

Australian Energy Market Commission

CONSULTATION PAPER

NATIONAL ELECTRICITY AMENDMENT (ENHANCING INFORMATION ON GENERATOR AVAILABILITY IN MT PASA) RULE 2022

PROPONENT

Australian Energy Market Operator

3 FEBRUARY 2022

INQUIRIES

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Reference: ERC0338

CITATION

AEMC, Enhancing information on generator availability in MT PASA, Consultation paper, 3 February 2022

ABOUT THE AEMC

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

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SUMMARY

- 1 The rapid transition of the National Electricity Market's (NEM) generation fleet to a lower-emissions generation profile is driving changes in the sector. One such change is to plant operating regimes such as mothballing of units for prolonged periods of time, seasonal shut-downs, or cyclical running regimes. This trend is particularly relevant in ageing thermal generation and, if not managed, may bring challenges in maintaining system security and reliability.
- 2 The Australian Energy Market Operator (AEMO) submitted a rule change proposal on 15 December 2021, stating that in the context of this transition, the lack of information about when generators are available to supply, and the lead time required for recall from an outage makes it challenging for:
 - AEMO to effectively plan and operate the system
 - participants to coordinate maintenance schedules
 - the Australian Energy Regulator (AER) to assess compliance under the current notice of closure arrangements
 - investors to assess opportunities for replacement plant.
- 3 The solution proposed in the rule change request is to require generators to report, and AEMO to publish, a generating unit's status through reason codes and recall times in the Medium term projected assessment of system adequacy (MT PASA).¹ MT PASA is a key part of the reliability framework in the NEM. It is one component of the information that AEMO must publish to inform the market of prevailing and forecast conditions, and when reserves may be running low, to elicit a market response. Providing information to the market helps market participants make operational and investment decisions with respect to reliability and also helps AEMO manage the power system.
- 4 In its rule change request AEMO notes that, by improving the transparency of information relating to generation availability, market participants, market bodies and jurisdictions can ensure the right mix of resources are made available when they are needed most, in a manner that provides for flexibility, automation and transparency in approach while minimising the regulatory burden.²
- 5 This rule change request actions the Energy Security Board's (ESB) *managing early exits* recommendation that formed part of its post-2025 reforms to meet the needs of the transition. Specifically, the recommendation is to "*instruct the ESB to prepare a rule change for submission to the Australian Energy Market Commission (AEMC, Commission, we, our) to implement enhancements to existing generator exit mechanisms to provide greater*

¹ Provision of recall times would only be triggered by reason codes that indicate a unit is unavailable

² Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 10. See: <https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>

transparency of generator availability".³ The recommendation was agreed by Energy National Cabinet Reform Committee (ENCRC) in September 2021 and endorsed by National Cabinet in October 2021.

- 6 In agreeing to the ESB's recommendation, Energy Ministers noted that AEMO should notify jurisdictions if a change in generator availability results in a breach of that jurisdiction's adopted reliability standard. The rule change request notes that this aligns with AEMO's current obligations under the National Electricity Rules (NER or Rules) to publish an updated reliability forecast (in an ESOO update) should a material change occur. It is also worth noting that AEMO is in regular discussions with jurisdictions on a range of matters including ongoing reliability and security issues. Therefore, the rule change request does not propose further formal reporting obligations to be drafted into the NER at this time. AEMO is in discussions with relevant jurisdictions to adopt any process changes by which any material changes to reliability are communicated to relevant jurisdictions. Energy Ministers also noted that the rule change request should be developed in collaboration with Energy Senior Officials which has occurred.

The purpose of this paper is to seek stakeholder feedback

- 7 The purpose of this consultation paper is to seek stakeholder feedback on the problem identified, the solution proposed and any alternatives. We are also seeking feedback on the framework the Commission will use to assess proposed solutions as to whether they promote the long-term interests of consumers.
- 8 To guide stakeholders in providing this feedback, this paper is structured in the following way:
- Chapter 1 provides a brief overview of the rule change request and the rule change process
 - Chapter 2 sets out the proposed assessment framework
 - Chapter 3 sets out the key issues including the problem identified, the proposed and alternative solutions, and some additional implementation considerations
 - Appendices A - C provide additional context and background about concerns relating to generator availability, ESB's post 2025 reform package and the current arrangements for MT PASA and notice of closure requirements.
- 9 A full list of consultation questions is included at the end of this executive summary. A submissions template is available on the AEMC website should stakeholders wish to use this to provide feedback.⁴ Stakeholders are encouraged to provide feedback on any additional matters that may assist the Commission in making its decision.

The proposed assessment framework focuses on promoting

3 See recommendation 1(a)(ii) in the summary of the final reform package agreed by Energy Ministers in response to ESB post 2025 market re-design recommendations at: <https://www.energy.gov.au/sites/default/files/2021-10/Summary%20of%20the%20final%20reform%20package%20and%20corresponding%20Energy%20Security%20Board%20Recommendations0.pdf>

4 The submission template is available in the documentation section at the end of this page: <https://www.aemc.gov.au/rule-changes/enhancing-information-generator-availability-mt-pasa>

efficient decisions by AEMO and market participants

- 10 Under the National Electricity Law (NEL), the AEMC 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).⁵
- 11 Consistent with the NEO, our assessment of the rule change request will look at whether the proposed change promotes more efficient decisions in relation to investment, operation and use of electricity services in a way that would ultimately promote the long-term interests of consumers.
- 12 In particular, we will assess whether a change promotes **information transparency**, and in turn, supports higher **productive efficiency**, more **effective competition** and more efficient **reliability and security outcomes**.
- 13 The Commission is mindful that the way a rule change is implemented may be the difference between a solution that contributes to the achievement of the NEO and one that does not. In making its assessment, the Commission will also consider the **cost and complexity** of proposed solutions, their **impacts on different stakeholder groups** and whether the proposed changes are **consistent with the objectives of related reforms**.

Submissions are due by 3 March 2022 with other engagement opportunities to follow

- 14 The Commission seeks to engage with stakeholders throughout the rule change process in a range of ways. This allows interested stakeholders to be closely involved in the rule development process in a way that suits them.
- 15 Formal stakeholder engagement occurs through written submissions, and can include public forums where appropriate. Written submissions responding to this consultation paper must be lodged with Commission by **3 March 2022** online via the Commission's website, www.aemc.gov.au, using the "lodge a submission" function and selecting the project reference code **ERC0338**.⁶
- 16 There are other opportunities for further stakeholder engagement, such as one-on-one discussions or industry briefing sessions. We are also closely collaborating with the other market bodies. Interested stakeholders are encouraged to contact the project leader with questions or feedback at any stage. The project leader for this rule change is **Jessie Foran** who can be contacted on (02) 8296 7864 or at jessie.foran@aemc.gov.au

⁵ Section 88 of the NEL

⁶ The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated. Where practicable, submissions should be prepared in accordance with the Commission's guidelines for making written submissions on rule change requests. The Commission publishes all submissions on its website, subject to a claim of confidentiality.

FULL LIST OF CONSULTATION QUESTIONS

QUESTION 1: ASSESSMENT FRAMEWORK

Do you agree with the proposed assessment framework? Are there additional principles that the Commission should take into account or principles included here that are not relevant?

QUESTION 2: CURRENT ARRANGEMENTS

What mechanisms or arrangements are in place to address the challenges that are expected to emerge as ageing generators change their operating regimes? Are they sufficient?

QUESTION 3: CURRENT ISSUE

Is a lack of information around the availability of NEM generators an issue now?

QUESTION 4: FUTURE ISSUES

Will the lack of information around generators moving to more intermittent operating patterns in the future make it more difficult to:

- a. operate the system?
- b. schedule plant maintenance efficiently?
- c. assess opportunities for investment in the market?

Would having more information about generator's availability assist in better monitoring future issues e.g. in assisting the AER undertakes its wholesale market monitoring?

QUESTION 5: STAKEHOLDER IMPACT

Who is impacted by a lack of information around reasons for and recall times from generator unavailability? How are they impacted and by how much?

QUESTION 6: VARIED STAKEHOLDER IMPACT

Does the lack of information around generator availability impact different types of stakeholders in different ways?

QUESTION 7: BENEFITS OF PROVIDING REASON CODES AND RECALL TIMES

What benefits do you see in AEMO having information about the reasons why generators are unavailable and the associated recall times to bring them back online via the MT PASA process?

QUESTION 8: COSTS OF PROVIDING REASON CODES AND RECALL TIMES

What costs, if any, would you incur to report generating unit status to AEMO through reason codes and recall times via MT PASA?

QUESTION 9: OTHER UP FRONT OR ONGOING IMPACTS

What other direct or indirect impacts might the proposed solution have on you or other stakeholders? Include any impacts relating to supporting guidelines and procedures.

QUESTION 10: ADDRESSING THE PROBLEM IDENTIFIED

Do you think this information may help address the problem identified, that is, uncertainties and challenges to reliability and security that may arise due to lack of information about future generator availability?

QUESTION 11: BENEFITS OF PUBLISHING UNIT STATUS VIA REASON CODES AND RECALL TIMES

What benefits, if any, do you see in publishing information about the reasons why generating units are unavailable and the associated recall times to bring a unit back online?

QUESTION 12: COSTS OF PUBLISHING UNIT STATUS VIA REASON CODES AND RECALL TIMES

Would you incur any costs related to the publication of unit status via reason codes and recall times, that would additional to the costs referred to in Question 8?

QUESTION 13: CONCERNS WITH PUBLISHING UNIT STATUS VIA REASON CODES AND RECALL TIMES

Do you have any concerns with the information on unit status being published as part of the MT PASA process? What are these?

QUESTION 14: COMPLIANCE, ENFORCEMENT AND PENALTIES

Do you think the existing compliance and enforcement frameworks and penalties relating to the information on future generating availability are appropriate for the proposed new information on reasons and recall times?

QUESTION 15: ALTERNATIVE OPTIONS

Are there alternative solutions to improve the information available around future generator availability to support better reliability and security outcomes as the power system transitions? How would this/these alternatives better meet the NEO than the proposed solution?

QUESTION 16: FORMAT

If a rule was made, what format should this information be submitted to AEMO in to best achieve the NEO?

QUESTION 17: ALIGNING WITH RELATED REFORMS

If a rule was made, would there be any benefits or cost savings from aligning this reform with the *Updating short term PASA* rule change implementation, or any other reforms?

QUESTION 18: MINIMISING UPFRONT COSTS OF IMPLEMENTATION

If a rule was made, are there any other factors the Commission should consider to minimise upfront and ongoing implementation cost on the market?

QUESTION 19: COST IMPACT FOR DIFFERENT STAKEHOLDERS

Would implementation costs *vary* across stakeholders or stakeholder groups (for example, large and small)? If this is the case, what could be done to manage this?

QUESTION 20: LEVEL OF PRESCRIPTION

If the change was made, what would be the appropriate level of prescription to provide for the collection of reason codes and recall times in the Rules compared to other instruments such as the RSIG and MT PASA process description?

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1 DETAILS OF RULE CHANGE REQUEST AND RULE MAKING PROCESS

This chapter summarises the:

- rule change request submitted by AEMO
- rule making process.

1.1 The rule change request states that a lack of information on future generator availability is creating security and reliability challenges

On 15 December 2021 AEMO submitted a rule change request to the AEMC identifying that changes in generator operating regimes, driven by the rapid transition of the NEM's generation fleet to a lower-emissions generation profile, may bring uncertainties and therefore challenges in maintaining system security and reliability.⁷

AEMO proposes that more detailed information be collected and published about scheduled generator availability in the MT PASA. Specifically, the proposed rule amends clause 3.7.1 and 3.7.2 of the NER and relevant definitions so that generators would report, and AEMO would publish, a unit's status through reason codes, and associated recall times when triggered through a reason code.

The rule change request notes that this would improve the transparency of information available to market participants, jurisdictions, and market bodies. This information would allow for improved operational, market and investment decisions by all stakeholders.

The request actions the ESB's *managing early exists* recommendation from the post 2025 reform package - a suite of reforms made by the ESB to meet the needs of the energy transition underway.⁸ The ESB recommendation, and as a result, this rule change request, seek to increase information provision around mothballing and seasonal shutdowns to support notice of closure requirements.

The rule change request includes a draft rule and a copy can be found on the AEMC website.⁹

More detailed information about the problem identified, the solution proposed, and the expected benefits of the proposed rule change are discussed in chapter 3.

⁷ Changes in operating regimes could include mothballing of units for prolonged periods of time and/or seasonal shutdowns or cyclical running regimes e.g. weekday/weekend, day/night

⁸ See ESB's recommendation 1(a)(ii) which is to: Instruct the ESB to prepare a rule change for submission to the AEMC to implement enhancements to existing generator exit mechanisms to provide greater transparency of generator availability In agreeing to the recommendation National Cabinet noted that the rule change request should be prepared in consultation with senior officials and that AEMO should notify jurisdictions if a change in generator availability results in a breach of that jurisdiction's adopted reliability standard.

⁹ The rule change request submitted by AEMO on 15 December 2021 can be found here: <https://www.aemc.gov.au/rule-changes/enhancing-information-generator-availability-mt-pasa>

1.2 Stakeholder input to the rule making process contributes to well-informed, high quality rule changes

A unique aspect of the NEM's governance framework is that any party, except the AEMC, can propose a change to the rules. The AEMC receives rule change requests from a variety of different proponents including governments, members of industry, consumer groups, energy regulatory market bodies, public advocacy groups, major energy user groups, business groups and individuals.

Stakeholders can also help shape the solutions by participating in the rule change process. Engagement with stakeholders helps us understand the potential impacts of our decisions and, in so doing, contributes to well-informed, high quality rule changes.

A standard rule change request includes the following formal stages:

- a proponent submits a rule change request
- the AEMC commences the rule change process by publishing a consultation paper and seeking stakeholder feedback
- stakeholders lodge submissions on the consultation paper and engage through other channels to make their views known to the AEMC project team
- the AEMC publishes a draft determination and draft rule (if relevant)
- stakeholders lodge submissions on the draft determination and engage through other channels to make their views known to the AEMC project team
- the AEMC publishes a final determination and final rule (if relevant).

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.

More information on the rule change process can be found in *The Rule change process – a guide for stakeholders*.¹⁰

¹⁰ *The rule change process: a guide for stakeholders*, June 2017, available here: <https://www.aemc.gov.au/sites/default/files/2018-09/A-guide-to-the-rule-change-process-200617.PDF>

2 ASSESSMENT FRAMEWORK

This chapter outlines:

- the decision-making framework that the Commission must apply to determine whether the rule change request contributes to the NEO
- the proposed assessment framework for stakeholder feedback.

2.1 The Commission may only make a rule if it is in the long-term interests of customers

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 NEO.¹¹ This is the decision-making framework that the Commission must apply.

The NEO is:¹²

To promote efficient investment in, and efficient operation and use of, electricity services for the longer 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 question to be answered in assessing any rule change proposal is therefore, would the proposed change promote more efficient decisions relating to investment, operation and use of electricity services in a way that would ultimately promote the long-term interests of consumers?

The proposed assessment framework to answer this question for this rule change request is set out in more detail in section 2.2 below.

2.2 Our assessment framework focuses on whether the proposed change promotes efficient decisions

To assess the problem identified in this rule change request, and the proposed, or alternative solutions, the Commission proposes to focus on **market efficiency criteria** on the basis that if you improve the inputs, for example the quality of information, then you should see an improvement in outputs, for example reliability, security and affordability.

Specifically, the Commission proposes to assess whether a change to the rules to improve information about generator availability supports or promotes:

- **information transparency**, to allow participants to make more informed decisions about their investment in, operation and use of resources

¹¹ Section 88 of the NEL.

¹² Section 7 of the NEL.

- **competition**, by informing activity between buyers and sellers, reducing transaction costs and reducing barriers to efficient entry and exit of participants
- **productive efficiency**, so that the optimal (least cost) combination of resources are available to meet demand at a price that closely reflects the cost of providing that resource
- **reliability and security outcomes**, relative to cost of providing them. This includes whether better information about generator availability supports more efficient investment and operational decisions by market participants to promote reliability and security outcomes and ideally, to minimise the use of intervention mechanisms by AEMO. If such intervention mechanisms are required to be used by AEMO to manage reliability and security, then those decisions are more efficient.

These principles of market efficiency are linked. Better and more **transparent information** about generator availability informs participant decisions, for example decisions around trading and contracting activities, when to schedule maintenance, and longer-term investment or divestment activities. More informed decisions reduce uncertainty and should lead to more **effective competition**, more **productively efficient outcomes** where the optimal mix of resources is available meet demand, and ultimately **more reliable and secure** electricity for customers relative to the cost of providing it.

As well as assessing a solution against market efficiency criteria, the Commission is mindful that the way a change is implemented may be the difference between a solution that contributes to the achievement of the NEO and one that does not. The Commission therefore proposes we will also consider:

- **Cost and complexity:** changes to requirements for AEMO and market participants will lead to changes in administrative costs and regulatory burden faced by these parties. The Commission will consider the costs of solutions proposed.
- **Impacts across and within different stakeholder groups:** the costs and benefits of a proposed solution may fall differently across and within stakeholder groups. A solution that contributes to the achievement of the NEO will ensure those impacts are efficient or manageable.
- **Consistency with related reforms**, such that it aligns with broader objectives. MT PASA is a core part of the reliability framework in the NEM. Changes made to MT PASA may impact or be related to a number of other work programs, including the implementation of the ESB resource adequacy reform package, the AEMC reliability and system security work programs and the AEMC's consideration of the *updating short-term PASA rule change* which stems from AEMO's Short term MT PASA (ST PASA) project.¹³ The Commission will consider the extent to which any proposed solution will align with or efficiently facilitate related projects including in relation to implementation considerations.

Again, these principles are linked. For each option we compare the benefits with the **costs** to determine if a solution meets the NEO. **Complexity** provides another perspective on cost and may inform the way a change is implemented. **Stakeholder impacts** are relevant when

¹³ See: <https://aemo.com.au/en/initiatives/trials-and-initiatives/st-pasa-replacement-project>

considering whether a change should apply consistently, or whether there are reasons to treat some stakeholders differently in order to better serve the long-term interests of consumers. Lastly, an option that is **consistent with other reforms** might provide additional benefits or reduce costs compared to one that isn't.

QUESTION 1: ASSESSMENT FRAMEWORK

Do you agree with the proposed assessment framework? Are there additional principles that the Commission should take into account or principles included here that are not relevant?

3 ISSUES FOR CONSULTATION

The purpose of this consultation paper is to seek stakeholder feedback on the rule change request that will assist in assessing whether it will, or is likely to, contribute to the achievement of the NEO. This chapter specifically seeks stakeholder feedback on:

- the problem identified – whether it is a problem and if so, the scale and impact of the problem
- the solution proposed and any alternative solutions that may address the problem better than that proposed
- other implementation matters the Commission may need to consider in making its determination.

There are questions included in each chapter to guide stakeholder feedback, but stakeholders are encouraged to provide feedback on any matters that may assist the Commission in making its decision.

3.1 The problem: insufficient information on generator availability

The rule change request states that the rapid transition of the NEM's generation fleet to a lower-emissions generation profile will bring uncertainties and therefore challenges in maintaining system security and reliability.

It then refers to the ESB's *post-2025 market design final advice to energy ministers*, and documents in particular noting that the transition will drive further changes to plant operating regimes whereby owners of legacy thermal generation seek to reduce their overheads if low wholesale prices are expected.¹⁴ These changes may include mothballing of units for prolonged periods of time and/or seasonal shutdowns or cyclical running regimes.

The challenges identified in the rule change request include:

- operational challenges such as a reduction in available units leading to lack of reserve or essential system services, as well as a lack of standardised information on when generators are available or could be made available into the future
- limitations on the ability of participants to use MT PASA reporting for coordinating maintenance schedules
- increased complexity for the AER in assessing compliance under the current notice of closure arrangements
- weakened investment signals for potential replacement plant if it is unclear why existing units are unavailable.

We are seeking stakeholder feedback on these problems identified in AEMO's rule change request.

¹⁴ ESB's post 2025 market design final advice documents can be found here: <https://esb-post2025-market-design.aemc.gov.au/final-advice-july-2021>

3.1.1

A lack of standardised generator availability information is making it difficult for AEMO to plan and operate the system

In its rule change request, AEMO raised that under the existing arrangements for MT PASA there is a lack of standardised information around when generators are available to supply, and the lead time required for recall from an outage.¹⁵ This results in a situation where plant that may be recalled from outage in two days is indistinguishable from plant that may take two weeks to be recalled from outage.

To operate the power system efficiently, it is important that market participants and AEMO has the necessary information on the resources expected to be available to the system. In the operational timeframe AEMO obtains and publishes this information through the Projected Assessment of System Adequacy (PASA) process. This process is further divided into ST PASA and MT PASA. ST PASA covers six trading days from the end of the trading day and is published half hourly with half-hour resolution. MT PASA by comparison covers a forecast horizon of 24 months and is published weekly with daily resolution.¹⁶

Under the current MT PASA process AEMO collects the capacity that each dispatch unit can make available given 24 hours of notice. In its rule change request AEMO considers that additional information about the reason for any lack of availability, and the time that it would take to reach full availability again, would reduce the potential for poor operational outcomes such as low reserves or supply of essential system services.

A more detailed description of the current MT PASA process and associated requirements is provided in appendix C.

3.1.2

Moving to more intermittent plant operating regimes will make it more difficult to coordinate maintenance schedules

AEMO identified in its rule change request that current MT PASA arrangements are not sufficient to enable participants to optimally coordinate their plant maintenance schedules.¹⁷

As more units in the NEM move to cyclical or otherwise intermittent operating regimes, it may become more important that participants have an accurate view of generator availability into the future across the NEM. This is particularly pertinent to participants' ability to plan maintenance of their plant.

If participants fail to coordinate their plant maintenance schedules then undesirable outcomes may occur. For example, this could include there being a shortage of generation units available at a particular point in time, leading to more expensive generation units being dispatched to replace them.

¹⁵ Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 3. See: <https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>

¹⁶ The complete MT PASA process covers a forecast horizon of 24 months, however AEMO collects and publishes generator availability over a 36-month time horizon.

¹⁷ Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 3. See: <https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>

AEMO considers that collecting and publishing additional information around the reasons for and (where relevant) recall time from reduced availability would help mitigate these situations by allowing participants to better coordinate plant outages.

3.1.3

Disorderly market participant entry and exit results in poor wholesale market outcomes

As the power system continues its transition, it is important that market participants have a clear timeline of when large generators will be available in the market. This is due to the time it takes to design, plan, and build new generation and transmission assets, as well as allowing participants time to make operational decisions to provide more or less capacity. Providing this information to the market may also allow for plant entry and exits to be better coordinated. Without such information, new capacity may find it challenging to make a business case and may not be available in the market as replacement capacity when ageing plant exits. This could result in unnecessary price volatility and/or poor reliability or security outcomes for consumers.

Challenges for the AER's market monitoring functions

In its rule change request, AEMO raised that additional information collected through MT PASA may be used by the AER as part of its existing monitoring functions. AEMO noted that this could inform the AER's assessment of compliance under the current notice of closure requirements.¹⁸

To prevent unexpected plant exits, generators are required to provide 42 months advanced notice of their intention to close unless they are granted an exemption from the AER.¹⁹ Compliance with this requirement is monitored by the AER on an ongoing basis, and so such information collected under the proposed rule may be useful.

The AER are also required under the NEL to undertake regular, comprehensive, longer-term assessments of the performance of the wholesale electricity markets. As part of this, the AER report on whether there is effective competition in the wholesale markets, or if there are features of the markets that may be detrimental to effective competition or the efficient functioning of the market. More information about generator availability may assist the AER in undertaking its market monitoring functions.

A more detailed description of the existing notice of closure requirements can be found in appendix A.

Assessing market opportunities for investment

At the other end of the investment cycle, AEMO's rule change request noted that changes to plant operating regimes may also result in weakened investment signals if it is unclear why existing units are unavailable.²⁰ This situation could arise when an investor's business case

18 Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 3 and 4. See: <https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>

19 NEL clause 2.10.1

20 Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 3. See: <https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>

depends on a particular unit's availability. If they cannot determine this to a reasonable degree of certainty, the investment may be difficult to proceed with.

This situation is already mitigated to some degree by the existing notice of closure requirements however those requirements only capture units that are exiting the market, not those who are moving to cyclical operating arrangements. Consequently, providing additional information around in-market unit availability may complement the information already available to investors, providing a more complete picture of unit availability into the future.

QUESTION 2: CURRENT ARRANGEMENTS

What mechanisms or arrangements are in place to address the challenges that are expected to emerge as ageing generators change their operating regimes? Are they sufficient?

QUESTION 3: CURRENT ISSUE

Is a lack of information around the availability of NEM generators an issue now?

QUESTION 4: FUTURE ISSUES

Will the lack of information around generators moving to more intermittent operating patterns in the future make it more difficult to:

- a. operate the system?
- b. schedule plant maintenance efficiently?
- c. assess opportunities for investment in the market?

Would having more information about generator's availability assist in better monitoring future issues e.g. in assisting the AER undertakes its wholesale market monitoring?

QUESTION 5: STAKEHOLDER IMPACT

Who is impacted by a lack of information around reasons for and recall times from generator unavailability? How are they impacted and by how much?

QUESTION 6: VARIED STAKEHOLDER IMPACT

Does the lack of information around generator availability impact different types of

stakeholders in different ways?

3.2 Solution proposed: enhancing information on future generator availability in MT PASA

The rule change request seeks to address the challenges identified in section 3.1 by enhancing the transparency of information relating to future generator availability as part of the MT PASA process.

The Commission is seeking feedback on AEMO's proposed solution to inform its assessment of the rule change request. This includes seeking feedback on:

- reporting a unit's status through reasons and recall times
- publishing the information to support efficient decisions
- compliance, enforcement and penalties
- alternative options to improve information about future generator availability.

3.2.1 The key proposal in the request is for generators to report unit status through reason codes and recall times

The key change proposed by AEMO in the rule change request is the reporting and publication of:

- a unit's status through reason codes via MT PASA in accordance with the relevant international standard, tailored to a domestic context²¹
- recall times via MT PASA when triggered through a reason code.

AEMO proposes amendments to clause 3.7.1 and 3.7.2 of the NER and relevant definitions to bring this change into effect.

Participants would report reason codes and recall times in addition to the current information on future generator availability

Participants already provide some information on future generation availability for a 36-month period as part of the MT PASA process.²² Along with this information, the proposed rule would require a participant to identify the relevant reason code matching their availability from a standardised list. For certain reason codes such as "mothballed" (see example below), a participant would also be required to submit a recall time (days, weeks or months) relevant to their reported lack of availability. The submitted reason codes and recall times would be collected and published as a supplement to the MT PASA dispatchable unit identifier (DUID) availability reporting.

²¹ IEEE Std 762-2006: *Definitions for use in reporting electric generating unit reliability, availability and productivity*

²² More detail on the MT PASA process can be found in appendix C.

Figure 3.1: Reason code and recall time example

Reason code submitted by participant	Recall time required?	Additional MTPASA reporting?
Active – Available and In Service	Not applicable	No
Active – Reserve Shutdown	Yes	Yes – report recall time
In active – Planned Outage	Yes (or Not applicable)	Yes – if provided
In active – Unplanned Outage	Yes (or Not applicable)	Yes – if provided
Deactivated – Inactive Reserve	Yes	Yes – report recall time
Deactivated – Mothballed	Yes	Yes – report recall time
Deactivated – Retired	Not applicable	No

Source: ESB post 2025 market design final advice to Energy Ministers Part A, 27 July 2021

The idea of additional MT PASA modelling runs with alternative prescribed recall times (e.g. 7 days, 1 month) was discussed as part of the ESB's post 2025 process. However, the ESB noted that setting prescribed recall times for such modelling may misrepresent the variety of possible scenarios and not provide useful insight into potential reliability outcomes.²³ The ESB also noted that additional modelling runs would require AEMO resourcing and given the unclear benefits to the market, ESB recommended the collection and publication of this information as a *supplement* to MT PASA modelling runs instead of being an input.

The idea of reason codes and recall times has been raised previously

The idea of having generators provide an explanation as to why a unit is unavailable, as well as provide a 'recall time' when submitting an outage was raised as part of previous rule change process on *Improving the transparency and extending duration of MT PASA* made by the AEMC in February 2020.²⁴

The changes were not made at that time, as they were out of scope of the relevant rule change request. The idea was also raised late in the process so there was limited formal engagement on the issues so it was unclear what information generators would need to provide, and the expectations and cost of compliance. In making its final determination on that rule, the AEMC accepted the information may be useful and noted that AEMO could systematically request it from generators on a voluntary basis.²⁵

²³ ESB post 2025 market design final advice to Energy Ministers Part A, 27 July 2021, page 27. Available here: <https://esb-post2025-market-design.aemc.gov.au/32572/1629945809-post-2025-market-design-final-advice-to-energy-ministers-part-b.pdf>

²⁴ AEMC, *Improving transparency and extending duration of MT PASA final determination*, 20 February 2021. Available here: https://www.aemc.gov.au/sites/default/files/documents/erc0270_-_mt_pasa_final_determination.pdf

²⁵ Ibid, page 60-62

AEMO considers there to have been enough change in the market since to warrant re-examination of the role reason codes and recall times may play in the provision of information to market participants, market bodies and jurisdictions.²⁶

The proposed solution would require amendments to related documents and processes

To implement the proposed rule, AEMO has proposed it would amend its supporting documentation including the Reliability Standard Implementation Guidelines (RSIG) and MT PASA Process Description, and (if necessary) the Electricity statement of opportunities (ESOO) and Reliability Forecast Guidelines.²⁷

AEMO proposes that the development of standardised reason codes and the process to implement this change be captured through these guidelines and not within the body of the NER. AEMO notes in its rule change request that it would endeavour to consult with stakeholders on appropriate design and use of reason codes and recall times through the MT PASA process should the final rule be made.²⁸

There are a range of obligations in the Rules that govern how and when AEMO must consult with stakeholders when amending procedures or guidelines. For example, the RSIG must be amended in consultation with the Reliability Panel, Registered Participants and other interested persons in accordance with the Rules consultation procedures whereas the MT PASA process description only requires that AEMO publish the procedure it uses for preparing the MT PASA.²⁹

AEMO is not proposing further amendments to the definition of PASA availability beyond that which has been proposed as part of the *Updating short term PASA* rule proposal.³⁰ AEMO is also not proposing that reason codes and recall time be used to alter the modelling approach for the MT PASA assessment.³¹

In agreeing to the ESB's recommendation, Energy Ministers noted that AEMO should notify jurisdictions if a change in generator availability results in a breach of that jurisdiction's

26 Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 7. See: <https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>

27 The RSIG set out how AEMO implements the reliability standard, and the approach and assumptions AEMO uses in relation to each of the inputs. MT PASA process description fulfils AEMO's obligation under clause 3.7.2(h) of the Rules to document the procedure used in administering the MT PASA. The ESOO provides technical and market data for the NEM over a 10-year period to inform the planning and decision-making of market participants, new investors, and jurisdictional bodies. The Reliability Forecast Guidelines describe how a reliability forecast is prepared and the underlying procedures, information requirements and methodologies that govern its preparation and operation.

28 Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 9. See: <https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>

29 RSIG requirements are set out in cl 3.9.3D(c) of the NER. MT PASA process requirements are set out in cl 3.7.2(h) of the NER. Other relevant publications for MT PASA include ESOO and the reliability forecast guidelines. There are no specific consultation requirements for ESOO but if new information becomes available to AEMO that materially changes the ESOO then it must, as soon as practicable, publish that info in a descriptive form that is consistent with the statement of opportunities (cl 3.13.3A(b)). AEMO must comply with the Rules consultation procedures when amending the Reliability Forecast Guidelines, but it may make minor or administrative amendments without complying with the Rules consultation procedures (cl 4A.B.4(e)-(f)).

30 AEMC, *Updating short term PASA draft determination*, 2 December 2021, page 7. The draft rule removes reference to the 24-hour notice period and provides that relevant participants should specify the capacity that can be made available within a given recall period in accordance with the RSIG. AEMO's intention is to separately define the recall period for ST PASA and MT PASA in the RSIG, with the intention for the MT PASA definition to remain at 'up to 24 hours' for the purposes of MT PASA reporting and assessments. Recall times provided when triggered by a reason code would be published as supplementary information.

31 Reason codes and recall times are not proposed to alter the MT PASA reliability run or MT PASA loss of load probability run. AEMO advises that if participants use reason and recall time information to change its' unit availability, it would resubmit their MT PASA forecast availability accordingly

adopted reliability standard. The rule change request notes that this aligns with AEMO's current obligations under the NER to publish an updated reliability forecast (in an ESOO update) should a material change occur.³² It is also worth noting that AEMO is in regular discussions with jurisdictions on a range of matters including ongoing reliability and security issues. Therefore, the rule change request does not propose further formal reporting obligations to be drafted into the NER at this time. AEMO is in discussions with relevant jurisdictions to adopt any process changes by which any material changes to reliability are communicated to relevant jurisdictions.

Improved information transparency can deliver benefits, but also comes with costs

The rule change request refers to a range of benefits delivered by the proposed solution including that it:

- would improve operational, market and investment decisions by all stakeholders so that collectively market participants, market bodies and jurisdictions can ensure the right mix of resources are made available when they are needed most³³
- enable AEMO to more effectively plan and operate the system, and allow it to undertake historical analysis to understand the reasons for outages, which is not possible with the current level of information³⁴
- may assist AEMO in regular discussions with jurisdictions on a range of matters including ongoing reliability and security issues³⁵
- could inform the AER's assessment of compliance under the current notice of closure arrangements³⁶
- reduces the burden on AEMO's operational teams through streamlining the collection of such data reducing the need to respond to queries from market³⁷
- provides for flexibility, automation and transparency, while minimising the regulatory burden on market participants and market bodies associated with changes in processes and systems.³⁸

As well as the benefits described above, the proposed solution would also create some up front implementation and ongoing costs.³⁹ These relate mainly to the up front costs of amending AEMO and participants systems and processes as well as a minor ongoing regulatory burden associated with providing the information. See appendix B for the full estimated costs and benefits outlined by ESB.⁴⁰

32 Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 9-10. See: <https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>. In the event AEMO becomes aware of a significant change in generator availability in a manner that materially changes its most recent ESOO, clause 3.13.3A(b) of the NER requires AEMO to, as soon as practicable, publish information in a descriptive form that is consistent with its ESOO and if appropriate, publish on its website, and updated reliability forecast

33 Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 2 and 10. See: <https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>

34 Ibid. page 8

35 Ibid. page 9

36 Ibid. page 9 and 4

37 Ibid. page 9

38 Ibid. page 10

39 Ibid. page 5.

The request notes that overall, AEMO considers that the rule change would directly contribute to the long-term interests of consumers by ensuring efficient investment in and operation of the power system minimising future reliability, safety or security of supply concerns.

QUESTION 7: BENEFITS OF PROVIDING REASON CODES AND RECALL TIMES

What benefits do you see in AEMO having information about the reasons why generators are unavailable and the associated recall times to bring them back online via the MT PASA process?

QUESTION 8: COSTS OF PROVIDING REASON CODES AND RECALL TIMES

What costs, if any, would you incur to report generating unit status to AEMO through reason codes and recall times via MT PASA?

QUESTION 9: OTHER UP FRONT OR ONGOING IMPACTS

What other direct or indirect impacts might the proposed solution have on you or other stakeholders? Include any impacts relating to supporting guidelines and procedures.

QUESTION 10: ADDRESSING THE PROBLEM IDENTIFIED

Do you think this information may help address the problem identified, that is, uncertainties and challenges to reliability and security that may arise due to lack of information about future generator availability?

3.2.2

The request proposes that reason and recall information be published to inform market and regulatory decisions

The rule change request proposes that AEMO *publish* the information on unit status as part of its MT PASA DUID availability reporting.⁴¹

The intent of publishing the information is to improve transparency and quality of information that would better inform the market. A better-informed market can lead to more:

- efficient operational decisions in terms of resource allocation and scheduling planned maintenance

⁴⁰ Also see Energy Security Board. *Post 2025 market design final advice to Energy Ministers Part B*, 27 July 2021, page. 25-26

⁴¹ Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 8. See: <https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>

- effective responses to forecast shortfalls in supply which reduce the likelihood of unserved energy occurring
- efficient decisions that reduce costs for participants operating in the market, which may reduce costs passed on to consumers.

AEMO advises that the publication of this information alongside the MT PASA assessment would inform participant decisions around recall, in response to projected reliability shortfalls. For example, a participant may decide to recall a unit based on the published reason and recall information. This would then result in that participant resubmitting their MT PASA forecasts of availability to reflect their projected improvement in availability.⁴²

It could be argued that the information may also give market participants increased visibility of their rivals' position which could increase the opportunities for the exercise of coordinated market power. The Commission considered the potential for anti-competitive behaviour due to the provision of scheduled generating unit availability at the individual unit level in MT PASA, as part of the *Improving the transparency and extending duration of MT PASA* rule change made in February 2020.⁴³ The Commission was informed by a Houston Kemp report that found that publishing of unit-level generation availability is unlikely to increase the risk of collusion.⁴⁴

The Commission accepted Houston Kemp's conclusion for that rule change. In addition, the Commission considered that not publishing scheduled generating unit availability would not stop resourceful participants from deducing this information themselves and possibly using it for anti-competitive purposes. The Commission considered that is more likely that unit-level generation availability may assist the market in countering collusive behaviour (if it were to occur).⁴⁵

QUESTION 11: BENEFITS OF PUBLISHING UNIT STATUS VIA REASON CODES AND RECALL TIMES

What benefits, if any, do you see in publishing information about the reasons why generating units are unavailable and the associated recall times to bring a unit back online?

⁴² Participants are required to submit MT PASA inputs that represent the current intentions and best estimates.

⁴³ AEMC, *Improving transparency and extending duration of MT PASA final determination*, 20 February 2021, page 17-19. Available here: https://www.aemc.gov.au/sites/default/files/documents/erc0270_-_mt_pasa_final_determination.pdf

⁴⁴ Houston Kemp, *MT PASA rule change proposal, a report for the AEMC*, 1 October 2019. A copy of the report can be found at: <https://www.aemc.gov.au/sites/default/files/2019-10/Houston%20Kemp%20report%20-%20Potential%20benefits%20and%20risk%20of%20collusion%20from%20MT%20PASA%20rule%20change.pdf>

⁴⁵ AEMC, *Improving transparency and extending duration of MT PASA final determination*, 20 February 2021, page 17-19. Available here: https://www.aemc.gov.au/sites/default/files/documents/erc0270_-_mt_pasa_final_determination.pdf

QUESTION 12: COSTS OF PUBLISHING UNIT STATUS VIA REASON CODES AND RECALL TIMES

Would you incur any costs related to the publication of unit status via reason codes and recall times, that would additional to the costs referred to in Question 8?

QUESTION 13: CONCERNS WITH PUBLISHING UNIT STATUS VIA REASON CODES AND RECALL TIMES

Do you have any concerns with the information on unit status being published as part of the MT PASA process? What are these?

3.2.3

A fit for purpose compliance and enforcement framework would need to strike a balance between certainty and flexibility

The compliance and enforcement framework, and the associated penalties to support any change to enhance the information available to the market on future generator availability would need to strike a balance. On one hand the information must be accurate so that it can be relied upon to inform operational and investment decisions. On the other hand, the power system is changing, and participants need flexibility to update information when appropriate to reflect those changes. There is therefore a trade-off between certainty and flexibility — if parties have more certainty, they can make better decisions based on that more certain information. However, there needs to be flexibility to adjust decisions and information. Not having flexibility to change information could result in inefficient decisions being made based out of date information. This trade-off is relevant when considering the compliance and enforcement framework.

While the rule change request does not propose a specific compliance framework, it can be seen in the proposed amendments to the NER that AEMO intends for the current framework to apply to generators when submitting information about future unit availability. The current rules provide that the information submitted under the MT PASA must represent the participant's current intentions and best estimates.⁴⁶

The provision in the Rules setting out this obligation is currently classified as a tier 1 civil penalty provision.⁴⁷ Failure to submit the required information, or providing inaccurate information, carries a maximum penalty for corporations of \$10 million, or if greater, three times the benefit obtained from the breach if this can be determined, or if not, 10% of annual turnover of the corporation.⁴⁸

⁴⁶ NER clause 3.7.2 (d)

⁴⁷ Regulation 6(2) and Schedule 1, Part 1 of the *National Electricity (South Australia) Regulations*.

⁴⁸ In addition to the MT PASA compliance and enforcement framework, generators are expected to continue to maintain procedures and records consistent with the NER or "good electricity industry practice" so their generating units comply with relevant generator performance standards, regardless of their availability.

Given the obligation is subject to such a high penalty it could be argued that it becomes even more important that the obligation is clearly articulated in such a way that participants are clear on what they are required to do. The penalty should always reflect the criticality of the obligation. Stakeholders may wish to reflect on this point when considering question 14 below.

The rule change request also notes that the information collected through reason codes and recall times may be used by the AER to inform both its assessment of compliance under the current notice of closure arrangements as well as its general market monitoring functions.⁴⁹

The current notice of closure rules require generators to give AEMO at least 42 months notice of their intention to permanently retire a generating unit unless they are granted an exemption by the AER.⁵⁰ The rules do not constrain generators from 'mothballing' generating units or otherwise making them temporarily unavailable.

Some visibility of the status of generators is achieved under the current MT PASA arrangements, with information collected and published on generators' forecast availability. In addition, AEMO already publishes a list of closure dates it has received.⁵¹ Requiring reason codes would provide an alternative avenue for the AER in confirming a generator's closure status but the reason codes would not provide visibility of the closure date. However, increasing transparency around the reasons why a generator is unavailable and its recall time to full availability may provide an extra level of granularity for the AER to use as part of its general market monitoring functions.

QUESTION 14: COMPLIANCE, ENFORCEMENT AND PENALTIES

Do you think the existing compliance and enforcement frameworks and penalties relating to the information on future generating availability are appropriate for the proposed new information on reasons and recall times?

3.2.4

Some alternative options to improve information about future generator availability were considered poorly targeted or onerous.

The ESB consulted on three options to bolster current exit arrangements.⁵² These were:

- amending AEMO's Generator Information Survey (GIS), in order to collect additional information from generators

⁴⁹ Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 4. See: <<https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>>. See also Energy Security Board: *Post 2025 Market Design Final Advice to Energy Ministers Part B* 27 July 2021, page 26. Available here: <<https://www.datocms-assets.com/32572/1629945809-post-2025-market-design-final-advice-to-energy-ministers-part-b.pdf>>

⁵⁰ NER cl. 2.10.1(c2)

⁵¹ See: <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information>

⁵² ESB, *post 2025 market design final advice to Energy Ministers Part B*, 27 July 2021. Available here: <https://www.datocms-assets.com/32572/1629945809-post-2025-market-design-final-advice-to-energy-ministers-part-b.pdf>

- expanding the notice of closure requirements to include mothballing such that any significant early withdrawal of capacity from the market in the notice period requires an exemption
- creating an integrated process to manage early exit involving an Impact Assessment framework that would consider the risks and challenges that may arise from an earlier closure of certain designated coal and gas fired generators, and (if necessary) an Orderly Exit Management Contract to be used as a last resort.⁵³

The ESB did not recommend any of these options as they were considered to be either:

- poorly targeted, not accommodating the spectrum of alternative arrangements across the market; or
- too onerous and act as a barrier to efficient operational decisions by diminishing the flexibility of participants to respond to market dynamics.

Further information on these alternative options and the ESB's considerations can be found in appendix B.

The ESB noted that the potential benefits of its recommended option (and the subject of this rule change request) to collect and publish generation status through reason codes and recall times, were likely to outweigh the additional costs and regulatory burden and address stakeholders' concerns.⁵⁴ The ESB also noted that the collection and publication of reason codes and recall time through MT PASA satisfies the criteria of being sufficiently flexible, a simple, automated, and transparent means of collecting information, and a way to minimise regulatory burden on stakeholders.⁵⁵

QUESTION 15: ALTERNATIVE OPTIONS

Are there alternative solutions to improve the information available around future generator availability to support better reliability and security outcomes as the power system transitions? How would this/these alternatives better meet the NEO than the proposed solution?

⁵³ Orderly Exit Management Contracts are bilateral arrangements (usually between a government and a closing generator) that help to ensure that generator does not exit the system until sufficient capacity can be brought online to replace it. The terms of these contracts are bespoke. See the explainer document relating to the resource adequacy mechanisms and ageing thermal retirement reforms here: <https://www.energy.gov.au/government-priorities/energy-ministers/priorities/national-electricity-market-reforms/post-2025-market-design>

⁵⁴ Stakeholders were generally supportive of the concept of increased information to support orderly exit but noted that provisions specifically targeting mothballing and/or seasonal shutdowns could easily become onerous and a barrier to efficient operational decisions by participants.

⁵⁵ Rule change request from AEMO on 15 December 2021: *Enhancing information on generator availability in MT PASA*, page 4. See: <<https://www.aemc.gov.au/sites/default/files/2021-12/ERC0338%20Rule%20change%20request%20pending.pdf>>. See also Energy Security Board: *Post 2025 Market Design Final Advice to Energy Ministers Part B* 27 July 2021, page 25. Available here: <<https://www.datocms-assets.com/32572/1629945809-post-2025-market-design-final-advice-to-energy-ministers-part-b.pdf>>

3.3 Implementation considerations: legal and practical

The way a change is implemented may be the difference between a solution that achieves the NEO and one that does not. The assessment framework outlined in chapter 2 proposes three criteria against which the proposed solution and any alternatives will be assessed against from an implementation perspective. These cover cost and complexity, impacts across and within different stakeholder groups and consistency with related reforms.

The Commission is seeking stakeholder feedback on a range of practical matters that will help inform the assessment against these criteria.

3.3.1 Considering the practicalities of implementing a change can help minimise costs

The rule change request proposes the collection of additional information from market participants, which comes with a number of considerations:

- nature and format of information requirement
- changes to systems and processes to meet the requirement
- timing and/or sequencing of related reforms

AEMO's proposed solution requires participants to submit additional information through the MT PASA process across two areas:

- the reason for any unavailability
- the time in which the plant can be made fully available

Practically, if the proposed solution is implemented, this would necessitate a number of changes from participants and AEMO. These changes may have some associated cost and as such, it is desirable to balance these costs compared to the benefits and optimise these costs across stakeholders and other reforms.

Participants would need to update their systems and processes to account for the additional information required under the request. Similarly, AEMO would need to update its systems and processes to accommodate the additional information, as well as incorporating it into other MT PASA processes and outputs.

The Commission notes that there is another rule change underway in the area of PASA – *Updating short term PASA*.⁵⁶ If this rule is made, there may be benefits to aligning the system changes required, if any, following the completion of both rule change projects.

It is worth noting that AEMO has established a Reform Delivery Committee, with the support of the AEMC and the AER. This will facilitate deep and effective collaboration across the industry to develop a Regulatory and IT implementation roadmap that appropriately prioritises and sequences reform considering interdependencies with a least-cost, whole of system intent. If made, this rule change is proposed to be included in this roadmap.⁵⁷

⁵⁶ More information on this rule change can be found on the *Updating short term PASA* project page here: <https://www.aemc.gov.au/rule-changes/updates/short-term-pasa>

⁵⁷ AEMO, *Reform delivery committee presentation at workshop 1*, 13 December 2021, can be accessed here: https://aemo.com.au/-/media/files/stakeholder_consultation/working_groups/other_meetings/reform-delivery-committee/workshop-1-dec-2021-round-1.pdf?la=en&hash=54D98428A63EEF18220A34C89B59D7A3

QUESTION 16: FORMAT

If a rule was made, what format should this information be submitted to AEMO in to best achieve the NEO?

QUESTION 17: ALIGNING WITH RELATED REFORMS

If a rule was made, would there be any benefits or cost savings from aligning this reform with the *Updating short term PASA* rule change implementation, or any other reforms?

QUESTION 18: MINIMISING UPFRONT COSTS OF IMPLEMENTATION

If a rule was made, are there any other factors the Commission should consider to minimise upfront and ongoing implementation cost on the market?

QUESTION 19: COST IMPACT FOR DIFFERENT STAKEHOLDERS

Would implementation costs *vary* across stakeholders or stakeholder groups (for example, large and small)? If this is the case, what could be done to manage this?

3.3.2

The level of prescription in the Rules depends on whether the solution requires certainty or flexibility

One of the key principles the AEMC adopts in order to make for clear, effective, certain and consistent Rules is that a Rule must be proportionate and appropriate.⁵⁸ We must also strike a balance between precision and simplicity.

A key element involved in drafting a proportionate and appropriate Rule is the level of prescription:

- Prescriptive Rules are those where the manner or means of obtaining the objectives are specified in the Rule or other instruments that regulated entities must comply with. A prescriptive drafting approach is intended to provide certainty and clarity.⁵⁹
- Principles-based rules are those where the objectives are specified in the Rule but the regulated entities are able to choose how they meet the objectives. Provisions drafted in

⁵⁸ AEMC, *Rule drafting philosophy*, 8 October 2020, which can be found here: https://www.aemc.gov.au/sites/default/files/2020-11/Rule%20drafting%20philosophy_20201102_0.PDF

⁵⁹ Ibid, page 6

this way may provide greater adaptability to different scenarios and encourage innovation and reduce costs.⁶⁰

The level of detail to be included in a set of Rules and any associated instruments will depend on the nature of the subject matter. The criticality of the obligation and its associated penalty is also relevant to the level of prescription. Where an obligation is subject to a high penalty, such as a Tier 1 penalty, it is important that it is clearly articulated such that participants are clear on what they are required to do.

Currently, the information collected via MT PASA is broadly considered to be prescriptive with AEMO guideline documents providing for process rather than content-related detail.⁶¹ The *Improving transparency and extending the timeframe for MT PASA* rule made in February 2020 noted the reason for retaining a high level of prescription in the NER for MT PASA provisions is that it will give market participants more clarity regarding the MT PASA approach, and greater confidence in the quality of the outputs produced by the MT PASA process.⁶²

In contrast, the *Updating short term PASA* draft rule made in December 2021 introduces a more principles-based approach for matters relating to ST PASA by stating that this:⁶³

- promotes reliability and security at lowest cost by providing AEMO more flexibility to update the inputs used, the information required from participants and information published in ST PASA
- minimises administrative compliance requirements and costs by improving AEMO's flexibility to respond to changes in the market and removing unnecessary steps that may be required to make changes to ST PASA
- promotes efficient facilitation of broader reform program by linking information requirements and publication to the objective for PASA.

The Commission is interested in stakeholder feedback on the appropriate level of Rule prescription for MT PASA if the information about reasons and recall times proposed in this rule change request were to be collected. We note that the level of prescription will be informed by the scope of the rule change request and stakeholder feedback on this issue.

QUESTION 20: LEVEL OF PRESCRIPTION

If the change was made, what would be the appropriate level of prescription to provide for the collection of reason codes and recall times in the Rules compared to other instruments such as the RSIG and MT PASA process description?

60 AEMC, *Rule drafting philosophy*, 8 October 2020, page 8. Available here: https://www.aemc.gov.au/sites/default/files/2020-11/Rule%20drafting%20philosophy_20201102_0.PDF

61 These documents include the RSIG and MT PASA process description

62 AEMC, *Improving transparency and extending duration of MT PASA final determination*, 20 February 2021, page 41. Available here: https://www.aemc.gov.au/sites/default/files/documents/erc0270_-_mt_pasa_final_determination.pdf

63 AEMC, *Updating short term PASA draft determination*, 2 December 2021, page ii). Draft determination document can be accessed here: https://www.aemc.gov.au/sites/default/files/2021-12/erc0332_-_updating_short_term_pasa_-_draft_determination.pdf

ABBREVIATIONS

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Commission	See AEMC
DUID	dispatchable unit identifier
ENCRC	Energy National Cabinet Reform Committee
ESB	Energy Security Board
ESOO	Electricity statement of opportunities
MT PASA	Medium term projected assessment of system adequacy
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National electricity objective
NER	National Electricity Rules
PASA	Projected assessment of system adequacy (see also MT PASA and ST PASA)
ST PASA	Short term projected assessment of system adequacy
RSIG	Reliability Standard Implementation Guidelines

A CONTEXT FOR RECENT CONCERNS AROUND GENERATOR AVAILABILITY

Starting with the closure of Northern and Hazelwood power station in 2016 and 2017, a number of events have occurred that have shaped the public dialogue around generator availability. These are summarised in the table below:

Table A.1: Key events in public discussion of future thermal generator availability

DATE	EVENT
2015 -2016	Playford B power station closure in October 2015 and Northern power station closure in May 2016 — 11 months notice of closure was provided. Following closure, there were large increase in SA wholesale electricity prices.
September 2016	South Australia black system event — creating widespread concern and a public dialogue around power system security and reliability.
March 2017	Hazelwood power station closure — five months notice of closure was provided. Following its closure there were large increases in VIC wholesale electricity prices.
November 2018	AEMC makes <i>Generator three-year notice of closure</i> rule — introducing the requirement for generators to provide 36 months notice to the market of their intention to close. The rule was made to promote reliability outcomes in the NEM, such that the market is provided with sufficient notice of closures to enable the market time to respond, minimising the likelihood of any price shocks. A more fulsome summary can be found below.
July 2019	Retailer reliability obligation (RRO) introduced to provide stronger incentives for market participants to invest in the right technologies in regions where it is needed, to support reliability in the NEM. Notice of closure period increased to 42 months to better align with RRO.
2019-2021	Liddell power station closure date is changed multiple times in response to changing market conditions and public/political pressure — highlighting the multiple factors weighing on generators' decisions to exit the market.
2020-2021	ESB conducts post-2025 project, developed reforms to meet the needs of the transition. A key workstream of this was focussed on options to support resource adequacy and manage thermal exit.
February 2020 - 2021	VIC & QLD Experiencing similar periods of negative pricing to SA — but both states have multiple coal plants, unlike SA — concerns they may seasonally shut down to avoid low wholesale prices.
November 2020	RRO trigger changed to align the declaration of a forecast reliability gap with the interim reliability measure (no more than 0.0006 per cent unserved energy per annum) that commenced in August 2020. Energy

DATE	EVENT
	Ministers agreed to this to improve reliability during the transition to the post-2025 market design.
March 2021	Yallourn power station closure brought four years forward to mid-2028. While consistent with notice of closure arrangements, increased concerns that coal-fired power stations may exit the market earlier than expected due to continuing decreases in daytime wholesale prices.
September 2021	ESB's Post 2025 reform package agreed by National Cabinet including resource adequacy mechanism actions
October 2021	Torrens island unit B1 mothballed with a return to service period of 6 months — highlighting the potential benefit of standardising and automating the gathering of information on their availability if more units start to follow this trend.

Source: collated by the AEMC based on publicly available information

While the impacts of these events on power system security and reliability have varied from minimal to material, unexpected changes in unit availability continues to be a concern. As well as events that have contributed to this concern, Table A.1 shows the range of actions that have already been taken to address it.

In looking to further address concerns around future unit availability, the ESB considered - amongst other options - expanding notice of closure requirements as discussed below.

BOX 1: SUMMARY OF NOTICE OF CLOSURE PROVISIONS

In 2018 following concerns around the high and volatile wholesale energy prices that occurred after the closure of Northern and Hazelwood power stations, the AEMC made the *Generator three year notice of closure* Rule.

The Rule requires participants to advise AEMO of the expected closure year for all their scheduled and semi-scheduled generation units over 30MW. It also requires generators to give AEMO at least 42 months notice of their intention to permanently retire a generating unit unless they are granted an exemption by the AER. Civil penalties apply if generators fail to comply with their obligations (NER clause 2.10.1).

The AER maintains flexibility in determining what criteria to apply when considering applications for exemption and assesses each application on a case by case basis. In general, they are guided by the NEO but it also provides a brief, non-binding list of factors that may be given regard to, including, but not limited to:

- the reliability and security impact of the generator's early exit - the AER will engage with AEMO as it considers applications for exemption to further its understanding of this issue and may also talk to relevant network service providers
- plans for replacing the capacity being retired, if any

- whether the application for exemption is necessitated by a requirement to meet a competing or changing legal or regulatory obligation
- if the application for exemption is necessitated by urgent and unforeseen circumstances.

The rule does not constrain decisions by generators to place generating units into dry storage (i.e. mothball them) or to otherwise make them temporarily unavailable. Until their classification is terminated, generators are expected to continue to maintain procedures and records consistent with the NER or “good electricity industry practice” and so their generating units comply with the relevant generator performance standards, regardless of their availability.

Also, until their classification is terminated, AEMO can direct them to generate if AEMO is satisfied that it is necessary to do so to maintain or re-establish the power system to a secure operating state, a satisfactory operating state, or a reliable operating state.

Note: More information can be found on the *Generator three year notice of closure project page* which can be found here: <https://www.aemc.gov.au/rule-changes/generator-three-year-notice-closure> and

Note: More information about the AER's *Generator notice of closure guideline* can be found here: https://www.aer.gov.au/system/files/Generator%20notice%20of%20closure%20exemption%20guideline_1.pdf

B ESB POST 2025 REFORMS

In October 2021, the National Cabinet endorsed the final package of reforms presented by the ESB as agreed by the ENCRC in September 2021.

The ESB's post 2025 market design reforms detail a redesign of the NEM to enable the provision of the full range of services to customers necessary to deliver a secure, reliable and lower emissions electricity system at least cost. They are spread across four reform pathways:

1. resource adequacy
2. essential system services
3. transmission
4. distributed energy resources.

The rule change request discussed in this consultation paper is part of the resource adequacy pathway. The ESB recommended six actions to support the orderly retirement of thermal generators and timely investment in an efficient mix of new resources. These actions are:

- adopting investment principles for jurisdictional schemes
- information gathering and provision
- managing early exits
- implementing a jurisdictional strategic reserve
- implementing a NEM-wide ministerial trigger for T-3 instruments under the RRO
- developing a new capacity mechanism.

This rule change request actions the "*managing early exits*" recommendation and is based on the ESB's recommendation to improve the information provided to, and published by, AEMO through its MT PASA process. The specific recommendation agreed by Energy Ministers and endorsed by the National Cabinet, was to "*Instruct the ESB to prepare a rule change for submission to the AEMC to implement enhancements to existing generator exit mechanisms to provide greater transparency of generator availability*".⁶⁴ In agreeing to the recommendation National Cabinet noted that:

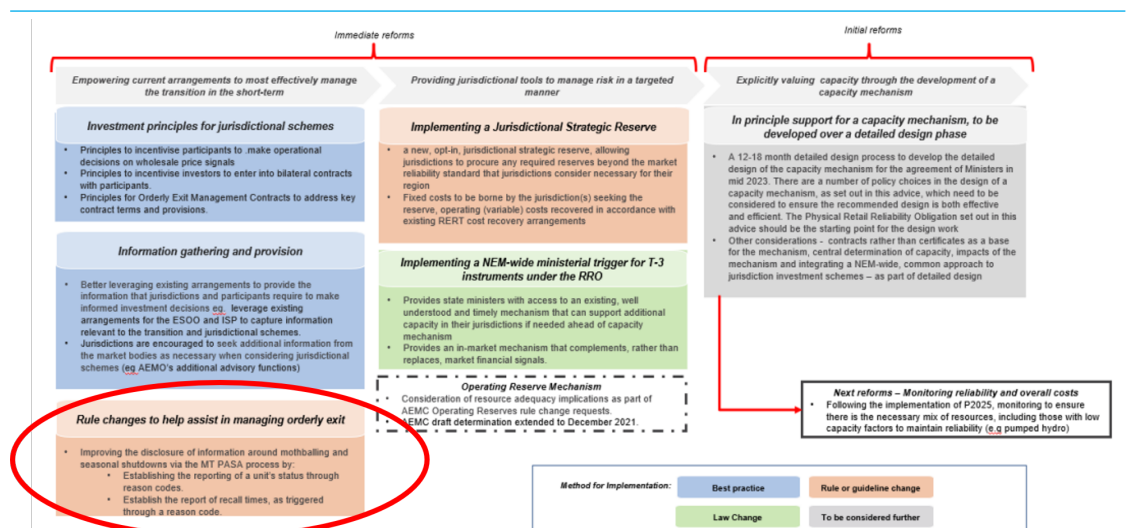
1. **the rule change request should be prepared in consultation with senior officials:** the ESB and energy senior officials were consulted on the development of the rule change request at an Energy Senior Officials Meeting in November 2021, and
2. **that AEMO should notify jurisdictions if a change in generator availability results in a breach of that jurisdiction's adopted reliability standard:** the rule change request notes that this aligns with AEMO's current obligations under the NER to publish an updated reliability forecast — in an ESOO update — should a material change occur. It is also worth noting that AEMO is in regular discussions with jurisdictions on a

⁶⁴ See recommendation 1(a)(ii) in the summary of the final reform package agreed by Energy Ministers in response to ESB post 2025 market re-design recommendations at: <https://www.energy.gov.au/sites/default/files/2021-10/Summary%20of%20the%20final%20reform%20package%20and%20corresponding%20Energy%20Security%20Board%20recommendations0.pdf>

range of matters including ongoing reliability and security issues. Therefore, the rule change request does not propose further formal reporting obligations to be drafted into the NER at this time. AEMO is in discussions with relevant jurisdictions to adopt any process changes by which any material changes to reliability are communicated to relevant jurisdictions.

The changes to MT PASA are being proposed in the context of a range of other reforms that seek to ensure resources are available when needed as the power system transitions. Below is a diagram that shows this rule change in the context of other resource adequacy reforms recommended by the ESB.

Figure B.1: MT PASA enhancements in the context of other ESB resource adequacy and ageing thermal reforms



Source: ESB post 2025 market design final advice to Energy Ministers Part B, 27 July 2021, page 20.

The ESB's objective for this recommendation is to bolster current exit arrangements to help manage orderly exits as the power system transitions. The ESB noted that the changes to the MT PASA process increases information around mothballing and seasonal shutdowns by providing greater transparency around when generators will be available to supply, and the lead time required for recall from an outage.

ESB described the costs and benefits of their recommendation in the table below:

Table B.1: Costs and benefits outlined by ESB

	BENEFITS:	COSTS
Reasons	<ul style="list-style-type: none"> Implemented with minimal changes to NER Simple, automated, and transparent means of collecting 	<ul style="list-style-type: none"> Requires clear definitions of individual reason codes Requires scheduled generators to submit reason codes

	BENEFITS:	COSTS
	<ul style="list-style-type: none"> and reporting participant information • Clear compliance obligations for participants to update immediately once decisions to change unit availability are made • International precedent for use of IEEE Std 762-2006, tailored to a domestic context • Improve information to support the AER's monitoring functions and compliance assessment 	<ul style="list-style-type: none"> • Additional reporting by AEMO (if not automated) • Updates required to AEMO procedures and guidelines • Anticipated low/medium implementation and ongoing costs for AEMO/participants
Recall times	<ul style="list-style-type: none"> • Implemented with minimal changes to NER • Provides more granular information to all stakeholders including how existing participants availability may change if units are recalled • Avoids automated publishing of additional reliability runs, however provides for greater flexibility in modelling sensitivity analysis of real-world outcomes • Allows for submission of a range of recall times, capturing a variety of operational cases • Improve information to support the AER's monitoring functions and compliance assessment 	(same as above)

Source: ESB, *post 2025 market design final advice to Energy Ministers Part B*, 27 July 2021, page 25-26

The idea of additional MT PASA modelling runs with alternative prescribed recall times (e.g. 7 days, 1 month) was discussed as part of the ESB's April consultation paper. However, in its final advice to Energy Ministers, the ESB noted that setting prescribed recall times for such modelling may misrepresent the variety of possible scenarios and not provide useful insight into potential reliability outcomes.⁶⁵ ESB also noted that additional modelling runs would

⁶⁵ ESB *post 2025 market design final advice to Energy Ministers Part A*, 27 July 2021, page 27. The document can be found here: <https://esb-post2025-market-design.aemc.gov.au/32572/1629945809-post-2025-market-design-final-advice-to-energy-ministers-part-b.pdf>

require AEMO resourcing and given the unclear benefits to the market, ESB recommended the collection and publication of reason codes and recall times to supplement to MT PASA modelling runs instead of being an input.

The ESB did not recommend implementing the other changes that were considered in the April Options paper. The options and reasons for not recommending them are listed below.

- **Amending AEMO's Generator Information Survey (GIS)**, in order to collect additional information from generators. **ESB did not recommend this option** given the GIS's focus on longer term reliability and manual collection.
- **Expanding the notice of closure requirements** to include mothballing such that any significant early withdrawal of capacity from the market in the notice period requires an exemption. **ESB did not recommend this option** given stakeholders consider the existing notice of closure exemption arrangements to be sufficient to manage early exits and the information captured through the proposed changes to MT PASA may be used by the AER as part of its existing monitoring functions and inform its assessment of compliance under the current notice of closure arrangements.
- **Establishing an Integrated process to manage early exit:** a System and Market Impact Assessment framework would consider the operational risks and challenges to reliability and security and likely impact on wholesale prices that may arise from an earlier closure of certain designated coal and gas fired generators. If all other potential alternative options have been exhausted, an Orderly Exit Management Contract would be used as a last resort.⁶⁶ **ESB did not recommend this option** because the benefit of implementing a new prescriptive exit process was incremental at best and it came with considerable costs and additional regulatory burden and had the potential to undermine the role of the market.⁶⁷

The ESB referenced stakeholder feedback as the key reason for not recommending these options stating that:

"Stakeholders were generally supportive of the concept of increased information provision in relation to orderly exit. However, many submissions noted that additional provisions targeting mothballing and/or seasonal shutdowns could easily become onerous and a barrier to efficient operational decisions by diminishing the flexibility of participants to operate their plant in response to prevailing market dynamics. Further, stakeholders consider the existing notice of closure exemption arrangements to be sufficient to manage early exits and largely opposed broadening the current exemption from notice process to include mothballing."

⁶⁶ Orderly Exit Management Contracts are bilateral arrangements (usually between a government and a closing generator) that help to ensure that generator does not exit the system until sufficient capacity can be brought online to replace it. The terms of these contracts are bespoke. See the explainer document relating to the resource adequacy mechanisms and ageing thermal retirement reforms here: <https://www.energy.gov.au/government-priorities/energy-ministers/priorities/national-electricity-market-reforms/post-2025-market-design>

⁶⁷ While the ESB did not make a recommendation for the use of orderly exit management contracts, it proposed that certain jurisdictional investment scheme principles should apply to them where they were used. National Cabinet has endorsed Energy Ministers' decision for further consideration of these contracts. This work will be carried out by the ESB, and will need to complement the design work on a capacity mechanism. See: <https://www.energy.gov.au/government-priorities/energy-ministers/priorities/national-electricity-market-reforms/post-2025-market-design>

The ESB acknowledges the concerns of stakeholders and considers that changes to the notice of closure requirements should:

- 1. ensure any changes are sufficiently flexible to adapt to a changing environment,*
- 2. establish where possible simple, automated, and transparent means of collecting and reporting participant information, and*
- 3. avoid undue regulatory burden on participants, market bodies and jurisdictions.”⁶⁸*

⁶⁸ ESB post 2025 market design final advice to Energy Ministers Part A, 27 July 2021, page 25. The document can be found here: <https://esb-post2025-market-design.aemc.gov.au/32572/1629945809-post-2025-market-design-final-advice-to-energy-ministers-part-b.pdf>

C CURRENT ARRANGEMENTS FOR MT PASA

PASA is a key part of the reliability framework in the NEM. It is one component of the information that AEMO must publish to inform the market of prevailing and forecast conditions, and when reserves may be running low, to elicit a market response. PASA is AEMO's principal method of forecasting the adequacy of the power system to stay within the reliability standard i.e. will there be enough supply to meet forecast demand? It is a requirement under the NER that AEMO administer PASA processes.⁶⁹ To determine if there is sufficient capacity expected to be available to meet forecast demand over the medium term (2-3 year) time horizon, AEMO employs the medium term PASA process.

Under the current MT PASA process, AEMO collects the capacity that each dispatch unit can make available given 24 hours of notice.⁷⁰ Participants submit their expected plant availability for the next 36 months and are required to update their PASA submission on an ongoing basis to ensure it matches their current intentions and best estimates. AEMO produces 50% probability of exceedance (POE) and 10% POE demand forecasts for the next 24 months. These two forecasts and other information (from TNSPs and MNSPs, weather, wind, etc) are then combined to assess a number of factors including the likelihood of the reliability standard being breached and the probability of lost load on a given day.⁷¹ The process for assessing any projected failure to meet the reliability standard is detailed in AEMO's RSIG.⁷²

AEMO collects availability information from participants and publishes the MT PASA once a week, with daily resolution and a 24-month forecast horizon. Additional to this, they also publish availability by dispatch unit over a 36-month forecast horizon, again with a daily resolution.⁷³ Participants use this information to assist them in their operational and investment decision-making, most commonly for outage scheduling.

69 NER Clause 3.7.1 (a)

70 The PASA availability, as defined in the NER Chapter 10

71 For more detail on the inputs prepared by AEMO for MT PASA, see NER Clause 3.7.2 (c)

72 The RSIG sets out how AEMO will implement the reliability standard and the interim reliability measure. More detail on what they cover can be found in NER Clause 3.9.3D

73 For more detail on the information published by AEMO for MT PASA see NER Clause 3.7.2