbiased manner.

The transparency of the forecasting process and the examination of historical forecast performance is important as it demonstrates their replicability and provides stakeholder confidence. It may also expose potential forecasting errors or biases. To this end, the AER considers it best practice for AEMO to include post-event benchmarking in its *reliability forecasts* that compare previous forecast events against observed events. This is covered further in section 3.5.

New AEMO reporting requirement

To provide confidence to stakeholders regarding AEMO's production of *reliability forecasts* and *indicative reliability forecasts,* the Forecasting Best Practice Guidelines introduce a new AEMO reporting requirement.

When publishing each *statement of opportunities,* independent of whether the *reliability forecast* or *indicative reliability forecast* indicates a *gap*, AEMO will report to the AER how it has, or has not, prepared the relevant forecasts in accordance with the Forecasting Best Practice Guidelines. As appropriate, this should include a description of how AEMO has or has not complied with the processes identified in the Forecasting Best Practice Consultation Procedures. Information provided in this report is critical to the AER's assessment of a request to make a *reliability instrument*.

3.2 Forecasting methodologies, inputs, and assumptions to be disclosed

The methodologies, assumptions and basic inputs that underpin AEMO's forecasting processes must be transparent, disclosed to stakeholders, and developed and prepared in accordance with the Forecasting Best Practice Guidelines and the *Forecasting best practice consultation procedures*.

With a view to increasing stakeholder engagement and confidence in AEMO's forecasts and processes, and consistent with the forecasting best practice principles,[14] the AER considers best practice would be for AEMO to act in accordance with the consultation process set out in section 3.

Methodologies

At a high level, there are three primary forecasting analytical streams used to prepare *reliability forecasts* or *indicative reliability forecasts*. These are the preparation of the:

- demand forecasts – the load to be met by the NEM;
- supply forecasts – the operational parameters applied to the generators, dispatchable loads and transmission elements; and
- assessment of the demand and supply balance that determines whether the reliability standard will be met.

The AER considers it best practice for AEMO to follow the process set out in section 3 in determining and detailing the approach to each of these streams. The final report from that process should detail:

- the suite of models to be used to perform the forecasting activities;
- the approach to the incorporation of data and its distribution or publication;
- how exogenous factors will be taken into account;
- the representation of resource constraints affecting energy delivery;
- how stakeholders can engage with the interim results, if appropriate, and the final results of the analytical stream; and
- the process AEMO follows internally to verify the approach and its results.

Assumptions, scenarios and sensitivities

Best practice forecasting involves considering a range of forecast outcomes to take into account different future scenarios. AEMO's modelling approach considers scenarios and identifies key parameters for sensitivity analysis. This modelling approach is consistent with the necessary transparency required to understand the sensitivity of the results to change.

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[14] RRO Rules, 4A.B.5 (b).

The *reliability forecast* and *indicative reliability forecast* are, at this stage, to be determined on the neutral forecast. The AER considers best practice development of the scenarios and sensitivities, where appropriate, and the supporting narratives, will follow the approach set out in section 3.

Inputs

AEMO employs a range of modelling techniques to prepare their forecasts and determine each input component used in both the production of the demand forecasts and the performance of the supply sector.

To facilitate stakeholders' understanding of the fundamental drivers of energy industry development, the AER considers it best practice for AEMO to use the process set out in section 3 to determine the components that will feed into the models used to determine the demand forecasts and the supply forecasts on which *reliability forecasts* will be produced. This may comprise of several aspects for each component, such as:

- the method of determining or sourcing the values for the forecast horizon. For example, amongst other approaches, this could include :
    - internal analysis and data processing by AEMO, or
    - engaging appropriately qualified consultants, or
    - consulting with relevant industry bodies or state or federal departments;
- the stakeholder engagement approach AEMO intends to use with respect to:
    - the examination of the actual input values determined for each component when making a forecast; and
    - how to match the stakeholder consultation approach with the complexity of the task, and the decisions and assumptions AEMO uses in the forecasting process. For example, different components may have different stakeholder engagement approaches, such as, but not limited to, broad public consultation through existing stakeholder forums or small, targeted industry reference groups.
- the cut-off time frame after which changes made to inputs cannot be accommodated without jeopardising the forecast publication date;
- the approach regarding the use of confidential data;
- the mechanisms for the release of data.

Confidential data, disclosure and publication of data

AEMO should use the most accurate and relevant data available when preparing a *reliability forecast* or *indicative reliability forecast*, including, where appropriate, the use of confidential data.

The RRO Rules strengthen AEMO's information gathering regime by allowing AEMO access to more granular and accurate information, thereby facilitating a more robust understanding of expected market conditions on which to prepare or update *reliability*

forecasts in the *statement of opportunities*.[15] Some of the data obtained by AEMO for this purpose may be confidential in nature.

The AER considers it best practice for AEMO to use accurate confidential data provided for this purpose, however AEMO should also determine the most appropriate aggregation approach such that non-confidential representative information may be published.[16]

Publishing processed results

While a component based input approach provides clarity on the application and development of that component over time, it can be difficult for stakeholders to understand how the development of that component may affect the overall result. The interaction of that component with others may not be evident until all of the inputs have been recombined into the different major inputs.

For example, gross domestic product (GDP) is a variable that may be used in the development of a demand forecast. While it may be simple to plot the anticipated GDP for different scenarios over time, it may be difficult to discern how changes to that component will affect the final demand forecast. Similarly, rooftop PV penetration over time can be clearly depicted, but the impact of the regional hourly demand curve to be met by the NEM generators may be challenging to demonstrate effectively.

To this end, AEMO should publish indicative samples of the output of each component, and their contribution to the overall result so that the interaction of the components can be more readily discerned. This data should be published in a manner that will facilitate stakeholder engagement, but does not breach confidentiality.

3.3 Forecasts to be developed through effective consultation

The AER considers that if AEMO follows the Forecasting Best Practice Consultation Procedures*,* as set out in the section 3, this will provide a sound basis for effective stakeholder consultation. During the development of AEMO's forecasts, stakeholders should have as much opportunity to engage as is practicable, both through effective consultation and access to relevant and accurate documents and information as discussed in the sections 3.1 and 3.2.

The key document coming from the application of the *Forecasting best practice consultation procedures* is the accompanying report, to be published by AEMO. In summary, the AER considers it best practice for this report to detail:

- a description of AEMO's forecasting approach;
- the procedures AEMO has followed in considering relevant matters; and

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15 RRO Rules, 3.13.3A.

16 RRO Rules, 4A.B.3.

- summaries of each issue raised during the consultation process, and AEMO's considered response to each issue.

3.4 Updating the reliability forecast

Under the RRO Rules, AEMO is required to update the *reliability forecast* annually, in line with the existing s*tatement of opportunities* process.[17] If there has been a change in market circumstances such as the announcement of a generator closure, AEMO has typically published an update to the annual s*tatement of opportunities* prior to the end of the calendar year.

However, more frequent 'out of cycle' updates to *reliability forecasts* may be required. This could be needed due to a material change to the supply-demand outlook, such as a change in government policy, the commitment to build a significant new generator or transmission element, or significant changes in forecast demand.

The current Rules provide that, if, after the publication of the s*tatement of opportunities*, AEMO becomes aware of significant new information as specified in the Rules, it must publish that information as soon as practicable.[18] The RRO Rules enhance the triggers for 'out of cycle' updates in which new information is to be included in the *statement of opportunities* and accompanying *reliability forecasts*.[19]

The AER considers best practice would be, providing the change does not warrant a more fulsome review of the approach using the Forecasting Best Practice Consultation Procedures, for AEMO to update the *reliability forecast* to match the changed inputs in a form that is consistent with that used in the *statement of opportunities*. AEMO may also publish on its website an updated *reliability forecast* in accordance with the *Reliability Forecast Guidelines*.[20]

Where that information makes a material change to the forecasting result, such as a significantly out of trend uptake of a new technology affecting the NEM, the AER considers it best practice for AEMO to use the Forecasting Best Practice Consultation Procedures for that new element or if the affect is more wide spread, on all input components, as set out in section 3. In this way, AEMO can determine the approach to the treatment of this information as it would any other component of the relevant forecast.

3.5 Annual forecast performance review

As required under the RRO Rules,[21] AEMO must, no less than annually, prepare and publish on its website information related to the accuracy of its demand and supply

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17 RRO Rules, 4A.B.1, 4A.B.2, 3.13.3A(b) and 4A.B.4(b)(8).
18 RRO Rules, 3.13.3A (b).
19 RRO Rules, 3.13.3A (b).
20 RRO Rules, 3.13.3A (b).
21 RRO Rules, 3.13.3A (h).

forecasts, and any other inputs determined by AEMO to be material to its *reliability forecasts*.

Consistent with this requirement, the AER considers it best practice for AEMO to analyse, and publish, the performance of its *reliability forecasts*. At minimum, this performance analysis should include:

- an examination of the performance of each component;
- an explanation of any material deviation or trend in differences; and
- actions undertaken or to be undertaken to improve the accuracy of each component in the forecast.

Where there are material changes to relevant forecast input data, the AER considers it best practice for AEMO to publish an updated data set on its website, subject to the confidentiality requirements discussed below.

This should include information, in a manner that is consistent with their association to the relevant forecast, which shows, as far as possible, the performance of the previous five year demand forecasts compared with those of using corresponding actual data. For example, this information could show the probability of exceedance (POE)[22] of the actual peak demand against the 10, 50 and 90 POE estimates produced by the same models. At a more detailed level, this information may be able to correlate a lower or higher than expected outcome with variations of some input parameters from their expected ranges.

AEMO must also, no less than annually, prepare and publish on its website information related to any improvements made by AEMO, or other relevant parties, to the forecasting processes that will apply to the next *statement of opportunities*.[23]

3.6 Questions for Stakeholders

The AER welcomes stakeholder feedback in relation to the draft Interim Forecasting Best Practice Guidelines. Stakeholder feedback is also sought on the matters set out below.

Questions

- To provide confidence to stakeholders regarding AEMO's forecasting practices, and to facilitate transparency, the Forecasting Best Practice Guidelines introduce the Forecasting Best Practice Consultation Procedures. Do you consider the proposed consultation process provides a sound timely basis for stakeholder consultation with

[22] Probability of exceedance means the probability, expressed as a percentage, that a maximum demand forecast will be met or exceeded. For example, a 10% POE forecast is expected to be met or exceeded, on average, only one year in 10, so it considers more extreme weather (also called 1-in-10-year conditions) than a 50% POE forecast, which is expected to be met or exceeded, on average, one year in two.

[23] RRO Rules, 3.13.3A (h)(2).

access to relevant and accurate documents and information?

- Do you consider the “Disclosure and publication of data” approach will balance the opportunity for AEMO to use and to protect confidential information to produce forecasts that are based on the most accurate information available, versus providing information to the market that participants may be able to use to reproduce AEMO’s forecasts?

4 Interrelationships with other Guidelines and processes

As stated above, the RRO Rules create nested forecasting processes and guidelines. AEMO is required to develop *Reliability Forecast Guidelines* which explain how a *reliability forecast* is prepared and how AEMO will implement the Forecasting Best Practice Guidelines in preparing a *reliability forecast*.

The Forecasting Best Practice Guidelines have interrelationships with the following guidelines and processes:

AEMO Reliability Forecast Guidelines

The purpose of the *Reliability Forecast Guidelines* is to describe how AEMO will implement the Forecasting Best Practice Guidelines in preparing a *reliability forecast*.[24]

Under the RRO Rules, the *Reliability Forecast Guidelines* must provide for, among other matters, the following:[25]

- the methodology for determining actual demand for a trading interval;
- matters related to information requests, including the nature, scope and form of the information, and identification of confidential information;
- the consultation processes with relevant stakeholders in preparing a reliability forecast and indicative reliability forecast;
- the methodology, assumptions and inputs to be used for a reliability forecast and indicative reliability forecast;
- the supporting materials for a reliability forecast;
- the process for updates to a reliability forecast;
- the process for AEMO preparing, reporting on and implementing its annual improvement program.
- In making, amending and publishing the *Reliability Forecast Guidelines*, AEMO must also follow, and act in accordance with, the *Rules consultation procedures*.[26]

This requires AEMO to follow the *Rules consultation procedures* in the development of the *Reliability Forecast Guidelines*.

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[24] RRO Rules, 4A.B.4(a).

[25] RRO Rules, 4A.B.4(b).

[26] RRO Rules, 4A.B.4(e). Note that under the RRO Rules, clause 4A.B.4(f), AEMO may make minor or administrative amendments to the *Reliability Forecast Guidelines* without complying with the *Rules consultation procedures*.

Reliability Instrument Guidelines

The Forecasting Best Practice Guidelines are relevant to the AER's consideration of a *Reliability Instrument Request*.[27] The RRO Rules specify the matters to which the AER must have regard to when considering whether it is appropriate in the circumstances to make a *reliability instrument*.[28]

This includes consideration of whether AEMO has used reasonable endeavours to prepare the *reliability forecast* in accordance with the Forecasting Best Practice Guidelines.[29]

RRO Rule 4A.C.11 states that in considering if it is appropriate to make a *reliability instrument*, the AER must only have regard to the following criteria:

- 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.[30]

Application to other AEMO forecasting exercises

The Forecasting Best Practice Guidelines are principle based, rather than describing technical forecasting requirements to be performed by AEMO for the *statement of opportunities* and accompanying *reliability forecasts*.

While different approaches may be used by AEMO in the production of forecasts for other purposes, the industry and stakeholders would benefit from consistency of approach, where appropriate. To this end, the Forecasting Best Practice Guidelines could be used either to establish alternative forecasting approaches for other applications, or they could serve to ensure that the information and approaches identified and accepted under the RRO process could be applied elsewhere.

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27 These matters are detailed in the Draft Interim Reliability Instrument Guideline.

28 RRO Rules 4A.C.11.

29 RRO Rules 4A.C.11(c).

30 Transitional provision 11.1165.3(d) excludes the 2019 statement of opportunities from following the *Reliability Forecast Guidelines*, which outlines how AEMO will implement the AER Forecasting Best Practice Guidelines.

Appendix A. Forecasting best practice consultation procedures

The Forecasting Best Practice Consultation Procedures are modelled on the *Rules consultation procedures* in clause 8.9 of the NER.

(a) AEMO must give a notice to all persons nominated (including Intending Participants in the class of persons nominated) by the relevant provision as those with whom consultation is required or, if no persons are specifically nominated, all Registered Participants and interested parties, (*Consulted Persons*) giving particulars of the matter under consultation, by publishing the notice on the AEMO website and by notifying the members of the AEMO subscriber list.

(b) The notice must invite interested *Consulted Persons* to make written submissions to AEMO concerning the matter.

(c) A written submission may state whether a *Consulted Person* considers that a meeting is necessary or desirable in connection with the matter under consultation and, if so, the reasons why such a meeting is necessary or desirable. To be valid, a submission must be received not later than the date specified in the notice (not to be less than 20 business days after the notice referred to in paragraph (a) is published).

(d) AEMO must consider all valid submissions within a period of not more than a further 20 business days. If AEMO, after having considered all valid submissions, concludes that it is desirable or necessary to hold any meetings, AEMO must use its best endeavours to hold such meetings with *Consulted Persons* who have requested meetings within a further 20 business days.

(e) Following the conclusion of any meetings held in accordance with paragraph (c), and AEMO's consideration of the matter under consultation, AEMO must publish a draft report in accordance with paragraph (f), to be made available to all *Consulted Persons*, setting out:

1) the conclusions and any determinations of AEMO;

2) its reasons for those conclusions or determinations;

3) the procedure followed by AEMO in considering the matter;

4) summaries of each issue, that AEMO reasonably considers to be material, contained in valid written submissions received from *Consulted Persons* or in meetings, and AEMO's response to each such issue; and

5) in a notice at the front of the draft report, an invitation to *Consulted Persons* to make written submissions to AEMO on the draft report, and, subject to its confidentiality obligations, AEMO must make available to all *Consulted Persons*, on request, copies of any material submitted to AEMO.

(f) AEMO must, as soon as possible, publish the draft report referred to in paragraph (e) on its website.

(g) To be valid, a submission invited in a notice referred to in paragraph (e) 5) must be received not later than the date specified in the notice (not to be less than 20 business days after the publication of the draft report pursuant to paragraph (f), or such longer period as is reasonably determined by AEMO having regard to the complexity of the matters and the issues under consideration.

(h) AEMO must consider all valid submissions within a period of not more than a further 30 business days.

(i) Following the conclusion of AEMO's consideration of all valid submissions, AEMO must publish a final report in accordance with paragraph (j), available to all *Consulted Persons*, setting out:

1) the conclusions and any determinations of AEMO on the matter under consultation;

2) its reasons for those conclusions or determinations;

3) the procedure followed by AEMO in considering the matter;

4) summaries required pursuant to paragraph (e) 4); and

5) summaries of each issue, that AEMO reasonably considers to be material, contained in valid written submissions received from *Consulted Persons* on the draft report and AEMO's response to each such submission, and, subject to its confidentiality obligations, AEMO must make available to all *Consulted Persons*, on request, copies of any material submitted to AEMO.

(j) AEMO must, as soon as possible, publish the final report referred to in paragraph (i) on its website.

(k) AEMO must not make the decision or determination in relation to which the *Forecasting best practice consultation procedures* apply until AEMO has completed all the procedures set out in this consultation process.

(l) Notwithstanding paragraph (k), substantial compliance by AEMO with the *Forecasting best practice consultation procedures* is sufficient.

Appendix B. RRO Rules establishing Forecasting Best Practice Guidelines

4A.B.5 AER Forecasting Best Practice Guidelines

(a) The AER must make, publish and may amend the Forecasting Best Practice Guidelines in accordance with the Rules consultations procedures.

(b) The Forecasting Best Practice Guidelines are to provide guidance for AEMO's forecasting practices and processes as they relate to a reliability forecast having regard to the following principles:

1) forecasts should be as accurate as possible, based on comprehensive information and prepared in an unbiased manner;

2) the basic inputs, assumptions and methodology that underpin forecasts should be disclosed; and

3) stakeholders should have as much opportunity to engage as is practicable, through effective consultation and access to documents and information.

(c) The AER may make minor or administrative amendments to the Forecasting Best Practice Guidelines without complying with the Rules consultation procedures.

11.116.3 Forecasting Best Practice Guidelines

(a) The AER must make and publish interim Forecasting Best Practice Guidelines by 30 September 2019 to apply until the Forecasting Best Practice Guidelines are made and published under paragraph (c).

(b) The AER is not required to comply with the Rules consultation procedures when making the interim guidelines under paragraph (a).

(c) The AER must make and publish Forecasting Best Practice Guidelines under clause 4A.B.5 by 30 November 2020 and in so doing must comply with the Rules consultation procedures.

(d) Despite any other provision of the Rules (including any guideline or procedures made under the Rules):

1) when preparing a reliability forecast and indicative reliability forecast for a statement of opportunities published in 2019, AEMO is not required to follow the Forecasting Best Practice Guidelines; and

2) the AER is not required to have regard to the Forecasting Best Practice Guidelines under clause 4A.C.9 for the purposes of considering a request made by AEMO under clause 4A.C.2 based on a reliability forecast for a statement of opportunities published in 2019 or any update of the 2019 statement of opportunities published under clause 3.13.3A(b).

Appendix C. RRO Rules relevant to Forecasting Best Practice Guidelines

3.13.3A Statement of opportunities

ESOO information

(a) By 31 August in each year, AEMO must prepare and publish at a reasonable charge to cover the cost of production, a statement of opportunities, including at least the following information for the subsequent 10 year period:

1) projections of aggregate MW demand and energy requirements for each region;

2) capabilities of existing generating units and generating units for which formal commitments have been made for construction or installation;

3) capabilities of proposed generating units for which formal commitments have not been made for construction or installation, to the extent it is reasonably practicable to do so;

4) planned plant retirements (including expected closure years and closure dates for any generating units in the subsequent 10 year period);

5) a summary of network capabilities and constraints based upon Transmission Annual Planning Reports; and

6) proposed network developments for which formal commitments have been made for construction or installation;

7) proposed network developments for which formal commitments have not been made for construction or installation to the extent it is reasonably practicable to do so;

8) the operational assumptions made by AEMO in relation to generating units and contracted demand side participation, including outage information and auxiliary supply information;

9) operational and economic information about the market to assist planning by:

i. Scheduled Generators, Semi-Scheduled Generators and Market Participants; and

ii. potential Scheduled Generators, Semi-Scheduled Generators and Market Participants; and

10) a reliability forecast for each region for the financial year in which the statement of opportunities is published on its website and the subsequent four financial years and an indicative reliability forecast for the remaining financial years.

Updates

(b) If after the publication of the most recent statement of opportunities, new information becomes available to AEMO relating to the matters set out in subparagraphs (a)(1) to (a)(8) that in AEMO's reasonable opinion materially changes the statement of opportunities, AEMO must, as soon as practicable, publish that information in a descriptive form that is consistent with the statement of opportunities and, if it considers appropriate, publish on its website an updated reliability forecast in accordance with the Reliability Forecast Guidelines

ESOO information requests

(c) AEMO may by written notice request a jurisdictional planning body to provide AEMO with information that AEMO requires for the preparation of a statement of opportunities and the jurisdictional planning body must comply with that notice.

(d) AEMO may, by written request, require provision of information relevant to the matters specified in paragraph (a) from Registered Participants that AEMO reasonably requires for the preparation of a statement of opportunities or an update under paragraph (b). A request for information must comply with the Reliability Forecast Guidelines.

(e) A Registered Participant must comply with an information request under paragraph (d) in accordance with the Reliability Forecast Guidelines.

(f) As soon as practicable after a Scheduled Generator, Semi-Scheduled Generator, Market Participant or Network Service Provider becomes aware of a material change to any information required for publication by AEMO under paragraph (a), that information must be provided to AEMO by that Scheduled Generator, Semi-Scheduled Generator, Market Participant or Network Service Provider.

(g) A Registered Participant must ensure that the information provided in response to an information request under paragraph (d) or under paragraph (f) is:

1) not false or misleading in a material particular;

2) in relation to information of a technical nature, is prepared in accordance with good electricity industry practice; and

3) represents the Registered Participant's current intentions and best estimates.

ESOO reviews

(h) AEMO must, no less than annually, prepare and publish on its website information on:

1) the accuracy to date of the demand and supply forecasts, and any other inputs determined by AEMO to be material to reliability forecasts; and

2) any improvements made by AEMO or other relevant parties to the forecasting process that will apply to the next statement of opportunities,

in accordance with the Reliability Forecast Guidelines (as applicable). Where availability of information makes comparisons to older statement of opportunities necessary, AEMO may include the statement of opportunities for the preceding 24 months.

(i) A jurisdictional planning body must provide assistance AEMO reasonably requests in connection with the preparation of a report under paragraph (h).

(j) in this clause: **contracted demand side participation** has the meaning given in rule 3.7D.

4A.B.1 Reliability forecast

(a) The statement of opportunities must, for a reliability forecast, specify which parts of the statement of opportunities form part of that reliability forecast.

(b) A reliability forecast and indicative reliability forecast must include the matters set out in clause 4A.B.2.

(c) AEMO must publish on its website the supporting material for a reliability forecast as set out in clause 4A.B.3.

(d) AEMO must make, publish on its website and maintain the Reliability Forecast Guidelines in accordance with clause 4A.B.4.

(e) AEMO must use reasonable endeavours to prepare a reliability forecast and an indicative reliability forecast in accordance with the Forecasting Best Practice Guidelines.

(f) AEMO will have complied with section 14F(b) of the National Electricity Law if it prepares and publishes on its website a reliability forecast and supporting material required by and in accordance with this Chapter 4A and clauses 3.13.3A(a) or (b).

4A.B.3 Supporting materials

(a) AEMO must publish on its website the supporting information specified in, and in the form and timeframes required by, the Reliability Forecast Guidelines in relation to a reliability forecast.

(b) The Reliability Forecast Guidelines must provide for the publication of supporting material to assist with understanding a reliability forecast, having regard to:

1) the Forecasting Best Practice Guidelines;

2) AEMO's obligations regarding confidential information; and

3) the best form of the information for this purpose.

4A.B.4 Reliability Forecast Guidelines

Purpose of the Reliability Forecast Guidelines

(a) The purpose of the Reliability Forecast Guidelines is to:

1) explain to liable entities and other interested parties how a reliability forecast is prepared and the underlying procedures, information requirements and methodologies that govern its preparation and operation; and

2) describe how AEMO will implement the Forecasting Best Practice Guidelines in preparing a reliability forecast.

4A.C.11 AER decision making criteria

For the purposes of section 14K(3)(a)(ii) of the National Electricity Law, in considering whether it is appropriate in the circumstances to make a reliability instrument, the AER must only have regard to the following criteria:

(a) there are no material errors in AEMO's calculations or input data as it relates to the reliability forecast;

(b) 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

(c) AEMO has used reasonable endeavours to prepare the reliability forecast in accordance with the Forecasting Best Practice Guidelines.