AEMC

RULE

Australian Energy Market Commission

DRAFT RULE DETERMINATION

NATIONAL ELECTRICITY AMENDMENT (IMPROVING TRANSPARENCY AND EXTENDING DURATION OF MT PASA) RULE 2020

PROPONENT

ERM Power

24 OCTOBER 2019

INQUIRIES

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

E aemc@aemc.gov.au
T (02) 8296 7800
F (02) 8296 7899

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ABOUT THE AEMC

The AEMC reports to the Council of Australian Governments (COAG) through the COAG Energy Council. We have two functions. We make and amend the national electricity, gas and energy retail rules and conduct independent reviews for the COAG Energy Council.

SUMMARY

1 The NER require that AEMO administer the projected assessment of system adequacy (PASA) processes.[1] The PASA is the principal method of indicating to the National Electricity Market (NEM) a forecast of electricity system security and reliability for a period of up to two years. The NER requires AEMO to administer the PASA for both a medium-term and short-term period.

2 The Australian Energy Market Commission (AEMC or Commission) has made a more preferable draft rule to amend the medium-term PASA (MT PASA). The draft rule if made as a final rule improves transparency of the MT PASA process, reduces asymmetry of generation availability information in the market, and extends the MT PASA duration to three years. These changes will better inform the market at a granular level on projected assessments of reliability out to three years, and will likely result in participants making more effective and efficient decisions in how they interact with the market.

3 The draft rule is in response to a rule change request submitted by ERM Power. The draft rule adopts five of the seven proposed changes, and one additional change raised by the Australian Energy Regulator (AER).

4 Overview of ERM Power's rule change request

5 On 31 March 2019 the Commission received two rule change requests from ERM Power that relate to the MT PASA. These were consolidated on initiation of the project. ERM Power sought changes to the rules governing MT PASA in the following areas:

- Amendments to improve transparency and accuracy of generation availability data through the provision of individual generator availability data, the inclusion of committed generation in the MT PASA process and additional information on the impact of unplanned generator outages.
- Amendments to improve transparency and accuracy of demand forecasts through requiring AEMO to publish an additional demand forecast, increasing the frequency of demand forecast updates and simplifying the format of published demand.
- Changes to extend the outlook of MT PASA from two to three years. This would require market participants to provide information for up to three years in advance, while AEMO would be required to run the MT PASA process up to three years ahead.

6 Key features of the more preferable draft rule

7 The key features of the more preferable draft rule are that it will provide the market with:

- Generation availability of individual scheduled generating units.
- An extended MT PASA outlook horizon from two to three years.
- A maximum and minimum aggregated scheduled generating availability, adjusted for forced outage assumptions.
- Transparency of intending generation included as an MT PASA input.

1 Clause 3.7.1 of the NER

- Published actual demand and forecast demand in the same format ('as generated').
- A requirement on participants to provide MT PASA inputs that represent their current intentions and best estimates.

8 While the Commission's draft rule is a more preferable rule it incorporates many of the elements proposed by ERM Power. The key differences between the draft rule and the proposed rule are that the Commission has:

- Made AER's proposed change to require participants to provide MT PASA inputs that represent their current intentions and best estimates.
- Not made the proposed draft rule for:
  - publishing an additional daily peak demand forecast of 90POE, as part of the MT PASA process and
  - requiring a more frequent update to AEMO's demand forecast, a key input into the MT PASA.

9 Benefits of the more preferable draft rule

10 The Commission is satisfied that the more preferable draft rule will, or is likely to, better contribute to the achievement of the NEO. In the context of the assessment framework, this is because the draft rule is likely to:

- **Improve transparency and quality of information:** The draft rule provides for greater transparency and quality of generation information over a longer period, and formalises, through the NER, AEMO's approach to including intending generation in forecast generation availability. These changes will better inform the market of generation availability, and allow participants to make better-informed decisions regarding scheduling planned maintenance, entry of new supply and contracting.
- **Promote reliability of the power system:** The draft rule allows participants to make better informed decisions in relation to scheduling planned maintenance, including for the two to three year time horizon, and may better inform investment decisions in new supply or demand response options. In particular, the draft rule may improve market liquidity and market confidence. This is likely to give participants a greater opportunity to respond to a T-3 reliability event triggered through the Retailer Reliability Obligation (RRO). It may also improve the reliability of the system through earlier notice to the market and the ability to respond and reduce forecast unserved energy (USE) eventuating.
- **Minimise direct and indirect costs:** The draft rule allows participants to access more granular and more accurate information, at the same level as other participants, and without a disparity in resources and costs to do so. The draft rule increases transparency and quality of information which allows participants to make better informed and efficient decisions, particularly in relation to scheduling units outages. This may reduce the likelihood of USE and result in more efficient Reliability and Emergency Reserve Trader (RERT) procurement, which may reduce costs passed through to consumers.
- **Provide regulatory certainty:** The draft rule improves clarity regarding MT PASA inputs and outputs. In particular, it formalises through the NER how AEMO include

intending generation in the reliability assessment, and aligns the format of published demand forecasts and actuals. This may provide participants with greater confidence in assessing the MT PASA outputs and allows them to make better-informed decisions.

11 Implementation of the draft rule

12 Under the draft rule, the changes to the MT PASA will be staggered over a 12-month period from publication of the final rule. If a final rule is made publication of the final rule is anticipated to be 20 February 2020. See proposed implementation dates below. These have been informed by AEMO.

Table 1: **Implementation of changes**

CHANGE	IMPLEMENTATION DATE
Publish generation availability of individual scheduled generating units.	20 August 2020
Extend MT PASA outlook horizon from two to three years.	22 February 2021
Publish a maximum and minimum aggregated scheduled generating availability, adjusted for forced outage assumptions.	20 August 2020
Include intending generation as an MT PASA input.	20 February 2020
Publish actual demand and forecast demand in the same format ('as generated').	20 May 2020
Require participants to provide MT PASA inputs that represent their current intentions and best estimates.	20 February 2020

13 Consultation

14 The Commission welcomes submissions on this draft determination and the more preferable draft rule. The Commission notes the Wholesale demand response mechanism draft rule proposes amendments to the MT PASA rule and the final determination is due to be published on 5 December 2019. To allow stakeholders to consider both the Wholesale demand response mechanism final rule determination and this draft determination, submissions to this draft rule determination are due by **9 January 2020.**

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TABLES

1 ERM POWER'S RULE CHANGE REQUEST

1.1 The rule change request

On 31 March 2019, ERM Power requested the Australian Energy Market Commission (AEMC or Commission) to make a rule regarding the medium-term projected assessment of system adequacy (MT PASA).[2]

ERM Power's rule change request proposed seven changes to improve the transparency and accuracy of the MT PASA process, and extend the duration of the MT PASA output from two to three years.

Specifically, the rule change request proposed to amend the National Electricity Rules (NER) to:

- Publish data on the availability of individual generator units, as an MT PASA output.
- Extend the outlook horizon of the MT PASA from two to three years.
- Publish more data on the aggregate impact of unplanned outage rates on modelled generator availability, as an MT PASA output.
- Include intending generation as an MT PASA input.
- Publish additional peak demand forecast information, as part of the MT PASA process.
- Publish actual and forecast demand data in a consistent format, the latter being an input to MT PASA.
- Update the demand forecast monthly, a key input to the MT PASA.

1.2 Current arrangements

The NER require that AEMO administer the projected assessment of system adequacy (PASA) processes.[3] The PASA is the principal method of indicating to the National Electricity Market (NEM) a forecast of electricity system security and reliability for a period of up to two years. The NER requires AEMO to administer the PASA for both a medium-term and short-term period. The subject of this rule change request relates to the medium-term process, or MT PASA.

The primary objective of the MT PASA is to provide sufficient information on the expected level of medium-term generator capacity reserves and hence allow market participants to efficiently schedule planned outages of generating units and network maintenance.[4]

In addition, the MT PASA is fundamental to AEMO's procurement of emergency reserves. AEMO models the power system through the MT PASA to assess whether or not the reliability standard is projected to be met (i.e. by modelling the expected unserved energy for a given year in a given region). An expected shortfall, relative to the reliability standard, is termed a low reserve condition. AEMO encourages a market response once it has declared a low

2 ERM Power submitted two rule change requests which were consolidated on initiation (18 July 2019) under s.93 of the National Electricity Law.

3 Clause 3.7.1 of the NER

4 NER clause 3.7.1(b)

reserve condition. If a market response is not forthcoming, AEMO may intervene, up to nine months ahead,[5] through the procurement of emergency reserves using the reliability and emergency reserve trader (RERT).[6]

Chapter 3 (clause 3.7.2) of the NER outline the provisions for the MT PASA, including inputs into the process and the output produced by AEMO. Inputs used in the MT PASA process are provided or projected by both AEMO and market participants. Inputs include demand forecasts, network constraints, generation capacity, energy constraints, intermittent generation forecasts and planned network outages.

1.2.1 Generation availability data

The NER state[7] that AEMO must publish generation availability for each region, aggregated at the region level.

1.2.2 Duration of MT PASA outlook

The NER specify the MT PASA covers a 24-month period.[8]

1.2.3 Generation forced (unplanned) outage rates

The NER do not specify that AEMO need to report forced (unplanned) generation outage rates, although they do state AEMO are required to produce the Medium Term PASA Process Description[9] which notes probabilistic assessment of forced outages are included in the MT PASA inputs.[10]

1.2.4 Intending generation

The NER specify that AEMO include scheduled generation availability and an AEMO forecast of semi-scheduled generation in the MT PASA inputs.[11] The rules do not specify the inclusion of intending generation capacity in the MT PASA process. AEMO's Medium Term PASA Process Description, however, notes that future generation classified as 'committed'[12] generation is modelled in the MT PASA.[13]

1.2.5 Demand forecasts

The NER state[14] that AEMO must prepare two demand forecasts for the MT PASA that:

- have a 10 per cent probability of exceeding daily peak load i.e. 10POE, and

5 Clause 3.20.3(d) of the NER. As from 26 March 2020, this will be 12 months ahead, consistent with the Enhancement to the Reliability and Emergency Reserve Trader (RERT) final rule.
6 Rule 3.20 of the NER.
7 Clause 3.7.2 (f)(5) of the NER.
8 Clauses 3.7.2(a) of the NER.
9 Clause 3.7.2(g) of the NER.
10 AEMO (2018) *Medium Term PASA Process Description*, p. 14.
11 Clauses 3.7.2(c)(4) and 3.7.2(d) of the NER.
12 NER clause 11.10A.1
13 AEMO (2018) *Medium Term PASA Process Description*, pp. 9-10.
14 Clause 3.7.2 (c)(1) of the NER.

- is the most probable peak load, typically taken to have a 50 per cent probability of exceeding peak load i.e. 50POE.

1.2.6 Publishing format of actual and forecast demand

The NER do not specify the format (demand type) to be published for actual and forecast demand for the MT PASA.

1.2.7 Frequency of demand forecast updates

The NER do not specify how frequent demand forecasts should be updated for the MT PASA, but they do state that the Electricity Statement of Opportunities (ESOO) demand forecast is updated annually,[15] or as soon as practicable if new information would result in a material change to the ESOO. The Reliability Standard Implementation Guidelines (RSIG) state[16] that the ESOO demand is used for the MT PASA process.

1.3 Rationale for the rule change request

The following sections describe each of the seven issues that ERM Power proposed in its rule change request.

1.3.1 Generation availability data

ERM Power argued[17] that consolidation of a significant share of NEM generator capacity into a small number of large vertically integrated retailers, 'gentailers', allows large generators to benefit from a significant information asymmetry advantage with regards to knowledge of generator full and partial outage plans. ERM Power considered this is further compounded by the sharing of additional outside market knowledge of outages between the large gentailers.

ERM Power noted[18] that currently, smaller generators, retailers, market intermediaries and larger market-facing consumers expend resources analysing MT PASA information to determine which generating unit may be planning an outage, sometimes with only limited success. The NER only requires AEMO to publish generator availability data at an aggregate level by region, not withstanding that the data is submitted to AEMO on a generating unit basis.

1.3.2 Duration of MT PASA outlook

Currently the MT PASA covers a two-year period. ERM Power argued[19] that with the current speed of changes in the NEM and the intermittent nature of output from the most common sources of new generation supply, which also has varying correlation to system demand outcomes as determined by AEMO, there is a need for the supply-demand balance to be assessed regularly at the level of granularity provided in the MT PASA over a longer duration.

15 NER clause 3.13.3A(a)
16 RSIG(v. 1.3 October 2016)'s s. 2.3.1.4
17 ERM rule change request Improving MT PASA transparency and accuracy, 31 March 2019, p.2.
18 Ibid, p.3.
19 ERM Power rule change request: Extension of MT PASA duration, 31 March 2019, p. 2.

This would provide improved and earlier signals than is currently the case for new supply capability or demand management in the medium-term timeframe.

1.3.3 Generation forced (unplanned) outage rates

ERM Power noted[20] AEMO uses generator availability values which have been adjusted for probabilistically determined unplanned (forced) outages in the MT PASA. ERM Power noted the outputs from the MT PASA process currently provide no transparency with regards to the level of variability in the available generation capacity used in the modelling.

1.3.4 Intending generation

ERM Power noted[21] that currently clause 3.7.2 of the NER requires that only a scheduled generator that has been approved for registration by AEMO is required to submit MT PASA inputs. In addition, AEMO is required to provide an unconstrained intermittent generation forecast (UIGF) only for each registered semi-scheduled generating unit for each day. ERM Power noted it is unclear if these requirements apply to intending participants.

ERM Power argued[22] that omitting from the MT PASA, generation that is currently under construction and expected to commence, output within the MT PASA assessment time frame could result in additional and unnecessary costs to consumers (e.g. by triggering the long-notice RERT).

1.3.5 Demand forecasts

ERM Power noted[23] that the NER only requires AEMO to calculate and publish the "forecasts of the 10% probability of exceedance (POE) peak load, and most probable peak load".[24] The most probable peak load is generally referred to as the 50 per cent probability of exceedance (or 50POE[25]) peak load forecast. The NER do, however, require AEMO to estimate 90POE demand for the purpose of the MT PASA.

As well as reporting these demand figures, ERM Power noted that AEMO also use the demand forecasts in its probabilistic modelling process to forecast the potential for unserved energy (USE) within the MT PASA timeframe. In the MT PASA timeframe, AEMO only uses the 10POE and 50POE forecast demand when modelling USE. ERM Power argued[26] that not including 90POE demand in the USE modelling was leading to inflated forecasts of USE.

20 Ibid, p. 5.
21 Ibid, p. 5.
22 Ibid, p. 6.
23 Ibid, p. 3.
24 Clause 3.7.2 of the NER
25 From here on "50POE", will be used as the short hand expression, as will 10POE and 90POE.
26 Ibid, p. 4.

1.3.6 Publishing format of actual and forecast demand

ERM Power observed[27] significant concerns with the transparency and ease of use of demand data provided by AEMO. AEMO currently publishes demand forecast information in various formats, including:

- native sent out or native as generated
- operational sent out or operational as generated
- scheduled as sent out or scheduled as generated.

ERM Power stated that AEMO publishes demand data in real time on both an operational as generated and scheduled as generated basis to meet the requirements of clause 3.13.4(x) of the NER. However, ERM Power observed that in MT PASA, forecast demand data is supplied by AEMO on an operational sent out basis. This then requires the addition of separate estimated generator auxiliary load data to derive the value closest to the real time operational as generated data. ERM Power argued that market participants are finding this confusing and difficult to convert forecasts to actuals for comparison.

1.3.7 Frequency of demand forecast updates

ERM Power noted[28] that MT PASA demand forecasts are usually updated once a year, generally in May, in line with the planning process updates for the ESOO. This results in an outcome where the last review of potential weather conditions and demand outcomes for the summer period may have occurred some six to eight months distant from the current summer period. This is of particular concern to ERM Power regarding the potential for overestimating USE, resulting in contracting of medium notice emergency reserves under the medium-notice RERT and higher costs for customers.

1.4 Solution proposed in the rule change request

ERM Power sought to resolve the issues discussed above by proposing a rule (proposed rule) to require AEMO to:

- Publish individual scheduled generating unit availability.
- Extend the duration of the MT PASA to three years.
- Publish the adjusted maximum and minimum aggregate scheduled generating unit availability for each region following the adjustment for the inclusion of scheduled probabilistic forced outage data.
- Include intending generation availability in the MT PASA process, at a level to be outlined in the Reliability Standard Implementation Guidelines (RSIG).
- Publish an additional daily peak demand forecast with a probability of exceedance of 90 percent (90POE).
- Publish forecast and actual demand in the same format.

27 Ibid, p. 4.
28 Ibid, p. 3.

- Review and update their forecast demand monthly with specific regard to weather forecasts in the near term three-month period.

1.5 The rule making process

On 18 July 2019, the Commission published a notice advising of its commencement of the rule making process and consultation in respect of the consolidated rule change request.[29] A consultation paper identifying specific issues for consultation was also published. Submissions closed on 15 August 2019.

The Commission received 21 submissions as part of the first round of consultation. The Commission considered all issues raised by stakeholders in submissions. Issues raised in submissions are discussed and responded to throughout this draft rule determination. Issues that are not addressed in the body of this document are set out and addressed in Appendix A.

1.6 Consultation on draft rule determination

The Commission invites submissions on this draft rule determination, including the more preferable draft rule.

The Commission notes the Wholesale demand response mechanism final rule is considering amendments to the MT PASA rule and will be published on 5 December 2019. To allow stakeholders to consider both the Wholesale demand response mechanism final rule and this draft determination, submissions to this draft rule determination are due by **9 January 2020.**

Any person or body may request that the Commission hold a hearing in relation to the draft rule determination. Any request for a hearing must be made in writing and must be received by the Commission no later than 31 October 2019.

Submissions and requests for a hearing should quote project number ERC0270 and may be lodged online at www.aemc.gov.au.

29 This notice was published under s. 93 and s. 95 of the NEL.

2 DRAFT RULE DETERMINATION

2.1 The Commission's draft rule determination

The Commission's draft rule determination is to make a more preferable draft rule. The more preferable draft rule will improve the transparency and quality of information that is published through the MT PASA process.

The Commission's reasons for making this draft determination are set out in section 2.4.

The Commission notes that the AEMC rule change project, Wholesale demand response mechanism, is considering changes to the same rule[30] that is under review in this project. The Commission notes that the more preferable draft rule proposes changes to version 124 of the NER, current at the time of publishing, not the draft rule for the Wholesale demand response mechanism project.

2.2 Rule making test

2.2.1 Achieving the NEO

Under the NEL the Commission may only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the national electricity objective (NEO).[31] This is the decision making framework that the Commission must apply.

The NEO is:[32]

> 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.

The Commission considers, for this draft determination, the most relevant aspects of the NEO are promoting the efficient investment in, and efficient operation of electricity supply, in the long-term interests of consumers with respect to:

- improving transparency and quality of information
- minimising direct and indirect costs
- promoting reliability of the power system
- providing regulatory certainty.

30 NER, clause 3.7.2
31 Section 88 of the NEL.
32 Section 7 of thence.

2.2.2 Making a more preferable rule

Under s. 91A of the NEL, the Commission may make a rule that is different (including materially different) to a proposed rule (a more preferable rule) if it is satisfied that, having regard to the issue or issues raised in the rule change request, the more preferable rule will or is likely to better contribute to the achievement of the NEO.

In this instance, the Commission has made a more preferable rule. The more preferable draft rule requires changes to the MT PASA process, which are to:

- Publish data on the availability of individual scheduled generating units.
- Extend the MT PASA outlook horizon from two to three years.
- Publish a maximum and minimum aggregated scheduled generating availability, adjusted for forced outage assumptions.
- Include intending generation as an MT PASA input.
- Publish actual demand and forecast demand in the same format ('as generated').
- Formalise through the NER a requirement on participants to provide MT PASA inputs that represent their current intentions and best estimates.

While the Commission's draft rule is a more preferable rule it incorporates many of the elements proposed by ERM Power. The key differences between the draft rule and the proposed rule are that the Commission has:

- Made AER's proposed change to require participants to provide MT PASA inputs that represent their current intentions and best estimates.
- Not made the proposed draft rule for:
  - publishing an additional daily peak demand forecast of 90POE, as part of the MT PASA process and
  - requiring a more frequent update to AEMO's demand forecast, a key input into the MT PASA.

2.2.3 Making a differential rule

Under the Northern Territory legislation adopting the NEL, the Commission may make a differential rule if, having regard to any relevant MCE statement of policy principles, a different rule will, or is likely to, better contribute to the achievement of the NEO than a uniform rule. A differential rule is a rule that:

- varies in its term as between:
  - the national electricity system, and
  - one or more, or all, of the local electricity systems, or
- does not have effect with respect to one or more of those systems

but is not a jurisdictional derogation, participant derogation or rule that has effect with respect to an adoptive jurisdiction for the purpose of s. 91(8) of the NEL.

As the rule relates to parts of the NER that currently do not apply in the Northern Territory, the Commission has not assessed the rule against the additional elements required by the Northern Territory legislation.[33]

2.3 Assessment framework

In assessing the rule change request against the NEO the Commission has considered the most relevant aspects of the NEO are promoting the efficient investment in, and efficient operation of electricity supply in the long-term interests of consumers with respect to:

- **Improve transparency and quality of information:** The draft rule provides for greater transparency and quality of generation information over a longer period, and formalises through the NER AEMO's approach to including intending generation in forecast generation availability. These changes will better inform the market of generation availability, and allow participants to make better-informed decisions regarding scheduling planned maintenance, entry of new supply and contracting.
- **Promote reliability of the power system:** The draft rule allows participants to make better informed decisions in relation to scheduling planned maintenance in the two to three year time horizon, and may better-inform investment decisions in new supply or demand response options. In particular, the draft rule may improve market liquidity and market confidence. This is likely to give participants a greater opportunity to respond to a T-3 reliability event triggered through the Retailer Reliability Obligation (RRO). It may improve the reliability of the system through earlier notice to the market and the ability to respond and reduce forecast unserved energy (USE) eventuating.
- **Minimise direct and indirect costs:** The draft rule allows participants to access more granular and more accurate information, at the same level as other participants, and without a disparity in resources and costs to do so. The draft rule increases transparency and quality of information which allows participants to make better informed and efficient decisions, particularly in relation to scheduling units outages. This may reduce the likelihood of USE and result in more efficient Reliability and Emergency Reserve Trader (RERT) procurement, which may reduce costs passed through to consumers.
- **Provide regulatory certainty:** The draft rule improves clarity regarding MT PASA inputs and outputs. In particular, it formalises through the NER how AEMO include intending generation in the reliability assessment, and aligns the format of published demand forecasts and actuals. This may provide participants with greater confidence in assessing the MT PASA outputs and allows them to make better-informed decisions.

Stakeholders who commented on the assessment framework supported it. They noted the assessment framework was appropriate to assess if the proposed changes would improve transparency and accuracy of the MT PASA process.[34]

33 From 1 July 2016, the NER, as amended from time to time, apply in the NT, subject to derogations set out in regulations made under the NT legislation adopting the NEL (National Electricity (Northern Territory) (National Uniform Legislation) Act 2015). Under those regulations, only certain parts of the NER have been adopted in the NT (see the AEMC website for the NER that applies in the NT).

34 Submissions to consultation paper: Delta Electricity, p.1; Energy Queensland, p. 2; EUAA, pp. 1-2; MEU, p. 2; Macquarie, p. 2.

2.4 Summary of reasons

The more preferable draft rule made by the Commission is attached to and published with this draft rule determination. The key features of the more preferable draft rule are that it provides market participants with:

- Greater granularity of scheduled generation availability information over a longer period.
- Improved clarity on how future generation and generation availability under a range of forced outage scenarios is included in the MT PASA process.
- More consistent information published between forecast and actuals, and with other generation availability forecasts i.e. alignment of information provisions for the MT PASA with the ST PASA and ESOO.

Having regard to the issues raised in the rule change request and during consultation, the Commission is satisfied that the more preferable draft rule will, or is likely to, better contribute to the achievement of the NEO. In the context of the assessment framework, this is because the more preferable draft rule is likely to:

- **Improve transparency and quality of information:** The draft rule provides for greater transparency and quality of generation information over a longer period, and formalises through the NER, AEMO's approach around including intending generation in forecast generation availability. These changes will better inform the market on generation availability, and may allow participants to make better-informed decisions around scheduling planned maintenance, entry of new supply, and contracting decisions.
- **Promote reliability of the power system:** The draft rule allows participants to make better informed decisions around scheduling planned maintenance, and may better-inform investment decisions in new supply or demand response options. In particular, the draft rule may improve market liquidity and market confidence over the prepared horizon. This will give participants greater opportunity to respond to a T-3 reliability event triggered by the Retailer Reliability Obligation (RRO). This may improve the reliability of the system through earlier notice to the market and the ability to respond and reduce forecast unserved energy (USE) eventuating.
- **Minimise direct and indirect costs:** The draft rule allows participants to access more granular and more accurate information, at the same level as other participants, and without a disparity in resources and costs to do so. This will minimise the overall costs to operate in the NEM, and may result in lower costs being passed on to consumers.
- **Provide regulatory certainty:** The draft rule improves clarity of MT PASA inputs and outputs. In particular, the draft rule formalises through the NER how AEMO include intending generation in the reliability assessment, and aligns the format of published demand forecasts and actuals. This may provide participants with greater confidence in assessing the MT PASA outputs and make better-informed decisions.

Further detail on the more preferable draft rule can be found in chapters 3 to 10**.**

3 PUBLICATION OF GENERATION AVAILABILITY

This chapter discusses stakeholder feedback, and presents the Commission's analysis and conclusions, regarding ERM Power's proposal to publish generator availability at the individual unit level, specifically the individual dispatchable unit identification (DUID) level.

3.1 ERM Power's rule change proposal

ERM Power argued[35] that information asymmetry currently exists between the large vertically integrated retailers (or 'gentailers') and smaller generators. According to ERM Power, this asymmetry is due to the big gentailers having visibility of the full and partial outage plans of their own generation fleet. ERM Power considered[36] this is compounded by the large gentailers indirectly acquiring additional outside market knowledge about scheduled outages, through sharing of strategic spare parts/units and specialist contractors.

ERM Power argued that small generators, retailers, market intermediaries and consumers do not have access to the same granularity of information on the scheduled outages of generators. They argued these smaller generators and non-generator participants can only make inferences from the published, aggregated by region data, which requires significant resourcing and is susceptible to a high degree of inaccuracy.

ERM Power considered that this information asymmetry impacts on pricing in the gas markets where significant changes to fuel requirements for replacement generation at short notice may be required once the actual planned generator outage is known.

The NER require AEMO to publish scheduled generator availability data in the MT PASA aggregated to a regional level. However, generators are required to provide information to AEMO for each of their individual units, at the DUID level. ERM Power considered that if AEMO were to publish the scheduled generating unit availability information it already collects, all market participants would be better equipped to make maintenance and planning decisions for their own plants. While some stakeholders may view this information as being commercially sensitive, ERM Power proposes that maintaining the status quo would retain the current information asymmetry between market participants.

3.2 Stakeholder views

The majority of stakeholders supported ERM Power's proposed rule change. They considered that publishing scheduled generating unit availability information would level the playing field, allow more efficient contracting between participants and allow more efficient planning of scheduled outages.

Several stakeholders opposed the change arguing it would reveal commercially sensitive information. The Australian Energy Regulator (AER) expressed concern that the rule change could reduce competition and encourage the coordinated exercise of market power.

35 ERM rule change request Improving MT PASA transparency and accuracy, 31 March 2019, p.2.

36 ERM rule change request Improving MT PASA transparency and accuracy, 31 March 2019, p.2.

The following sections detail the key issues raised by stakeholders:

- information asymmetry
- efficiencies
- impact on consumers
- commercially sensitive information
- coordinated exercise of market power
- cost to implement.

Information asymmetry

Alinta Energy, 1st Energy, EUAA and Bluescope considered that the rule change, if made, would reduce the information asymmetry or 'level the playing field',[37] as all stakeholders would have access to the same granularity of scheduled generating unit availability information. CS Energy supported the proposed change, provided it would apply to all scheduled generators. As a generator with a significant portfolio of assets, it welcomed the proposal if it would help avoid information asymmetry.[38]

Snowy Hydro, however, argued the change is not needed as the information can already be deduced by analysing the current, aggregated information.[39] While Snowy Hydro disagreed with the change, it did argue that if the change is made, then loads over 5MW should be required to be published so as not to advantage one technology over another. Snowy Hydro stated that failure to do so would increase the asymmetry of information, which is inconsistent with the objectives of the ERM Power's rule change proposal.[40]

Origin disputed the suggestion that the current approach results in larger generators having an information advantage relative to smaller players.[41] EnergyAustralia and the AEC disputed suggestions by ERM Power that generators share information outside of the market.[42]

Efficiencies

Both Alinta Energy and Energy Queensland considered that this change would improve resource efficiency as they spend large amounts of time trying to disaggregate the region-level generation data down to a DUID level with mixed success.[43]

Alinta Energy also considered that this change would allow for more efficient contracting as participants would know the plants scheduled to unavailable.[44] Similarly, Macquarie considered that this efficiency may promote better reliability and lower costs going forward.[45]

37 Consultation paper submissions: Alinta Energy, pp. 1-2; 1st Energy, p. 1; EUAA, p. 2; Blusecope, p. 1.
38 CS Energy, Consultation paper submission, p. 2.
39 Snowy Hydro, Consultation paper submission, pp. 1-2.
40 Snowy Hydro, Consultation paper submission, pp. 1-2.
41 Origin, Consultation paper submission, pp. 1-2.
42 Consultation paper submissions: EnergyAustralia, pp. 1-2; AEC, pp. 1-2.
43 Consultation paper submissions: Alinta Energy, pp. 1-2; Energy Queensland, p. 1.
44 Alinta, Consultation paper submission, pp. 1-2.
45 Macquarie, Consultation paper submission, p. 2.

The AER, however, stated it was not clear how the proposed change would lead to better decision-making, and noted that specific examples of how this change would allow generators to make more efficient operational decisions would help to assess its merits.[46]

Impact on consumers

MEU argued that publishing scheduled generating unit availability would provide greater transparency to the market and result in considerable benefit to consumers with little detriment (if any) to the generators.[47]

Bluescope noted that publishing scheduled generating unit availability would provide more information to the market and to customers, which would enable them to make better informed decisions on managing their electricity costs.[48]

Commercially sensitive information

Both EnergyAustralia and Origin opposed[49] the change as it would reveal commercially sensitive information. In addition, both EnergyAustralia and Origin stated[50] it was unclear how the change would provide security and reliability benefits.

AEMO did not oppose the change, but considered[51] it is not without commercial risks due to the sensitivity of the data.

The AEC accepted[52] the change as it considered on balance the increased transparency is likely to be beneficial for the broader industry. The AEC noted, however, some concern that the change may expose confidential commercial information, and the exact benefits which would flow from the proposed reform were unclear.

Delta Electricity, EUAA, and MEU disagreed the change would reveal particularly sensitive commercial information,[53] with EUAA and MEU arguing that the claim it is 'commercially sensitive' is used as a tool to limit transparency in a market.[54]

Coordinated exercise of market power

The AER opposed[55] the change as it considered the potential for less competitive outcomes may outweigh the possible benefits of greater transparency. The AER noted that the NEM already has a high degree of transparency with a significant amount of information published on the market and that further increasing transparency, through this change, may reduce competition and increase the risk of the coordinated exercise of market power.

46 AER, Consultation paper submission, pp. 1-2.
47 MEU, Consultation paper submission, p. 3.
48 Bluescope, Consultation paper submission, p. 1.
49 Consultation paper submissions: EnergyAustralia, pp. 1-2; Origin, p. 1.
50 Consultation paper submissions: EnergyAustralia, pp. 1-2; Origin, p. 1.
51 AEMO, Consultation paper submission, pp. 2-3.
52 AEC, Consultation paper submission, pp. 1-2.
53 Consultation paper submissions: Delta Electricity, p. 1; EUAA, p. 2; MEU, p. 3.
54 Consultation paper submissions: EUAA, p. 2; MEU, p. 3.
55 AER, Consultation paper submission, pp. 1-2.

Cost to implement

Delta Electricity, EUAA, and MEU noted as the information is already submitted to AEMO, there would be very little cost to implement the change.[56] AEMO noted they are technically able to publish this information with low additional cost.[57]

Stanwell noted the market may benefit from the change, although the potential costs and time involved to implement all of the suggested changes must be weighed against the likely value derived from expending these resources, particularly within the current context and volume of regulatory reform.[58]

3.3 Analysis

Is there an asymmetry of scheduled generation availability information?

ERM Power identified[59] information asymmetry of generator full and partial outage plans as the primary issue that would be solved by publishing scheduled generating unit availability.

The Commission considers there is an information asymmetry regarding future generation availability in the NEM. This information asymmetry exists in the market as generators know their own outage schedules. The Commission understands generators can analyse currently available information, including comparisons of MT PASAs and AEMO's Network Outage Schedule (NOS), to better understand the likely outage schedules of other generating units. The accuracy of their findings depends both on the resources a generator has available and the size of the 'unknown' generation availability that is to be disaggregated. The Commission considers participants with more resources to dedicate to this analysis, or with smaller 'unknowns' to analyse, have greater transparency of generation availability at the scheduled generator unit level. This asymmetry of information would remain even in the absence of indirectly sharing unit outage information.

Are there benefits to removing information asymmetry in scheduled generation availability?

The Commission considers there are benefits in removing the current information asymmetry in generation availability by publishing scheduled generating unit availability. The proposed change is likely to lead to *all* market participants having a higher 'fidelity' picture of the supply side of the market, allowing for more efficient outcomes both in the wholesale and contracts market. In the context of a market with a tight supply-demand balance, increased market efficiency is particularly critical for providing electricity to consumers at least cost.

The key likely benefits include: more efficient planning of scheduled outages; more accurate analysis of opportunities to get generation to market notwithstanding transmission outages and constraints; more efficient decisions regarding fuel acquisition; a better understanding of

56 Consultation paper submissions: Delta Eelctricity, p. 1; EUAA, p. 2; MEU, p. 3.
57 AEMO, Consultation paper submission, pp. 2-3.
58 Stanwell, Consultation paper submission, p. 2.
59 ERM rule change request Improving MT PASA transparency and accuracy, 31 March 2019, p.2.

a plant's reliability; more efficient pricing; greater contract market liquidity; and more efficient hedging decisions.

More efficient resource use

The Commission considers publishing scheduled generating unit availability would reduce any disparities in the information acquisition costs incurred by larger and smaller market participants. Currently, this asymmetry of generation information results in smaller participants incurring additional costs to acquire this information, or having to compete in the market at a disadvantage without this information.

The Commission considers the inability to accurately forecast impacts on market outcomes resulting from generator outages may result in higher risk premiums in wholesale and retail contract prices. The Commission notes the need to make potentially significant changes to fuel requirements for replacement generation at short notice (rather than in advance) may put upward pressure on prices in fuel (gas) markets.

More efficient planning of scheduled outages

The Commission considers that knowledge of the outage plans of other scheduled generating units would allow generators to make more informed and efficient outage planning decisions for their own plants. For example, a generator may schedule an outage if it knew the available capacity would be provided by more reliable units. Conversely, a generator may not schedule an outage if capacity is forecast to be provided by less reliable units. This may be particularly relevant when the expected 'headroom' between generation availability and forecast demand is minimal.

Pricing and market liquidity

The Commission considers that knowledge of the outage plans of other scheduled generating units may allow market participants to make contracting decisions that better reflect their expectations regarding future output and pricing outcomes. This may result in more confidence in the trading market, greater market liquidity and more efficient pricing. For example, generating units vary in, among other things, short-run marginal cost and their physical location from network constraints. A unit sitting on the uncongested side of a network constraint has a bigger impact on market outcomes than a unit sitting on the congested side.[60] If the unit not running is on the uncongested side of the constraint, this could lead to the level of congestion through that network section being higher, particularly if this unit is a 'positive gatekeeper' generator.[61] This may result in a higher price at the regional reference node. The Commission considers knowing which units are scheduled to be available is key in helping participants:

- understand the potential impact of outages on market prices and unit dispatch
- access efficient hedge cover or purchase gas supplies.

60 If the congested side is also the entry point for an interconnector this has implications for interconnector flows and inter-regional settlement residue auctions (SRA) values.

61 A 'positive gatekeeper' generator is a generator that by increasing output would increase network transfer capacity.

Are there costs to removing information asymmetry in scheduled generation availability?

Commercially relevant information

The Commission accepts that scheduled generating unit availability information may be commercially relevant, but does not consider it sensitive. The Commission considers publishing this information is only an incremental change in the level of information currently available to market participants.

The Commission considers that this information is currently available and discernable in the market by some market participants through 'back calculation'. The Commission considers that the benefits of creating a 'level playing field' based on accurate, transparent information, out-weigh commercial concerns associated with the incremental change to information availablity.

Coordinated market power

After consideration, the Commission has concluded that the publication of scheduled generating unit availability information is not likely to increase the risk of the exercise of coordinated market power.

The Commission engaged Houston Kemp to assess the likelihood that publishing scheduled generating unit availability information would increase the risk of the exercise of coordinated market power or collusion. Houston Kemp[62] found that publishing of unit-level generation availability is unlikely to increase the risk of collusion.

Specifically, Houston Kemp assessed the likely impact of the publication of DUID information on the three conditions that are required in order for collusion to occur. These three conditions are that:

1. Firms wanting to collude can reach a collusive agreement;
2. Firms that are part of the agreement are individually better off adhering to it, rather than deviating from it – this requires at least that:
    a. firms can monitor whether their rivals are adhering to an agreement; and
    b. those firms that do not adhere to the agreement face an expected cost, eg, lower prices for a period, that is greater than the benefit from deviating from the agreement; and
3. Firms from outside the collusive agreement are not able to undermine it by supplying in competition with firms that are part of the collusive agreement.

1. Reaching an agreement

Houston Kemp considered a collusive agreement is not more likely to be reached with the publication of scheduled generating unit availability information, as this information is already available to participants to varying degrees.

62 Houston Kemp, Potential benefits and risk of collusion from information provision. Available at https://www.aemc.gov.au/rule-changes/improving-transparency-and-extending-duration-mt-pasa

2. Internal stability - adhering to the agreement

Houston Kemp considered adhering to a collusive agreement is not more likely to occur with the publication of scheduled generating unit availability information because detailed data on how much electricity each generator produced is available after dispatch. This allows for monitoring any tacit agreement involving the withdrawal of capacity, without new information.

3. External stability - external firms undermining the agreement

Houston Kemp considered publication of scheduled generating unit availability information is likely to make a collusive agreement less externally stable and so harder for its purpose to be achieved because it would be easier for firms that are not part of an agreement to increase their availability at exactly the time when the colluding firms were withdrawing their capacities. However, this may not hold if a very large proportion of the capacity was part of any collusive agreement.

Cost to implement

AEMO noted it would incur a low additional cost to publish scheduled generating unit availability at the DUID level.

Conclusion

The Commission's decision is for AEMO to publish scheduled generating unit availability information at the DUID level. The Commission considers AEMO will need six months to implement this change, so the change will be effective from 20 August 2020 (six months after publication of the final determination and final rule).

The Commission considers that publishing individual scheduled generating unit availability information will improve the transparency and the accuracy of information regarding the supply side of the NEM. This will enable market participants to become better informed and make more efficient operational decisions. The Commission considers this change will:

- Improve transparency and quality of information that will better inform the market. A better informed market is likely to be able to function more effectively and efficiently in terms of resource allocation, and scheduling planned maintenance.
- Promote reliability of the power system. A better informed market will respond more effectively to forecast shortfalls in supply which will reduce the likelihood of unserved energy occurring.
- Minimise direct and indirect costs. A better informed market is more likely to make efficient decisions that reduce costs for participants operating in the market, which may reduce costs passed on to consumers.

The Commission has considered the potential for the provision of scheduled generating unit availability at the individual unit level in the MT PASA output to increase the opportunities for the exercise of coordinated market power. The Commission notes that potential anti-

competitive behaviours have been a concern associated with releasing NEM market information since the inception of the NEM.[63] However, the Commission considers that this draft rule is unlikely to increase the coordination of market power risks in the NEM.

In addition, the Commission considers publishing scheduled generating unit availability would not stop resourceful participants from deducing this information themselves and possibly using it for anti-competitive purposes. It is more likely that unit-level generation availability may assist the market in countering collusive behaviour (if it were to occur).

Interaction with Wholesale demand response rule change

This draft rule provides for AEMO to publish individual scheduled generating unit PASA availability (in addition to the existing requirement to publish aggregated generating unit availability) under clause 3.7.2(f) for the reasons described above. The draft rule for the Wholesale demand response rule change request,[64] published in July 2019, also proposes to amend clause 3.7.2(f) to include a requirement for AEMO to publish aggregate scheduled wholesale demand response unit PASA availability for each region, on the basis that such demand response units should be subject to equivalent PASA availability reporting requirements as scheduled generators.

The Commission is interested in feedback from stakeholders on the extension of the proposed publication of individual unit availability to scheduled wholesale demand response units, if the Wholesale demand response rule is made as a final rule and includes MT PASA reporting requirements similar to those in the draft rule.[65] Specifically, the Commission seeks views on a possible change to clause 3.7.2(f), as part of a final rule for this MT PASA rule change request, to require AEMO to publish individual (as well as aggregated) *scheduled wholesale demand response unit PASA availability*.[66] This would maintain consistent treatment of scheduled wholesale demand response units and scheduled generating units for the purposes of MT PASA. If this change is made, it would take effect when the key provisions of the Wholesale demand response final rule (if made) take effect.

63 ACCC, 10 December 1997, Determination – Application for Authorisation – National Electricity Code

64 Available on www.aemc.gov.au under project code ERC0247.

65 The final determination and final rule (if made) for the Wholesale demand response rule change request are due to be published on 5 December 2019, prior to publication of the final determination and final rule (if made) for this rule change request.

66 Pursuant to the Wholesale demand response draft rule this information would be made available to AEMO under proposed changes to clause 3.7.2(d)(1) of the NER.

4 MT PASA DURATION

This chapter discusses stakeholder feedback, and presents the Commission's analysis and conclusions, regarding ERM Power's proposal to extend the duration of the MT PASA from two to three years.

4.1 ERM Power's view

ERM Power argued that extending the duration of the MT PASA to three years would provide the following benefits:

- Complement the RRO by providing ongoing routine assessment and updating of any reliability gap. It would also provide an ongoing review of any expected USE and the timing of this expected USE during any identified gap period.
- Support the earlier commencement of retailer discussions with potential suppliers, which in turn may elicit faster development of demand response capability in the NEM.
- Allow generation facilities to better plan maintenance outages in the two to three year time frame.
- Better align available market information with a three-year generator closure notification.
- Remove the potential for forecast USE to arise due to the overlap of planned maintenance outages.
- Assist both gas-fired generation and coal-fired generation supplied by external fuel suppliers to more efficiently profile fuel requirements.

4.2 Stakeholder views

Stakeholders who supported extending the duration of the MT PASA noted it would improve liquidity and trading in the third year, and support the RRO. AEMO opposed[67] the change arguing it would reduce the accuracy of the forecast, and duplicate the role of the ESOO. Origin also opposed[68] the change as it would reduce the accuracy of the forecast and its usefulness.

The following sections present the key issues raised by stakeholders:

- liquidity and price discovery
- interaction with the RRO
- overlap with ESOO
- planned outages
- accuracy
- cost to implement
- volume of regulatory reform

67 AEMO, Submission to consultation paper, pp. 6-7.
68 Origin, Submission to consultation paper, p. 1.

- generator notice of closure
- future investment
- other benefits

Liquidity and price discovery

HV Broker, Delta Electricity, and ERM Power supported extending the MT PASA duration as they believe it would provide greater confidence to hedge which could in turn encourage greater market liquidity and price discovery in the third year out.[69]

Interaction with the RRO

A number of stakeholders supported extending the duration as it would better align the MT PASA with the RRO time frame.[70] 1stEnergy and MEU considered[71] the change would provide the ability to assess the likelihood of a reliability gap period eventuating, and if any, it would assist them to manage their market positions following the declaration of a T-3 period.

Overlap with the Electricity Statement Of Opportunities (ESOO)

Some stakeholders noted the overlap with ESOO would be complementary, and did not view it as an issue.[72] In the rule change request, ERM Power noted[73] extending the MT PASA would also provide cost benefits to AEMO and the market as it would remove the need for more regular updating of the ESOO and the Energy Adequacy Assessment Projection (EAAP), as changes occur in expected market conditions as these changes would already be captured in the MT PASA process.

AGL stated that itself and other stakeholders have previously highlighted the risks of linking the ESOO with the RRO, as the ESOO's longer-term outlook can forecast adverse long-term outcomes that are unlikely to eventuate in the PASA. AGL noted this is because the ESOO methodology only includes committed projects rather than reasonable forecasts of projects that are likely to be developed. AGL added that due to the different forecasting methodologies used by the ESOO and PASA, it is foreseeable that the RRO could be triggered due to a high unserved energy forecast in the ESOO, despite the MT PASA indicating no projected capacity shortfall. AGL concluded an extended MT PASA would provide a helpful reference point to ESOO forecasts.[74]

AEMO stated[75] the purpose of MT PASA is to provide the market with information related to possible low reserve conditions and to assist market participants in making operational decisions, particularly related to generation and transmission outages. AEMO argued[76] the MT

69 Submissions to consultation paper: HV Broker, p. 1; Delta Electricity, pp. 2-3; ERM Power, pp. 1-2.

70 Submissions to consultation paper: BlueScope, p. 1; AEC, pp. 2-3; EnergyAustralia, p. 1; Snowy Hydro, p. 2; EUAA, pp. 1, 3; InterGen, p. 1; Alinta Energy, p. 2; 1stEnergy, p. 1; ERM Power, pp. 1-2; MEU, p. 4; AER, p. 2;

71 Submissions to consultation paper: 1stEnergy, p. 1; MEU, p. 4.

72 Submissions to consultation paper: 1stEnergy, p. 1; EUAA, pp. 1, 3.

73 ERM Power rule change request: Extension of MT PASA duration, 31 March 2019, p. 3.

74 AGL, submission to consultation paper, pp. 1-2.

75 AEMO, submission to consultation paper, pp. 6-7.

76 AEMO, submission to consultation paper, pp. 6-7.

PASA is not the key publication that outlines investment opportunities, which is fulfilled by the ESOO.

AEMO noted[77] that any additional year in the MT PASA horizon would essentially be exactly the same in terms of inputs and methodology as is already conducted through the ESOO. AEMO considered if ERM Power is of the belief that planned outages should be included over this horizon then implementing this through the ESOO process may be beneficial, acknowledging that any outages that are submitted would potentially increase the USE forecast in that publication.[78]

Planned outages

AEMO noted in the event that the market is unable to resolve the supply and demand balance, AEMO may procure RERT. AEMO argued a two-year MT PASA is hence a sufficient lead time for the market to resolve unit commitment/outage planning schedules.[79]

Accuracy

AEMO considered the quality of data on plant maintenance two years out is challenging. AEMO noted the number of generator outages submitted for the second year of the MT PASA time frame is already significantly lower than in the first year, and much more subject to change as time progresses. AEMO argued expanding the MT PASA time frame to a third year would likely result in a further reduction in the quality of inputs provided.[80] Origin also opposed extending the MT PASA outlook to three years as a longer outlook is likely to reduce the accuracy of the forecast.[81]

Cost to implement

Delta Electricity noted it expects very little change to its existing business processes to accommodate this change.[82] Similarly, the AEC expects that the additional initial and ongoing costs of doing so would be minimal.[83]

AEMO, however, noted increasing the requirement to three years, while offering limited value, and would impose a significant operational cost by increasing the simulation run time (approximately $150,000 per year), as well as causing difficulties in being able to complete an MT PASA simulation by the required time when significant updated information becomes available. These cost estimates exclude systems, development, and testing costs.[84]

Volume of regulatory reform

77 AEMO, submission to consultation paper, pp. 6-7
78 AEMO, submission to consultation paper, pp. 6-7.
79 AEMO, submission to consultation paper, pp. 6-7.
80 AEMO, submission to consultation paper, pp. 6-7.
81 Origin, submission to consultation paper, pp. 1-2.
82 Delta Electricity, submission to consultation paper, pp. 2-3.
83 AEC, submission to consultation paper, pp. 2-3.
84 AEMO, submission to consultation paper, pp. 6-7.

AGL broadly supported the concept, and Stanwell noted the market may benefit from a longer MT PASA forecast. Both noted that making such a change needs to be considered in the current context, complexity and volume of market reform.[85]

Generator notice of closure

Macquarie considered the change would provide a better understanding of closure profiles of retiring generation units.[86] Some stakeholders considered[87] if the duration should be further extended to three and a half to better align with the recently extended notice of closure.[88]

Future investment

Some stakeholders noted a longer MT PASA would provide benefits for future investment, including:

- Better enable decisions to be made to invest in additional reliable generation, highlighting the importance of greater data access and transparency.[89]
- Promote investment in additional demand management or supply options than would otherwise be the case were the MT PASA to remain at its current two year duration.[90]

Other benefits

Stakeholders raised a number of other benefits, including:

- Greater transparency of AEMO's forecasts and information provided by participants.[91]
- Allow market participants to compete for retail customers in the third year.[92]
- Better capture the impacts of intermittent generation on supply adequacy.[93]

4.3 Analysis

Issue being addressed

ERM Power argued[94] that with new generation most commonly being intermittent in nature, and the margins of reserve capacity narrowing, there is a need for the weekly supply-demand balance in MT PASA to be assessed over a longer duration. This would provide improved and earlier signals, than is currently the case, of the need for new supply capability or demand management over the medium-term time horizon.

What are the benefits of extending the MT PASA duration?

The Commission considers there are benefits to extending the MT PASA duration to three years. The Commission considers improving the ability for participants to act more prudently

85 Submissions to consultation paper: Stanwell, p. 1; AGL, pp. 1-2.
86 Macquarie, submission to consultation paper, p. 2.
87 Submissions to consultation paper: EnergyAustralia, p. 1; AEC, pp. 2-3; AER, p. 2; AGL, pp. 1-2.
88 NER, 2.10.1(c2)
89 Submissions to consultation paper: MEU, p. 4; Macquarie, p. 2;.
90 ERM Power, submission to consultation paper, pp. 1-2.
91 Submissions to consultation paper: BlueScope, p. 1; AEC, pp. 2-3; Alinta Energy, p. 2; .
92 1stEnergy, Submission to consultation paper, p. 1.
93 Snowy Hydro, Submission to consultation paper, p. 2.
94 ERM Power rule change request: Extension of MT PASA duration, 31 March 2019, p. 2.

and efficiently when interacting with or entering the market would result in lower costs to the market and consumers.

Specifically, this change would provide market participants with generation availability and reliability assessment information, at a daily resolution, over a three-year outlook. This would allow participants to respond, including through:

- generators adjusting planned maintenance schedules over a longer period
- greater confidence in future market conditions and contracting
- investment in new supply.

Planned outages

The Commission considers this change would provide transparency of generation capacity and when potential shortfalls in capacity might occur over a longer period, and would likely give generators greater confidence in planning their maintenance schedules.

Many generators will analyse currently available generation availability information to better understand the planned maintenance schedules of other generating units, as identified in chapter 3. Knowing this information is important when considering planned outages for a generator's own unit. This change would oblige generators to consider maintenance schedules beyond two years, while this is likely already occurring, this information would be published to the market. This would provide greater visibility of market conditions in the third year and likely result in generators better responding to market conditions, for example, adjusting planned maintenance to resolve a shortfall in supply.

Market liquidity

The Commission considers visibility of generation availability over a longer period may improve market liquidity and increase the length of contracting periods.

Contracting for supply in the third year is much lower than in the two years prior, which is largely due to there being less information available. The Commission understands, as highlighted by some stakeholders, this change would provide greater transparency of market conditions in the third year. The Commission considers this would likely improve confidence for the market, which may facilitate more hedging and may improve contract market liquidity beyond two years. The Commission notes this would be particularly relevant if a T-3 event is triggered through the RRO.

Investment in new supply

The Commission considers greater transparency and confidence in market conditions three years out may reduce uncertainty for new entrant generator or demand responders.

The Commission notes that generators require significant capital investment upfront and therefore require certainty in the ability to earn a reasonable return on their investment. The Commission considers a market more confident in future generation availability and wholesale market liquidity is more likely to provide greater certainty in returns on investment, including longer contracting periods, for new entrant generators.

Interaction with the ESOO

The Commission has considered whether the benefits of extending the MT PASA for an additional year are already provided for by the ESOO, which spans a ten-year time horizon. Table 4.1 compares key elements of the MT PASA and the ESOO.

Table 4.1: **Elements of MT PASA and ESOO**

ELEMENTS	MT PASA	ESOO
Projected outlook	Two years (proposed to be three years)	10 years
Availability resolution	Daily	Yearly
Frequency of update	Weekly	Yearly
Generation availability	PASA availability (provided by participants)	Availability assessed by AEMO
USE resolution	Monthly	Yearly
Planned outages	Included	Not included

The Commission notes that the ESOO forecasts are published yearly, at a yearly resolution, and are less likely to provide the level of information required by participants to identify capacity shortfalls, adjust maintenance schedules, and improve market liquidity.

What are the costs/negative impacts of extending the MT PASA duration?

Confusion regarding the respective roles of the MT PASA and the ESOO

AEMO argued that extending the MT PASA duration may confuse market participants as to the role of MT PASA and that of the ESOO. The Commission considers that market participants are generally aware of the respective roles played by the MT PASA and ESOO. In particular, the Commission notes that some stakeholders acknowledged the role the ESOO's reliability forecasts play in triggering the RRO, and that an extended MT PASA would complement the ESOO by improving the market's ability to respond to these capacity shortfalls.

Accuracy

The Commission considers the MT PASA is a projection aimed at reflecting the market into the future based on information available 'today'. It is based in part on generators' future plans for the availability of their generation fleet. As such, by its very nature the MT PASA's inputs are intended to change over time.

In any dynamic business environment, market participants intentions change for many reasons, both internal and external to business. In the case of generation plant availability, for instance, the timing, extent and duration of maintenance schedules could alter for budgetary reasons (internal) or due to other plant closures (external).

In other words, changes over time in generators' scheduled maintenance plans in the MT PASA do not necessarily reflect 'inaccuracies' in the forecasts, but may reflect the normal business decisions of a dynamic market environment facilitated by the operation of PASA.

The Commission considers that while an extended forecast is subject to change, the provision of this information, which would otherwise not be available, is useful and would provide market participants with greater transparency of future market conditions in the 'year three' time horizon and an opportunity to make better informed decisions when interacting with the market.

Cost

The Commission notes that AEMO estimate this change would increase its operating costs by approximately $150,000 per year.

Three years versus a three and a half year extension

The Commission does not consider extending the MT PASA to three and a half years, to align with the generator notice of closure, is necessary.

The generator notice of closure was extended to three and a half years to allow sufficient time for AEMO to assess a notice of closure's impact on the reliability assessment. The Commission notes the ESOO is the trigger for the RRO (a T-3 event), and considers a MT PASA of three and a half years is not necessary.

Conclusion

The Commission's draft decision is to extend the duration of the MT PASA from two to three years. The Commission considers AEMO will need 12 months to implement this change, so the change will be effective from 22 February 2020 (12 months after publication of the final determination and final rule).

At this stage, the Commission considers extending the MT PASA to three years will:

- Improve the transparency and quality of information of the NEM over a longer period, enabling market participants to become better informed.
- Minimise costs by allowing participants to more efficiently allocate resources and reduce their overall costs, which may be passed onto consumers.
- Promote reliability of the power system. Market participants who have earlier information about forecast supply are more likely to make more efficient and effective maintenance and generation entry decisions that reduce the likelihood of shortfalls in electricity supply and best serve the NEM.

5 TRANSPARENCY OF GENERATOR FORCED OUTAGE VALUES

This chapter discusses stakeholder feedback, and presents the Commission's analysis and conclusions, regarding ERM Power's proposal to publish maximum and minimum aggregated scheduled generating availability, adjusted for forced outage assumptions.

5.1 ERM Power's view

ERM Power stated that currently AEMO generate numerous simulations in the probabilistic MT PASA modelling process, each of which utilises assumptions about forced (i.e. unplanned) outages across the generation fleet. While ERM Power considered the outcomes are based on an average of the simulations, it was concerned that the degree of variability in available generation capacity across simulations, resulting from the forced outage assumptions, is not transparent.

ERM Power argued that publishing data on the variance in generation availability by region would provide benefit to the market through increased transparency. In particular, it would help market participants understand the impact on AEMO's forecasts on USE and allow better scheduling of planned outages.

Specifically, ERM Power proposed that AEMO be required to provide the:

- adjusted maximum aggregate scheduled generation availability
- adjusted minimum aggregate scheduled generation availability.

5.2 Stakeholder views

Stakeholders who supported this change said it would provide greater transparency of modelled generation availability outcomes. This would better inform participants and could lead to more efficient scheduling of planned outages in the market.

Stakeholders supportive of the change argued that it would:

- Be appropriate as the variance in aggregate generation levels is a key element of a probabilistic model.[95]
- Provide further transparency for participants that need a better understanding of the available generation capacity levels being assumed in the MT PASA modelling process,[96] and facilitate more efficient planning decisions.[97]

A number of stakeholders more generally supported the change.[98] EnergyAustralia supported the change provided that scheduled generator availability is published in aggregate to anonymise all generators.[99]

95 Submissions to consultation paper: Delta, p. 2; MEU, p. 4.
96 Submissions to consultation paper: Delta, p. 2; Origin, p. 2; EUAA, p. 2.
97 Delta, submission to consultation paper, p. 2.
98 Submissions to consultation paper: Intergen, p. 1; AER, p. 1; Snowy Hydro, p. 1.
99 EnergyAustralia, submission to consultation paper, p. 3.

AEMO supported[100] publishing generation availability data that reflects forced outages and noted it is an enhancement that AEMO is intending to implement over the coming year. However, AEMO considered[101] that:

- The minimum and maximum aggregated scheduled generating availability requested by ERM, would not be informative.
- There is little value in implementing the proposed solution through the NER as the measures that best inform participants change over time and AEMO already plans to provide the information.

Both AEC and Stanwell opposed the change. Stanwell noted[102] that it does not see the inherent value in publishing the minimum and maximum values of the modelled simulations as a scheduled availability "band". Stanwell added[103] that publishing this information may impose associated costs on AEMO or have potential implications for RERT procurement given that the calculation for the required volume utilises forced outage rates.

AEC considered[104] that such information could improve market participants' understanding of forecast USE. However, the AEC was concerned[105] that disclosure might negatively impact generators; asset valuations could be unfairly affected by current or future investors taking a pessimistic view of generator returns based upon aggregated numbers.

5.3 Analysis

What are the benefits of publishing the maximum and minimum aggregated scheduled generation, adjusted for modelled forced outages?

The MT PASA process does not currently give market participants visibility of the variability in available generation availability, adjusted for forced outage rates, across modelled simulations. The Commission considers doing so would improve transparency of the possible available generation levels being assumed in AEMO's MT PASA modelling process. It would allow stakeholders to better understand the range of potential reliability outcomes, including over time, and this could facilitate more efficient investment, planned generator maintenance, and market intervention decisions.

What are the negative impacts of publishing the maximum and minimum aggregated scheduled generation, adjusted for modelled forced outages?

Commercial implications

The Commission considers this change is unlikely to have negative commercial implications for generators. Publishing adjusted maximum and minimum aggregate generation availability by region is an incremental change in information transparency and, as it is a regional-level aggregate, it is unlikely to result in generation asset valuations being unfairly affected by

100 AEMO, submission to consultation paper, p.
101 AEMO, submission to consultation paper, p. 4.
102 Stanwell, submission to consultation paper, p. 2.
103 Stanwell, submission to consultation paper, p. 2.
104 AEC, submission to consultation paper, p. 2.
105 AEC, submission to consultation paper, p. 2.

investors taking a pessimistic view of generator returns. The Commission notes information currently available through the ESOO (forced outage rates by technology and region) and considers that published generation actuals would be more likely to be used for asset valuations.

RERT procurement

The Commission considers this change is unlikely to negatively influence or bias procurement of RERT. We note the process for contracting RERT considers the MT PASA but the RERT guidelines do not prescribe exactly how it is to be considered. The Commission finds it is more likely that increased transparency of generation availability outcomes will result in a more accurate and efficient RERT procurement, when required.

Costs

As this data is generated in the modelling process, its publication is unlikely to impose a significant cost on AEMO.

Conclusion

The Commission is of the view that publishing the maximum and minimum aggregated scheduled generation availability, adjusted for modelled forced outages, provides market participants with greater visibility of the range of possible supply and reliability outcomes. The Commission does not consider this change would negatively impact or bias RERT procurement. The Commission considers AEMO will need six months to implement this change, so the change will be effective from 20 August 2020 (six months after publication of the final determination and final rule).

The Commission considers this change is likely to:

- Improve the transparency and quality of information. This will allow more accurate communication of market conditions.
- Promote reliability of the power system by allowing for more efficient scheduling of planned maintenance, reducing the likelihood of capacity shortfalls.

6 INTENDING GENERATION

This chapter discusses stakeholder feedback, and presents the Commission's analysis and conclusions, regarding ERM Power's rule change proposal that AEMO be required to include a preliminary 'committed generation' category in the MT PASA.

6.1 ERM Power's view

ERM Power argued it is unclear whether intending generation is included in the MT PASA process. ERM Power noted currently AEMO uses 'committed generation'[106] information in its ESOO process, including when assessing the reliability standard. By contrast for the MT PASA the NER does not require AEMO to include 'committed generation', only PASA availability which applies to scheduled, semi-scheduled and unscheduled generators and scheduled loads.

ERM Power's proposed change would require AEMO to:

- Incorporate into the MT PASA intending generation. This would be achieved through a preliminary classification for 'committed generation'.
- For generation within this classification, use the generic PASA availability profile for a scheduled generating unit and the unconstrained intermittent generation forecast if classified as a semi-scheduled generating unit.
- Amend the NER to make it clear that AEMO is to include intending generation in the MT PASA process and that the new preliminary classification would be defined in the RSIG (in consultation with project proponents).

6.2 Stakeholder views

Most stakeholders supported ERM Power's proposed rule change. Stakeholders stated it would increase the visibility of future generation capacity, better align the MT PASA process with that of the ESOO, and could reduce the likelihood of long-notice RERT contracts. Origin was the only stakeholder opposed to the change, while AEMO supported the change in principle but did not consider a rule change is needed.

Stakeholders supportive of the proposed rule change, identified the following, related benefits:

- Recognition in MT PASA forecasts that certain generation technology types (for instance, batteries and large scale solar) have the potential to impact the market within the MT PASA process as they can be built and operational within a relatively short periods of time (1 - 2 years). [107]
- More robust and accurate MT PASA.[108]

106 The term "Committed project" is defined in the NER clause 11.10A.1

107 Submissions to consultation paper: Alinta, p. 2; AEC, p. 2.

108 QEUN, submission to consultation paper, p. 1.

- Help avoid AEMO-determined low reserve conditions and thus prevent potentially unnecessary long-notice RERT contracts being entered into.[109]
- Reduce the potential to underestimate the amount of future supply in the market and thereby reduce the risk of over-investment in new generation.[110]
- Better alignment between the ESOO and the MT PASA processes.[111]

Snowy Hydro supported[112] the change and noted that the Commission is currently considering other, complementary rule change proposals (such as transparency of new projects[113] and wholesale demand response mechanisms).[114]

Stanwell supported[115] the change, but recognised there may be potential limitations on the usability of the proposed proxy PASA profiles. Stanwell noted[116] the risk of data "noise" in MT PASA could be reduced by imposing a minimum lead time for committed generators to publish PASA.

While AEMO agreed that intending generation should be included in the MT PASA, it did not consider the approach needed to be reflected in the NER. AEMO noted[117] that the MT PASA already includes inputs from intending generators (as described in the MT PASA process description) once they are classified as 'committed generation'. AEMO also highlighted that it has recently expanded the scope of intending generation to include new entrant generation that has started construction or installation (and not yet met all of AEMO's commitment criteria). As this arose from consultation on the RRO, AEMO's approach to intending generation in the MT PASA and ESOO are now aligned. AEMO has committed[118] to formalising the approach through the RSIG.[119] It suggested[120] that there is no need or benefit to making the change in the NER, as doing so would not change AEMO's MT PASA modelling approach in practice and thus not impact forecast reliability outcomes.

Origin opposed[121] the change, pointing to the difficultly in accurately forecasting project completion dates.[122]

6.3 Analysis

Recent changes to AEMO's forecasts

109 Submissions to consultation paper: Alinta, p. 2; EnergyAustralia, p. 3.
110 MEU, submission to consultation paper, p. 4.
111 Submissions to consultation paper: Delta, p. 2; MEU, p. 4.
112 Snowy Hydro, submission to consultation paper, p. 2.
113 https://www.aemc.gov.au/rule-changes/transparency-new-projects
114 https://www.aemc.gov.au/rule-changes/wholesale-demand-response-mechanism
115 Stanwell, submission to consultation paper, p. 2.
116 Stanwell, submission to consultation paper, p. 2.
117 AEMO, submission to consultation paper, pp. 2, 4.
118 AEMO, submission to consultation paper, p. 4.
119 AEMO's Reliability Forecasting Methodology Final Report set out AEMO's current approach to the accuracy of the start-dates of these projects and how AEMO would develop a methodology and consult on an RSIG update.
120 AEMO, submission to consultation paper, pp. 2, 4.
121 Origin, submission to consultation paper, p. 1.
122 Origin, submission to consultation paper, p. 1. Origin noted that AEMO's generation information page provides market participants with the most up to date information pertaining to proposed projects.

The Commission understands that AEMO has recently expanded the range of intending generation projects it includes in both the ESOO and MT PASA. Through its ESOO reliability forecasting methodology report, AEMO sought stakeholders' comments on how to include intending generation in the ESOO. As a result, AEMO has defined a preliminary classification of committed generation, termed 'Committed*'.[123] AEMO has stated that it intends to include Committed* projects in the ESOO's reliability assessment and the MT PASA process.[124] The Commission notes that the NER currently do not define how intending generation is to be considered in the MT PASA.

What are the benefits of defining in the NER how intending generation is included in the MT PASA process?

The Commission agrees with the view of many stakeholders that defining in the NER how intending generation is included in the MT PASA process would benefit the market. The change would provide greater transparency and confidence to market participants that the MT PASA is using accurate and reasonable generation forecast information, reflective of current generation technology lead times. The Commission notes this change:

- Would provide more accurate signals to potential new entry generation about future generation capacity.
- Would provide regulatory certainty by aligning the ESOO and MT PASA approaches.
- May reduce costs to consumers by more accurately forecasting supply and thereby preventing potentially unnecessary long-notice RERT contracts being entered into.

What are the negative impacts of defining in the NER how intending generation is included in the MT PASA process?

The Commission considers the change is unlikely to result in forecasts of overestimates in generation availability, as AEMO will only include intending generation projects that meet the criteria for Committed and Committed* projects, with Committed* projects not included in the first year of MT PASA forecasts. These projects have a high certainty of being delivered. The Commission supports Stanwell's suggestion of introducing a minimum lead time for committed generators to publish PASA, this will allow participants prior notice of commencing Committed and Committed* projects.

The Commission has considered AEMO's view that this approach to intending generation need not be established in the NER as AEMO intends to incorporate it into their guideline documents (RSIG and MT PASA process description). On balance, the Commission considers that prescription in the NER will give market participants more clarity regarding the MT PASA approach, and greater confidence in the quality of the outputs produce by the MT PASA process.

Conclusion

123 Projects that have started construction and have meet all of AEMO's commitment criteria other than either the planning or components criteria.

124 AEMO, submission to consultation paper, pp. 2, 4.

The Commission's more preferable draft rule is for the NER to prescribe that AEMO are to include the capabilities of proposed generation in the MT PASA, consistent with the ESOO information requirements set out in clause 3.13.3A(a)(2) of the NER. The Commission considers AEMO will be able to implement this change from 20 February 2020 (the date of publication of the final determination and final rule).

The Commission considers this change will:

- Improve the transparency and quality of information and market forecasts.
- Promote reliability of the power system by providing greater visibility, and confidence, in forecast generation capacity.
- Facilitate more efficient decision-making by (current and future) participants regarding when and where to build new generation.

7 PEAK DEMAND FORECAST

This chapter discusses stakeholder feedback, and presents the Commission's analysis and conclusions, regarding ERM Power's proposal to publish an additional daily peak demand forecast with a 90 per cent POE (90POE).

7.1 ERM Power's view

In its rule change request, ERM Power stated that:

- AEMO calculate and publish daily 10 per cent and 50 per cent POE (10POE and 50POE) of peak load demands within the MT PASA time frame.
- In a separate process, defined in the RSIG, these peak demand forecasts are then used to model potential for USE. The 10POE USE outcomes are given a probability of 30 per cent, and the 50POE USE outcomes are given a probability of 70 per cent.
- The modelled USE is a conservatively high assumption since 50POE outcomes tend to have positive USE outcomes in a number of scenarios. In contrast, the 90POE outcomes would be zero or close to zero in all scenarios. The grouping of 50POE and 90POE assumes they have similar USE outcomes and results in an inflated expected USE.

ERM Power argued that requiring AEMO to publish daily peak demand forecasts of 90POE in the MT PASA output would increase the transparency of the demand forecasts.

7.2 Stakeholder views

Many stakeholders supported this change. They considered that publishing an additional daily peak load demand of 90POE would provide greater transparency of peak demand outcomes. AEMO, on the other hand, did not support this change. It argued that as AEMO no longer uses the daily 90POE peak demand forecast in the MT PASA reliability assessment, publishing the 90POE serves no clear purpose and may in fact confuse participants.

Stakeholders that supported the proposed change suggested it would deliver the following benefits:

- Improve transparency in the MT PASA around how AEMO does its forecasting to improve market confidence in the policy implications flowing from the forecasting.[125]
- Provide a clearer view of the range of potential demand outcomes under the published MT PASA and thereby help stakeholders better understand the risks to reliability and allow more efficient planning.[126] MEU argued this would lead to an overall better outcome for consumers.[127]
- Reduce the effect in the published MT PASA of skewing the calculation of most probable peak load to a higher figure than would otherwise be the case.[128]

125 EUAA, submission to consultation paper, p. 2.
126 Submissions to consultation paper: Delta Electricity, p. 2; MEU, p. 3.
127 MEU, submission to consultation paper, p. 3.
128 AEC, submission to consultation paper, p. 2.

CS Energy and Stanwell supported[129] the change (but did not think 90POE demand forecasts should be included in reliability assessments).[130] Both EUAA and Delta Electricity expected the costs to be minor.[131]

Both EnergyAustralia and Origin were unclear on the benefits this change would bring about, and noted that if the change is made, AEMC should be convinced it would add value.[132]

AEMO opposed[133] the proposal. AEMO highlighted that there is a difference between the demand forecasts used in the MT PASA reliability assessment, and the daily peak demands currently published at both the 10POE and 50POE levels. According to AEMO[134] it no longer uses the daily peak load forecasts in the MT PASA process for calculating expected USE. The demand forecasts it uses in USE modelling is half hourly profiles, not daily maximum demand as was the case in the previous MT PASA process.

AEMO argued[135] that, rather than augmenting the published daily demand data, the requirement on AEMO to publish daily demands over a two-year horizon should be removed as it is obsolete, adds no value and may cause confusion. AEMO pointed to the publication of seasonal demand targets in its forecasting data portal and the publication of half-hourly demand profiles (based on these targets) through the ESOO model.

7.3 Analysis

ERM Power stated publishing an additional daily peak demand forecast of 90POE would provide greater transparency of demand forecast outcomes.

Would this change provide benefits?

The Commission does not consider publishing an additional daily peak demand forecast of 90POE would improve transparency of peak demand forecast outcomes, or the accuracy of forecast USE. The Commission notes:

- There is a misunderstanding among some participants that currently published daily peak demands of 10POE and 50POE are used in the reliability assessment and, if a daily peak demand forecast of 90POE were published, it would at a minimum aid understanding (and/or be used in the calculation of USE).
- AEMO stated the current daily peak demand forecasts of 10POE and 50POE are no longer used in the reliability assessment, and neither would a 90POE if it were published.
- The daily peak demand forecasts of 10POE and most probable peak load (interpreted as 50POE) are only published because it is required by the NER.[136]

129 Submissions to consultation paper: CS Energy, pp. 2-3; Stanwell, p. 2.

130 Submissions to consultation paper: CS Energy, pp. 2-3; Stanwell, p. 2. Stanwell considered doing so may put a downward bias on USE which would have flow-on implications for processes such as network planning and the RRO.

131 Submissions to consultation paper: Delta Electricity, p. 2; EUAA, p. 2.

132 Submissions to consultation paper: EnergyAustralia, p. 2; Origin, p. 2.

133 AEMO, submission to consultation paper, p. 5.

134 AEMO, submission to consultation paper, p. 5.

135 AEMO, submission to consultation paper, p. 5.

136 Clause 3.7.2(f)(1) of the NER.

- AEMO stated the current approach is to use nine demand profiles, based on historic data, for each of the yearly peak demand forecasts of 10POE and 50POE.[137] These demand profiles are modelled for USE and then averaged for the purpose of the reliability assessment.

The Commission notes that the reliability assessment in the MT PASA (i.e. how expected USE is calculated), is not within scope of this rule change as it was not proposed in the rule change proposal. AEMO will continue to perform this function according to the process outlined in the RSIG. However, the Commission notes that AEMO intends[138] to adjust the reliability assessment USE probability weightings in the MT PASA to effectively include a 90POE demand profile, consistent with the approach it is adopting for the ESOO. The Commission notes that AEMO does not intend to explicitly create demand profiles for 90POE, as the USE outcomes would likely be zero or negligible.

Conclusion

The Commission considers publishing a daily peak demand forecast of 90POE is not likely to improve the transparency of peak demand forecast, and so determines not to make the proposed change to the Rules under the more preferable draft rule.

137 AEMO's Electricity Demand Forecasting Methodology Information Paper explains further how the demand profiles for the reliability assessment are calculated.

138 AEMO, submission to consultation paper, p. 5.

8 TRANSPARENCY AND EASE OF USE OF DATA

This chapter discusses stakeholder feedback, and presents the Commission's analysis and conclusions, regarding ERM Power's proposal to align the formats of published demand forecasts and actual demand.

8.1 ERM Power's view

In its rule change proposal, ERM Power claimed that AEMO publishes forecast demand, and actual demand data, in different formats. ERM Power argued publishing the related data in different formats makes it difficult particularly for participants less familiar with AEMO's data publication processes to compare forecast to actual demand data.

ERM Power highlighted that AEMO currently provides forecast demand data in the MT PASA on an operational 'as sent out' basis. This then requires the addition of a separate estimated generator auxiliary load data to derive the value closest to the real time operational 'as generated' data.

ERM Power proposed in order to provide consistent and transparent information, that AEMO publish MT PASA demand forecasts in the same format as real time actual demand data.

8.2 Stakeholder views

The majority of stakeholders supported ERM Power's proposed rule change. They considered that aligning the formats of published forecast and actual demands would reduce confusion, and provide greater transparency and consistency in reporting.

Stakeholders supportive of the proposal considered the change would:

- Remove unnecessary confusion.[139]
- Improve data utility,[140] and help consumers understand the market.[141]
- Lower the chance of miscommunication and incorrect statements being made in the media.[142]
- Foster confidence in market planning and forecasting processes.[143]

AEMO held[144] no strong objections to publishing forecast demand on an 'as generated' basis through the MT PASA system, but questioned its economic benefit and relevance to the MT PASA's objective, adding that:[145]

- The existing reporting table structures largely dictate the demand measures are published, consistent with the previous MT PASA process.

139 Submissions to consultation paper: Delta, p. 2; EUAA, p. 2; MEU, pp. 3-4; Origin, p. 2.
140 MEU, submission to consultation paper, pp. 3-4.
141 EUAA, submission to consultation paper, p. 2.
142 AEC, submission to consultation paper, p. 2.
143 Submissions to consultation paper: Delta, p. 2; EUAA, p. 2; MEU, pp. 3-4.
144 AEMO, submission to consultation paper, pp. 2-3.
145 AEMO, submission to consultation paper, pp. 2-3.

- Any change in the demand measures published would need to weigh the implementation costs (to AEMO and market participants) against perceived benefits.
- AEMO does publish the auxiliary component through the forecasting data portal. Calculating as-generated peak demands from sent-out peak demands simply involves adding these two values.

8.3 Analysis

The Commission has confirmed that forecast and actual demands are published in different formats and is concerned that this creates confusion for some market participants.

Aligning the formats of published forecast and actual demands would reduce confusion, and improve transparency of information provision, which would allow participants to make better informed decisions.

The Commission considers the cost to implement this change would be minimal.

Conclusion

The Commission is of the view that AEMO aligning the formats of published forecast and actual demand will provide benefits to the market, and these would outweigh associated costs. The Commission considers AEMO will need three months to implement this change, so the change will be effective from 20 May 2020 (three months after publication of the final determination and final rule).

The Commission considers this change will:

- Improve the quality of information released by aligning forecast and actual demand formats published, making it easier for market participants to compare and analyse data.
- Improve regulatory certainty by providing greater confidence in market planning and forecasting processes providing.

9 FREQUENCY OF DEMAND FORECAST UPDATE

This chapter discusses stakeholder feedback, and presents the Commission's analysis and conclusions, regarding ERM Power's proposal to require AEMO to update their demand forecast more frequently.

9.1 ERM Power's view

ERM Power noted that market participants are required to update their inputs into the MT PASA on a weekly basis. By contrast AEMO's demand forecasts, which are also inputs to the MT PASA, are typically only updated once a year.

ERM Power considered there is a case for AEMO updating their demand forecasts more frequently. For instance, the current MT PASA approach would over-estimate USE for the upcoming summer compared to the case where a more up-to-date demand forecast estimated lower demand (for instance, due to a cooler summer than previously forecast). ERM Power considered that this situation, arising from 'out-of date' demand inputs to the MT PASA, could potentially lead to the RERT being triggered unnecessarily.

ERM Power's rule change request proposed that AEMO update its peak demand forecasts in the MT PASA with respect to both:

- Frequency: AEMO should update its peak demand forecasts at least monthly.
- A metric: AEMO should have regard to the weather condition forecasts for the coming three-month period.

9.2 Stakeholder views

The majority of stakeholders supported ERM Power's proposed rule change. They considered that publishing more frequent updates to demand forecasts would improve the accuracy of the inputs, to and thereby outputs from, MT PASA and allow more effective management of system reliability. AEMO opposed the proposal on the basis that more frequent updating of the demand forecast is impractical and would provide no additional value.

Stakeholders in support of the proposal highlighted that the change would:

- Assist in making reliability forecasts as accurate as possible.[146]
- Reduce the temporal mismatch between supply of generator availability information (weekly) and forecast demand updates (yearly).[147]
- Allow AEMO to take advantage of more current data such as the Bureau of Meteorology's (BOM's) seasonal outlooks, which are issued monthly.[148]

146 Submissions to consultation paper: Delta Electricity, p. 2; 1stEnergy, p. 1; AEC, p. 2; Snowy Hydro, p. 2; Origin, p. 2.
147 Submissions to consultation paper: 1stEnergy, p. 1; AEC, p. 2.
148 AEC, submission to consultation paper, p. 2.

- Assist in more accurate forecasting of USE and RERT requirements.[149] In particular, Bluescope noted[150] it would assist AEMO in summer preparedness and help more effectively manage system reliability costs.
- MEU stated[151] more frequent updates would more accurately reflect the quickly changing market. MEU also noted[152] the introduction of RRO and demand response into the market increases the importance of more frequent updates, as they allow the costs to consumers arising from these new tools to be minimised and their benefits to be maximised.

Delta Electricity noted[153] they expect additional ongoing costs of the change if made to be low.

Energy Queensland supported the change, but considered[154] there may be some challenges in accounting for inputs such as weather. Increasing the frequency of the demand forecast, Energy Queensland argued, may not improve the forecast accuracy if that frequency does not align with the 'forecastability' of the input variables (i.e. weather).

Stanwell agreed[155] that demand forecasts should be updated more regularly. But Stanwell questioned the proposed monthly frequency. Stanwell considered, given the importance of reliable forecasts for the RRO, the timing of demand forecasting changes for the MT PASA would need to be carefully considered.

EnergyAustralia supported[156] improvements to forecast accuracy where there are likely to be material benefits. For example, a large load announces closure. It suggested that AEMO be required to update demand forecasts if there is a 'material change' in demand for the MT PASA period.

AEMO highlighted[157] the following points on the forecasting process:

- Developing demand forecasts is a six-month process, requiring significant consultation.
- If required to update forecasting on a monthly basis, it would not have enough of the required information available that would warrant any update to the demand forecast.
- Demand forecasts are updated for weather in August, not May as stated by ERM Power.

AEMO opposed[158] updating demand forecasts monthly as AEMO already updates the forecasts when material changes occur, weather forecasts for the three-month time horizon are not usefully accurate, and AEMO should decide the frequency of demand forecast updates.

149 Submissions to consultation paper: EUAA, p. 2; Bluescope, p. 1.
150 Bluescope, submission to consultation paper, p. 1.
151 MEU, submission to consultation paper, p. 3.
152 MEU, submission to consultation paper, p. 3.
153 Delta Electricity, submission to consultation paper, p. 2.
154 Energy Queensland, submission to consultation paper, p. 1.
155 Stanwell, submission to consultation paper, p. 1.
156 EnergyAustralia, submission to consultation paper, pp. 2-3.
157 AEMO, submission to consultation paper, pp. 5-6.
158 Ibid, pp. 5-6.

More specifically, AEMO stated[159] it uses the most up-to-date information available when preparing the demand forecasts used in the ESOO. Once the ESOO is published, AEMO noted it does not receive any readily usable new information that would impact the forecast of peak demand, except for potential changes in major large industrial loads. The NER requires AEMO to update this ESOO forecast if there are significant changes in input assumptions, such as major changes in industrial loads.[160]

AEMO noted[161] while the use of weather data three months out would be valuable for the industry, this information is not yet technically realisable. AEMO argued seasonal weather forecasting is still in its infancy and not particular accurate at present. AEMO noted it is working closely with the BOM as part of their strategic partnership.

Finally, AEMO stated[162] that as it is responsible for the accuracy of the forecasts, it should determine whether revised input data warrants an updated demand forecast, rather than being bound to a regular cycle of forecast reviews.

9.3 Analysis

The Commission considers that demand forecasts should reflect the most current information available at the time of publication of the MT PASA, and only be updated when AEMO becomes aware of new information that would have a material impact on the forecast. The Commission also recognises the need for accurate inputs to the MT PASA in order to generate reliability forecasts that, by being as accurate as possible, minimise costs to consumers from RERT procurement.

What is AEMO's current approach to updating the demand forecast?

ERM Power noted the NER currently does not prescribe how often AEMO is required to update its demand forecasts for the MT PASA.

The Commission notes that AEMO produce a demand forecast at least once a year for the ESOO,[163] and this demand forecast is a required input to the reliability assessment for the MT PASA.[164] The Commission understands that:

- AEMO consults with stakeholders on its demand forecasting approach, assumption and inputs through AEMO's monthly Forecasting Reference Group and workshops.
- The demand forecasting model inputs represent the most up-to-date information available.
- In the 2019 ESOO, AEMO presented step change, central, and slow change demand forecasts.

Are there benefits to updating the demand forecast more frequently?

159 Ibid, pp. 5-6.
160 Ibid, pp. 5-6.
161 Ibid, pp. 5-6.
162 Ibid, pp. 5-6.
163 NER clause 3.13.3A(a).
164 RSIG, section 2.3.1.4

Temporal mismatch in updates to supply and demand information

The Commission does not consider a mismatch between the frequency of updates to generator availability information and forecast demand is necessarily an issue in relation to the accuracy of the MT PASA process. The Commission notes that generation availability information is easily accessible through a generator knowing its planned outage schedule, whereas a demand forecast update is a lengthy process with multiple inputs.

Accuracy

The Commission considers the existing NER requirements on updating the ESOO demand forecast for material changes[165] are adequate in maintaining a level of accuracy that is practical for AEMO to apply to the MT PASA.

The Commission notes that some stakeholders supported a more frequent update to the demand forecast as it would reflect changes in the market and provide more accurate reliability assessments, resulting in more accurate forecasts of USE and procurement of RERT. The Commission notes the demand forecast update is a lengthy process, and considers the existing NER are adequate in requiring[166] AEMO to update the demand forecast when new information, material in nature, becomes available.

Seasonal outlook

The Commission understands the BOM releases a number of climate outlooks ranging from one week to three months. The three-month outlook is also referred to as the seasonal outlook, which the BOM release twice a month.

The Commission understands from AEMO's submission that its demand forecast model is not compatible with the seasonal outlook. The Commission notes stakeholders' view that seasonal outlook should be considered in AEMO's demand forecast, and modelled USE outcomes should be adjusted accordingly. However, the Commission understands:

- AEMO's demand forecast profiles are based on historic data, and would need at least six months' of actuals to adjust the demand profile.
- AEMO's USE calculations are based on a mathematical approach and would need quantitative analysis, not a qualitative assessment, to support a change to the probability weightings.
- In the ST PASA, AEMO uses the seven to 10 day outlook from the BOM.

ESOO forecasts

The Commission has considered, and rejected as impractical, the approach of utilising different ESOO demand forecasts (or weightings of the forecasts) in the MT PASA in response to the short-medium term weather outlook.

Discrete changes in energy demand

165 Clause 3.13.3A(b) of the NER

166 Ibid

The Commission considers the NER are adequate in requiring[167] AEMO to update the demand forecast when new information, material in nature, becomes available.

Conclusion

It is the Commission's view that no change to the NER is required in relation to this issue. The NER currently allows for updates to the MT PASA demand forecast if material changes in relevant information become available. The Commission also notes that, if AEMO updates the demand forecast due to new information, AEMO is required[168] to inform the market as soon as practicable.

167 Ibid

168 NER clause 3.13.3A(b)

10 CURRENT INTENTIONS AND BEST ESTIMATES

This chapter presents the Commission's analysis and conclusion, regarding the AER's proposal to introduce a requirement on market participants to provide information for the MT PASA on a current intentions and best estimates basis.

10.1 Stakeholder views

This issue was not raised in ERM Power's rule change request. Rather, the AER recommended in their submission to the consultation paper[169], that in amending the rules with a view to improve the accuracy of MT PASA, the standards for information provided by a scheduled generator or market participant should also be reviewed and strengthened.

The AER proposed that the MT PASA provisions should be made consistent with the requirement[170] for ESOO information to represent "the Registered Participant's current intentions and best estimates".[171]

In subsequent conversations with many stakeholders, all agreed with the change proposed by the AER.

10.2 Analysis

The Commission considers this change would provide benefits, including:

- Aligning information requirements of the MT PASA with both the ST PASA[172] and the ESOO.[173]
- Aligning the quality of information provided across the market projections.
- Potentially increasing confidence in the MT PASA outputs.

Conclusion

The Commission considers there would be minimal costs to making this change.

It is the Commission's view that the NER should be amended to require information participants submit to the MT PASA to represent the Registered Participant's current intentions and best estimates. The Commission considers market participants will be able to implement this change from 20 February 2020 (the date of publication of the final determination and final rule).

169 AER, submission to consultation paper, p. 2.
170 NER clause 3.13.3A(g)(3)
171 AER, submission to consultation paper, p. 2.
172 NER clause 3.7.3(e)
173 NER clause 3.13.3A(g)(3)

ABBREVIATIONS

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
BOM	Bureau of Meteorology
Commission	See AEMC
DUID	Dispatchable Unit Identification
ESOO	Electricity Statement of Opportunity
MCE	Ministerial Council on Energy
MT PASA	Medium Term Projected Assessment of System Adequacy
NEL	National Electricity Law
NEO	National Electricity Objective
NER	National Electricity Rules
NOS	Network Outage Schedule
PASA	Projected Assessment of System Adequacy
POE	Probability of Exceedance
RERT	Reliability and Emergency Reserve Trader
RRO	Retailer Reliability Obligation
RSIG	Reliability Standard Implementation Guidelines
ST PASA	Short Term Projected Assessment of System Adequacy
USE	Unserved Energy

A SUMMARY OF OTHER ISSUES RAISED IN SUBMISSIONS

This appendix sets out the issues raised in the first round of consultation on this rule change request and the AEMC's response to each issue. [If an issue raised in a submission has been discussed in the main body of this document, it has not been included in this table.]

Table A.1: Summary of other issues raised in submissions

STAKEHOLDER	ISSUE	AEMC RESPONSE
Queensland Energy Users Network (QEUN), submission to consultation paper, p. 1.	QEUN noted the rule change request was silent on the current inability of consumers to access MT PASA data. QEUN's noted that previously MT PASA data was available on AEMO's website in a consumer friendly graph format on their Data Dashboard. QEUN argued the MT PASA outputs should be published publicly.	The Commission notes AEMO is required to publish the outputs of the MT PASA* and do so through their www.nemweb.com.au website, which is accessible to the public. The Commission considers stakeholders should engage directly with AEMO on the format of published data.

Source: *See NER clause 3.7.2(a)

B LEGAL REQUIREMENTS UNDER THE NEL

This appendix sets out the relevant legal requirements under the NEL for the AEMC to make this draft rule determination.

B.1 Draft rule determination

In accordance with s. 99 of the NEL the Commission has made this draft rule determination in relation to the rule proposed by ERM Power.

The Commission's reasons for making this draft rule determination are set out in section 2.4.

A copy of the more preferable draft rule is attached to and published with this draft rule determination. Its key features are described in section 2.2.2.

B.2 Power to make the rule

The Commission is satisfied that the more preferable draft rule falls within the subject matter about which the Commission may make rules. The more preferable draft rule falls within s. 34 of the NEL as it relates to regulating the operation of the NEM and to regulating the activities of persons (including registered participants) participating in the NEM (NEL ss. 34(1)(a)(i) and (iii)).

B.3 Commission's considerations

In assessing the rule change request the Commission considered:

- it's powers under the NEL to make the rule
- the rule change request
- submissions received during first round consultation
- the Commission's analysis as to the ways in which the proposed rule will or is likely to, contribute to the NEO.

There is no relevant Ministerial Council on Energy (MCE) statement of policy principles for this rule change request.[174]

The Commission may only make a rule that has effect with respect to an adoptive jurisdiction if satisfied that the proposed rule is compatible with the proper performance of AEMO's declared network functions.[175] The more preferable draft rule is compatible with AEMO's declared functions because it does not regulate AEMO's declared network functions.

174 Under s. 33 of the NEL the AEMC must have regard to any relevant MCE statement of policy principles in making a rule. The MCE is referenced in the AEMC's governing legislation and is a legally enduring body comprising the Federal, State and Territory Ministers responsible for energy. On 1 July 2011, the MCE was amalgamated with the Ministerial Council on Mineral and Petroleum Resources. The amalgamated council is now called the COAG Energy Council.

175 Section 91(8) of the NEL.

B.4 Civil penalties

The Commission cannot create new civil penalty provisions. However, it may recommend to the COAG Energy Council that new or existing provisions of the NER be classified as civil penalty provisions.

The Commission's draft more preferable rule amends clause 3.7.2(d) of the NER. This rule is currently classified as a civil penalty provision under Schedule 1 of the National Electricity (South Australia) Regulations.

Clause 3.7.2(d) of the NER requires that certain MT PASA inputs be submitted by each relevant Scheduled Generator or Market Participant in accordance with the timetable. It is proposed to amend the clause to require that those inputs must also represent the Scheduled Generator or Market Participant's current intentions and best estimates.

The Commission considers that clause 3.7.2(d) should continue to be classified as a civil penalty provision and therefore does not propose to recommend any change to its classification to the COAG Energy Council.

The Commission does not consider any other provisions of the draft rule should be classified as civil penalty provisions.

B.5 Conduct provisions

The Commission cannot create new conduct provisions. However, it may recommend to the COAG Energy Council that new or existing provisions of the NER be classified as conduct provisions.

The draft rule does not amend any rules that are currently classified as conduct provisions under the NEL or National Electricity (South Australia) Regulations. The Commission does not propose to recommend to the COAG Energy Council that any of the proposed amendments made by the draft rule be classified as conduct provisions.